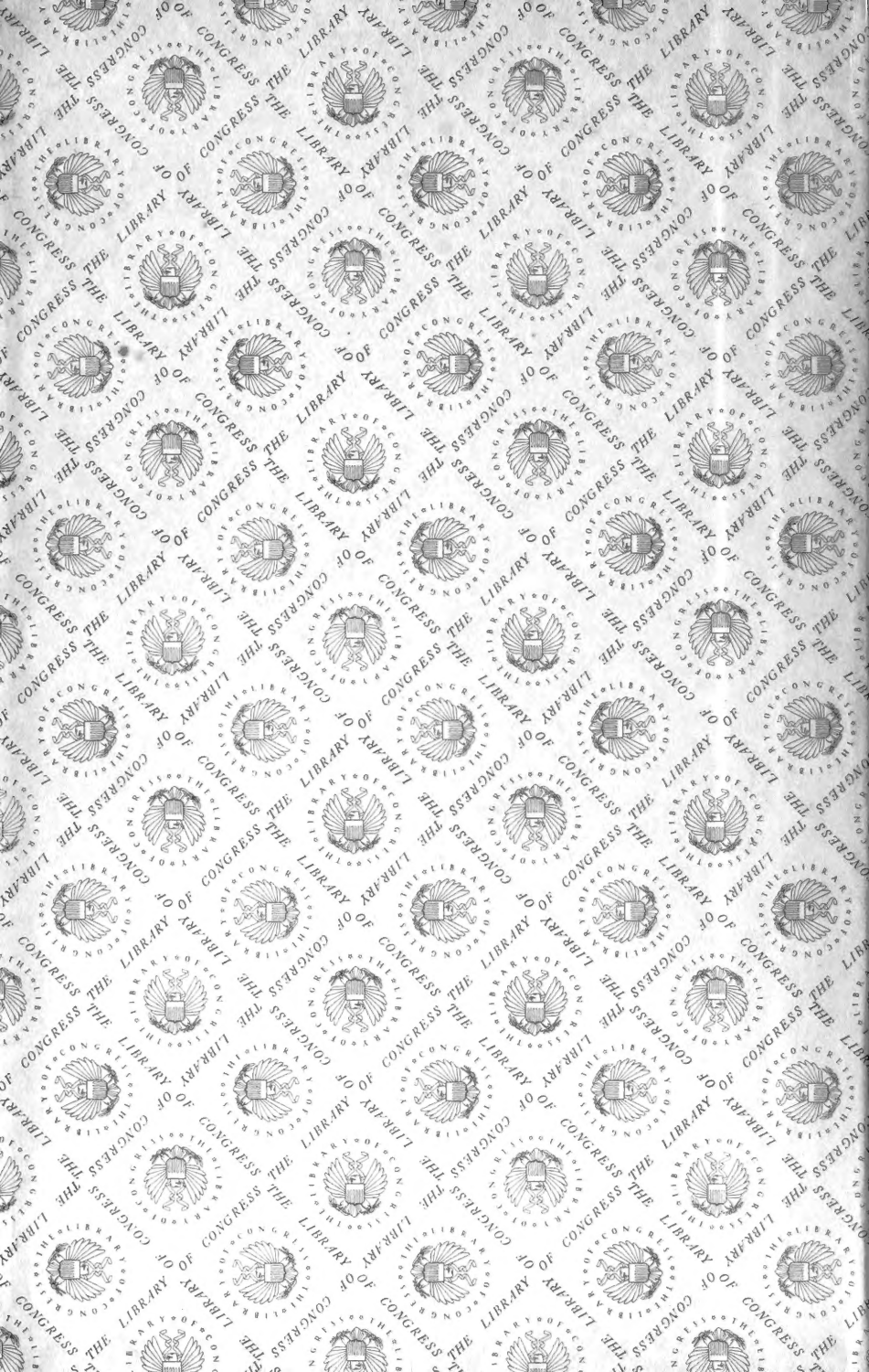
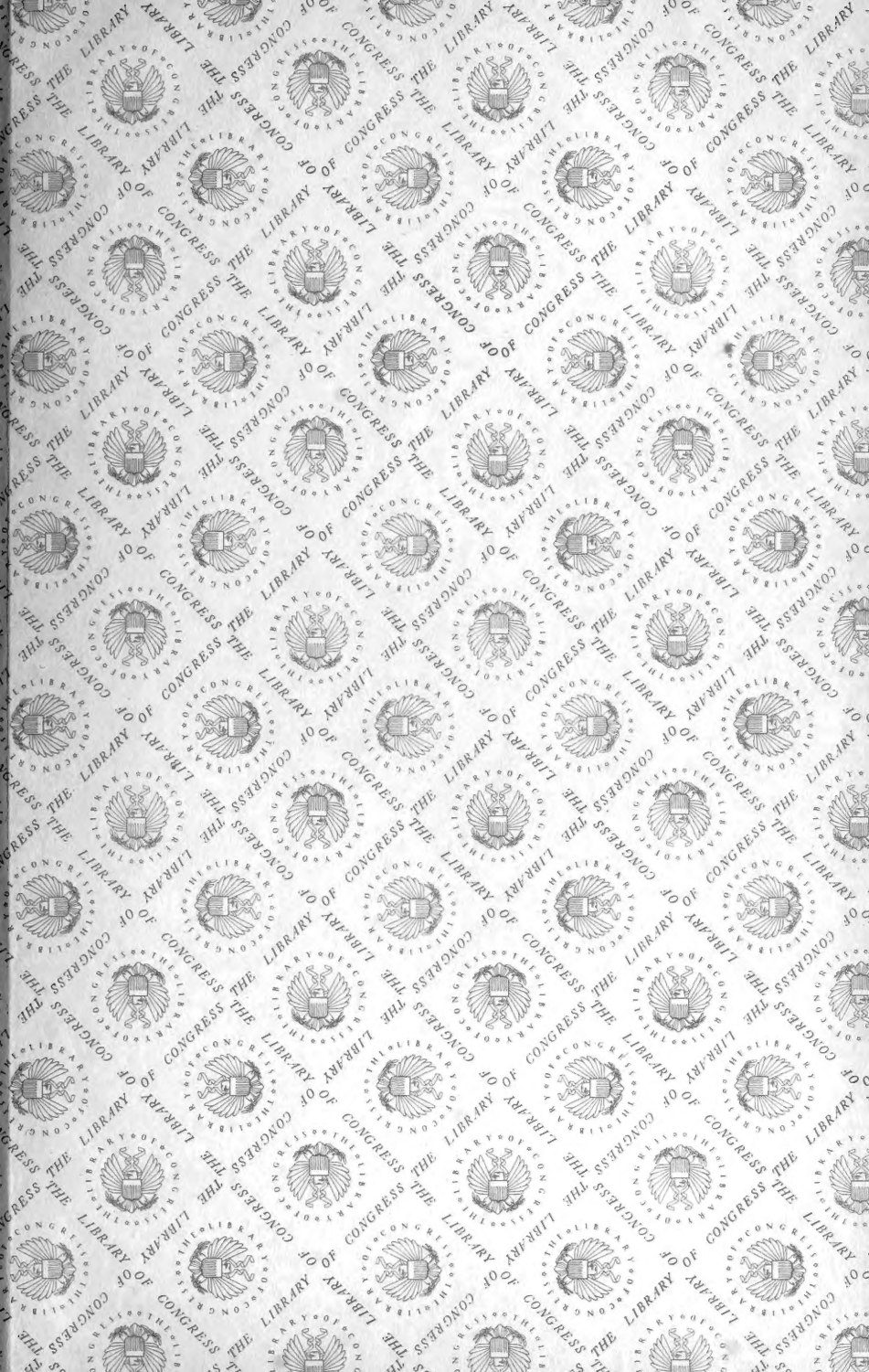


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MARYLAND SHELL FISH COMMISSION  
UNITED STATES BUREAU OF FISHERIES  
UNITED STATES COAST AND GEODETIC SURVEY

# SURVEY OF OYSTER BARS OF MARYLAND 1906-1912

By

CHARLES YATES

REPRESENTATIVE OF UNITED STATES COAST AND  
GEODETIC SURVEY ON WORK OF  
MARYLAND OYSTER SURVEY

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24C, Mar. 30, 1913

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
O. H. TITTMANN, Superintendent

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SUMMARY  
OF  
SURVEY OF OYSTER BARS  
OF  
MARYLAND  
1906-1912

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By C. C. YATES  
Representative of the United States Coast and Geodetic Survey  
on the work of the Maryland Oyster Survey



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1913

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## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE,  
COAST AND GEODETIC SURVEY,  
*Washington, May 23, 1913.*

SIR: I have the honor to transmit herewith the final report of the officer detailed from the United States Coast and Geodetic Survey as representative of that service on the work of the Maryland Oyster Survey.

The report, together with its accompanying index chart, is designed to serve both as a summary of and as an index to the 17 technical publications and 43 oyster charts resulting from the cooperation of the Maryland Shell Fish Commission, the United States Bureau of Fisheries, and the United States Coast and Geodetic Survey in the survey of the oyster resources of Maryland.

The work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the Shell Fish Commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, 1909, 1910, 1911, 1912, and 1913.

Respectfully,

O. H. TITTMANN,  
*Superintendent.*

TO HON. WILLIAM C. REDFIELD,  
*Secretary of Commerce.*



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# SUMMARY OF SURVEY OF OYSTERS BARS OF MARYLAND, 1906-1912.

## INTRODUCTORY STATEMENTS.

### EXPLANATION OF PLAN OF PUBLICATION.

It often happens that the rapid progress of modern science, even when specialized by application to a single class of work, is the indirect cause of an accumulation of technical publications impossible to assimilate and apply to a special case without an amount of labor all out of proportion to the probable benefits to be derived. And this applies with particular force to the six years' work of the Maryland Oyster Survey, as evidenced by its publications consisting of a series of 17 official documents and 43 large-scale charts aggregating over 2,400 printed pages and 400 square feet of chart area.

For reasons similar to those just mentioned, the value of a modern technical publication describing a particular work is for a greater part dependent upon the fidelity with which it is confined to a record of methods and results which can be utilized in future operations of like character. And this end has been accomplished with remarkable success for the work of the Maryland Oyster Survey by Dr. Caswell Grave of Johns Hopkins University and a member of the Maryland Shell Fish Commission from 1906 to 1912, in his Fourth Report of the Shell Fish Commission of Maryland. (*XLIII*).<sup>1</sup>

The intent of this "Summary" is to supplement Dr. Grave's report, first, by an index chart which also serves as a graphical summary; second, by a brief explanation of the relation of the work of the Government to the Maryland Oyster Survey; third, by a summary of the essential features of the work of the Maryland Oyster Survey; fourth, by a statement of conclusions thought to be of value for use in connection with future oyster surveys; fifth, by a list of publications relating to the oyster industry of Maryland; and, sixth, by a technical index to all publications of the Government and the State directly resulting from the work of the Maryland Oyster Survey.

### INDEX CHART AS A GRAPHICAL SUMMARY.

The best summary and index of the six years' work of the Maryland Oyster Survey, and probably the most useful and interesting feature of this publication, is the "Index Chart" in the folder.

The chart is self-explanatory as to details. But other considerations suggest that attention be directed to the magnitude of the shellfish resources of Maryland and to the magnitude of the actual work of the survey as indicated graphically by

<sup>1</sup> See "References," p. 19.

the green and red tinted areas on the water, the numerous small red triangles on the land, and the limits of the many large-scale charts required to represent these results in a practical form for future use.

#### RELATION OF THE WORK OF THE GOVERNMENT TO THE MARYLAND OYSTER SURVEY.

The Maryland Oyster Survey possessed the somewhat unusual character of having in its participants three separate Government bureaus and one State commission,<sup>1</sup> all engaged in a common work leading to the conservation and the increase of the supply of food in the form of oysters.

In priority of the Government's interest in the subject of oysters, it is so self-evident that the United States Bureau of Fisheries comes first that this phase of the subject requires no explanation. (*IX, X, XI, XII, XIII, etc.*)<sup>2</sup> And the connection of the work of the United States Bureau of Chemistry with the sanitary conditions of the oyster industry is made equally evident by the fact that it is this Bureau which administers the pure-food laws of this country. (*XXXV.*)<sup>2</sup> But the relation of the United States Coast and Geodetic Survey to such work is not so easy to explain. (*XXXIV.*)<sup>2</sup>

The United States Coast and Geodetic Survey includes among its many functions not only the supplying of the chart-making needs of navigation, but also the laying of the geodetic foundation for a large part of the geographic work of our country; and it naturally follows that this foundation part of an "oyster survey" should be laid by the institution normally performing this class of work. Just as in a similar sense, it is better and more economical to have the foundation of a building laid by those experienced in such work, even though in the end it is the superstructure erected on the foundation which is utilized and appreciated by the public.

Or stated in another way, it is only a question of the practical connection between the work of the United States Coast and Geodetic Survey in surveying and charting the waters of the coasts for the purposes of navigation, and the work of a so-called "oyster survey" in surveying and charting the oyster bottoms of these same waters of these same coasts for the purpose of developing the oyster industry of our country.

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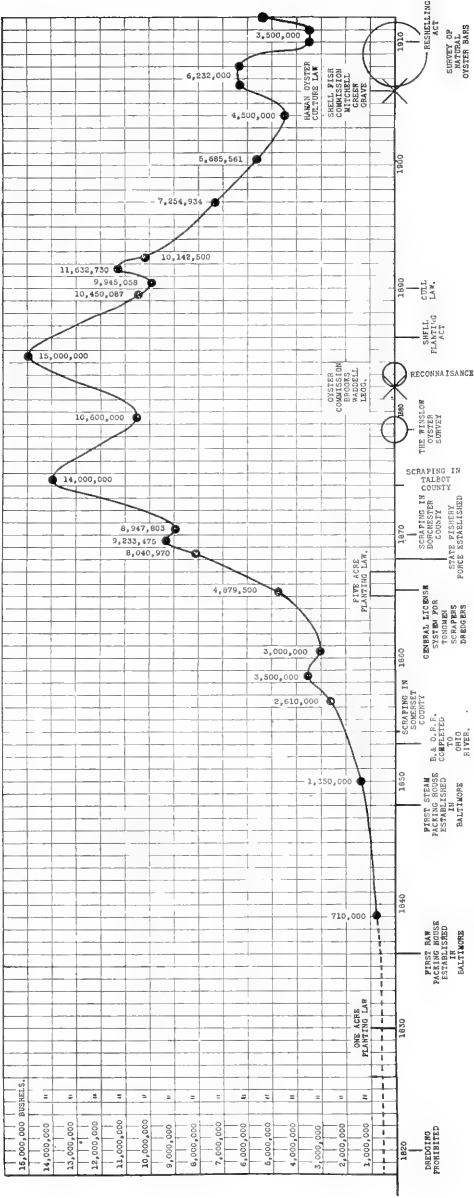
<sup>1</sup> U. S. Bureau of Fisheries, U. S. Coast and Geodetic Survey, U. S. Bureau of Chemistry, and Maryland Shell Fish Commission.

<sup>2</sup> See "References," p. 19.





Diagram Showing the History of Oyster Production and Oyster Legislation in Maryland.



## MARYLAND OYSTER SURVEY.

### HISTORY.

A summary view of the history of the oyster industry of Maryland is graphically represented by the diagram by Grave, which faces this page. (XXXVI.)<sup>1</sup>

Another summary view of the same subject is presented by the chronological table of publications under the head of "References,"<sup>1</sup> which were selected and arranged partly for that purpose.

The diagram and the table of publications, while being in most respects a sufficient historical statement for the purposes of this publication, do not do justice to the many whose unselfish activities for the benefit of the oyster industry of Maryland have not followed the line of public work leading to a corresponding amount of printed records. And although these public-spirited citizens and officials are hundreds in number, there stands out at the head of this line of achievement, as do Brooks (V)<sup>1</sup> and Winslow (II)<sup>1</sup> along their respective lines, the author<sup>2</sup> of the Haman Oyster Culture Law (XLIII, pp. 353-372)<sup>1</sup> who has most splendidly and persistently led the movement which has molded the history of oyster culture in Maryland for more than twenty years down to the present time. (VII.)<sup>1</sup>

### OBJECT.

The immediate object of the Maryland Oyster Survey, as distinguished from the hopes of the ultimate benefits to be derived from that work, having been transformed into actual results, it is needless to emphasize this phase of the subject beyond referring to the statistical statements under the head of "Results" and to the graphic representation of these same facts on the "Index Chart."

But the ultimate object of the survey is another matter, and deals more nearly with what the pioneers of the oyster-culture movement in Maryland believed, and now have still more reason to believe, will be the form of the great oyster industry they expect to see erected on the foundation which has been laid for that purpose. (VII.)<sup>1</sup>

It now seems not only reasonable but probable that within the next generation the citizens of Maryland will be leasing and cultivating a probable 100,000 and a possible 300,000 acres<sup>3</sup> of so-called "barren bottoms" where oysters do not now grow in commercial quantities; that the more than 200,000 acres of natural oyster bars now reserved for the use of the oystermen as a result of the Maryland Oyster Survey will be so conserved and developed that they will produce, as they have done before, twice the amount they now yield; that the oyster industry of Maryland will then be based on an annual production of 20,000,000 bushels of oysters where now it is

<sup>1</sup> See "References," p. 19.

<sup>2</sup> B. Howard Haman, of Baltimore, Md.

<sup>3</sup> At the present date, May 23, 1913, some 36,000 acres have been applied for or leased.

barely 5,000,000; and that the physical valuation of the State-owned oyster lands will then be \$100,000,000, where now it is not more than \$20,000,000. (*XXIV*, p. 208; *XLII*, pp. 35-46; *XLV*.)<sup>1</sup>

These are the large expectations that measured, and do still measure, the ultimate object of the Haman Oyster Culture Law, and which led to the building of the Maryland Oyster Survey in such a manner that it will serve as a foundation for even a greater development of the oyster industry of Maryland than was forecasted by its founders.

#### ORGANIZATION.

The organization of the Maryland Oyster Survey has been indicated in the "Introductory statements" and in the "Conclusions." It is also described in detail in the publications of the Maryland Shell Fish Commission (*XLIII*, pp. 11-25)<sup>1</sup> and the United States Coast and Geodetic Survey (*XLIV*, pp. 19-21, 248-250).<sup>1</sup>

In a general way it is sufficient to state that the greater bulk of the work of this particular oyster survey was divided between the Maryland Shell Fish Commission<sup>2</sup> and the United States Coast and Geodetic Survey in accordance with the laws (*XLIV*, pp. 243-246)<sup>1</sup> authorizing the work and the natural division of the surveying operations of the cooperating forces.

The work of the Maryland Shell Fish Commission included all the oyster investigations, the special hydrographic operations required to delimitate the various shellfish bottoms, the surveying of the leased oyster lots, and all administrative matters pertaining to Maryland. The work of the United States Coast and Geodetic Survey included the establishing of the surveying foundation of triangulation, hydrography and topography, the preparation and publication of the technical and legal descriptions of the boundaries of the various shellfish bottoms reserved for the use of the public, and the preparation and publication of all the oyster charts showing the results of the work of the Maryland Oyster Survey.

Dr. H. F. Moore, the well-known scientist of the United States Bureau of Fisheries and representative of that bureau on the work of the Maryland Oyster Survey, has stated that "the Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose." To which should be added in the way of explanation, that the part of the survey normally coming under the jurisdiction of the United States Bureau of Fisheries was in this case carried on by the State under the supervision of Dr. Caswell Grave, the scientific member of the Maryland Shell Fish Commission. If it had not been for this fortunate circumstance, to again quote Dr. Moore, "this work would have been conducted by the Bureau of Fisheries acting independently, as has been the case in certain other States than Maryland, the same ends being attained at greater expense to the Government." (*XLIV*, p. 20.)<sup>1</sup>

It should be stated also that the sanitary survey of the oyster-producing waters of Maryland by the United States Bureau of Chemistry was not carried on with the advantage of the same degree of cooperation as probably would have been the case if the character of this feature of the work could have been more nearly forecasted at the beginning. (*XXXV*.)<sup>1</sup>

<sup>1</sup> See "References," p. 19.

<sup>2</sup> See "Personnel," p. 14.

## METHODS.

The methods employed on the work of the Maryland Oyster Survey being indicated in outline in the "Conclusions" and also explained in detail in the publications of the Maryland Shell Fish Commission (*XLIII*, pp. 48-95)<sup>1</sup> and the United States Coast and Geodetic Survey (*XLIV*, pp. 248-249, 172-177, 33-36, 20-21),<sup>1</sup> it is not in harmony with the plan of this publication to repeat that information here.

But there is one point in the methods not adequately explained elsewhere in the publications of the Maryland Oyster Survey which it is believed should be emphasized. And that point relates to the advantages of the use of geographic coordinates in technically and legally defining boundaries of natural oyster bars and leased oyster bottoms.

This method of defining property lines under water was also used in the survey of the leased oyster bottoms of Delaware, and outlined in the following extract from the report of that work (*XLVIII*, pp. 69-74):<sup>1</sup>

The difficulties of accurately locating and permanently defining the boundaries of a farmer's plantation on land, even with the aid of monuments, public roads, streams of water, and other points of reference, are often great, judging from the disputes arising from this source. But be that as it may, there can be no doubt as to the difficulties of accurately locating and permanently defining the boundaries of an oysterman's plantation situated under water at a distance off shore from 1 to 6 miles, as is the case with the leased oyster bottoms of Delaware. (*XLVIII*, map.)<sup>1</sup>

There is only one point on the earth's surface at the intersection of any one parallel of latitude and any one meridian of longitude, and therefore, there can be no dispute as to the meaning of such a geographic definition of the location of a point, even though all the original triangulation station marks used in its determination, together with the chart on which its position was originally plotted, have been totally destroyed.

In the case of the destruction of an original triangulation station mark, or any other point defined by a geographic position, a competent geodetic engineer can reestablish its exact location by means of a new system of triangulation connecting with other distant triangulation station marks which have not been destroyed. In the case of the destruction of the chart on which the position of any such point on the earth's surface was originally plotted, this point can be replotted by its geographic position with any degree of accuracy permitted by the scale of any new chart constructed for that purpose.

If there be no question at the time of the original location and legal adoption of a geographic definition of the location of a point by a given latitude and longitude, there can be no technical or legal question afterwards as to its exact meaning, or as to the exact redetermination of the location of this point, be it either on land or water at its newly determined position, or on a new chart in its newly plotted position.

For these reasons, the method of defining the location of boundary points by latitudes and longitudes (geographic positions) was adopted in the survey of the leased oyster bottoms of Delaware. This method is more or less an innovation in oyster surveys which was first used in connection with the work of the Maryland Oyster Survey. It possesses so many undoubted advantages, and at the same time is so simple in principle and application when once understood, that its adoption by other oyster surveys of other States than Maryland and Delaware seems probable.

## RESULTS.

The results of the Maryland Oyster Survey are presented in many forms and in many places throughout the publications of that survey.

Graphically, they are represented on a large scale on the Maryland Oyster Charts, Nos. 1 to 42. (*LIV*.)<sup>1</sup> On a medium-sized scale, they are partly shown on

<sup>1</sup> See "References," p. 19.

the "Progress maps" in the series of the 12 county publications of Survey of Oyster Bars of Maryland.<sup>1</sup> On a much smaller scale they are represented as a whole on the "Index Chart" in the folder of this publication.

Statistically, the results are also described in various tables both in the publications of the Maryland Shell Fish Commission (*XLIII*, pp. 39-47, 102-103, 114-117, 126-127, 132, 145-149, 182-183, 189, 195-199, 206-210, 225-228, 239-241, 246, 321-322, 336-339)<sup>1</sup> and the United States Coast and Geodetic Survey (*XVIII*, pp. 18-19; *XX*, p. 15; *XXII*, p. 16; *XXVI*, p. 16; *XXVIII*, pp. 22-23; *XXX*, p. 14; *XXXII*, p. 14; *XXXIX*, p. 18; *XL*, p. 21; *XLIV*, p. 25; *XLVI*, pp. 23, 180).<sup>1</sup> But as these tables are too separated for the purposes of a summary view, their principle features will be given in groups of statistics arranged in accordance with the class of the results it is desired to present.

STATISTICS OF RESULTS PERTAINING TO SHELLFISH BOTTOMS RESERVED FOR PUBLIC USE.

	Acres.
Natural oyster bars surveyed, technically defined, and reserved for the use of the public.....	215, 845
Crab bottoms surveyed, technically defined, and reserved for the use of the public.....	43, 991
Clam beds surveyed, technically defined, and reserved for the use of the public.....	506

STATISTICS OF RESULTS PERTAINING TO OYSTER BOTTOMS SUITABLE FOR OYSTER CULTURE.

	Acres.
Undeveloped, but known productive oyster culture bottoms owned by the State and subject to lease under the terms of the Haman Oyster Culture Law.....	100, 000
Undeveloped, but estimated as being potentially productive oyster culture bottoms owned by the State and subject to lease under the terms of the Haman Oyster Culture Law.....	200, 000
"Barren bottoms" of doubtful value for the growth of oysters, although in waters sufficiently salt for the purpose and subject to lease under the terms of the Haman Oyster Culture Law.....	460, 000

STATISTICS OF RESULTS PERTAINING TO SURVEYING DATA USEFUL FOR SURVEY OPERATIONS OTHER THAN OYSTER SURVEYS.

Triangulation stations based on the standard datum of the United States Coast and Geodetic Survey.....	1, 112
Miles of shore line covered by triangulation.....	1, 340
Square miles of water covered by triangulation.....	1, 600
Square miles of land controlled by triangulation.....	1, 200
Miles of soundings <sup>2</sup> .....	3, 060
Soundings <sup>2</sup> .....	159, 530
Square miles of water covered by soundings <sup>2</sup> .....	480
Tide stations established <sup>2</sup> .....	30

OTHER STATISTICS OF FIELD WORK INDICATING THE STANDARD OF THE SURVEYING OPERATIONS ON WHICH THE RESULTS ARE BASED.

Oyster investigation stations occupied for examination of bottoms and other data.....	11, 006
Miles of examination of shell bottoms with chain apparatus.....	3, 060
Triangulation stations occupied.....	1, 050
Boundary buoys located and anchored.....	2, 964
Monuments planted to mark triangulation stations.....	1, 000
Sextant angles observed on sounding lines.....	62, 600

<sup>1</sup> See "References," p. 19.

<sup>2</sup> This part of the work was done under the immediate direction of Swepson Earle, Hydrographic Engineer of the Maryland Shell Fish Commission.

## STATISTICS OF OFFICE WORK INDICATING CHARACTER OF RESULTS.

Hydrographic positions plotted.....	8,600
Large-scale projections prepared, showing legal boundaries of shellfish bottoms.....	87
Geographic positions of triangulation stations computed.....	1,100
Large-scale leasing charts prepared.....	63
Triangles computed.....	2,500
Description of triangulation stations prepared for publication.....	1,112
Back azimuths and distances from corners of boundaries to triangulation stations computed.....	10,000

## STATISTICS OF PUBLICATIONS INDICATING QUANTITY OF WORK.

Reports of Maryland Shell Fish Commission.....	4
Printed pages in Maryland Shell Fish Commission reports.....	900
Publications of the United States Coast and Geodetic Survey.....	13
Printed pages in the United States Coast and Geodetic Survey publications.....	1,560
Progress maps in United States Coast and Geodetic Survey publications.....	12
Oyster charts showing boundaries of shellfish bottoms published by United States Coast and Geodetic Survey.....	43

## EQUIPMENT.

The equipment for the work of the Maryland Oyster Survey is fully described in the publications of the Maryland Shell Fish Commission (*XLIII*, pp. 34-36)<sup>1</sup> and the United States Coast and Geodetic Survey (*XVI*, pp. 102-104).<sup>1</sup>

In a general way it may be stated that the equipment was ample and satisfactory, especially in respect to the large living and office quarters on the Maryland Shell Fish Commission houseboat *Oyster* (*XLIII*, p. 35)<sup>1</sup> and the equipment of instruments furnished by the United States Coast and Geodetic Survey for both the work of the Government and State.

## COST.

On account of the divided administration that naturally goes along with cooperative work of several independent institutions, the problem of fixing the cost of the six years' work of the Maryland Oyster Survey presents many difficulties. But Dr. Grave in the "Fourth Report of the Shell Fish Commission of Maryland" (*XLIII*, p. 33)<sup>1</sup> has placed the figure at something more than a total of \$200,000 for all the work of both the Government and the State.

Accepting \$200,000 as the cost of the Maryland Oyster Survey, the following deductions will be of interest:

The total area of the tidewaters of Maryland covered by the Maryland Oyster Survey, including natural oyster bars, crab bottoms, clam beds, bottoms suitable for oyster culture, and all other bottoms interspaced between these shellfish areas, is approximately 1,600 square miles, or 1,020,000 acres. This makes the cost of surveying and charting this area approximately \$125 a square mile, or 20 cents an acre.

The total annual production of oysters in Maryland is now approximately 5,000,000 bushels, and the estimated ultimate production is 20,000,000 bushels. This makes a total cost of 1 cent per bushel for the estimated ultimate annual yield of the oyster industry to be operated on the surveying basis established by the

<sup>1</sup> See "References," p. 19.

Maryland Oyster Survey, or 1½ cents per bushel for the predicted 15,000,000-bushel increase in annual production.

The total physical valuation of the oyster industry of Maryland is estimated as being now approximately \$20,000,000, and the predicted ultimate valuation has been placed at \$100,000,000. This makes the cost of the Maryland Oyster Survey one-fifth of 1 per cent of the predicted ultimate value of the oyster industry to be based on that work, or one-quarter of 1 per cent of the predicted increase in valuation. (*XLII, XLV*).<sup>1</sup>

#### CHRONOLOGICAL STATEMENT.

The chronological account of the six years' work of the Maryland Oyster Survey occupies many pages of both the publications of the Maryland Shell Fish Commission (*XLIII*, pp. 9-24, 37-38)<sup>1</sup> and the United States Coast and Geodetic Survey (*XVI*, pp. 104-105; *XVIII*, pp. 17-18; *XX*, pp. 14-15; *XXII*, p. 15; *XXVI*, pp. 15-16; *XXVIII*, pp. 21-22; *XXX*, pp. 13-14; *XXXII*, p. 13; *XXXIX*, pp. 17-18; *XL*, pp. 19-20; *XLIV*, pp. 23-25; *XLVI*, pp. 22-23).<sup>1</sup> For the purposes of this publication it is thought that it will be sufficient to give a table of the dates of the beginning of the field work and the closing of the office work for each county. The dates of the close of office work also being the dates of the filing of the certified charts and reports marking the legal opening of each county for the purpose of oyster culture under the provisions of the Haman Oyster Culture Law.

County	Beginning of field work	Close of office work and date of filing of certified charts and reports
Anne Arundel	June 29, 1906	June 20, 1907
Somerset	May 2, 1907	July 1, 1908
Wicomico	Aug. 27, 1907	Dec. 1, 1908
Worcester	Nov. 8, 1907	Apr. 12, 1909
Calvert	May 2, 1908	Dec. 14, 1909
Charles	Aug. 13, 1908	Jan. 27, 1911
St. Marys	May 2, 1908	July 6, 1911
Baltimore	Apr. 14, 1909	Aug. 10, 1911
Kent	Apr. 14, 1909	Oct. 5, 1911
Queen Annes	Apr. 14, 1909	Nov. 29, 1911
Talbot	July 6, 1909	July 20, 1912
Dorchester	Mar. 14, 1910	Aug. 17, 1912

#### PERSONNEL (1906-1912)

The following list of those directly connected with the work of the Maryland Oyster Survey, either as executives or technical experts, is given for purposes of reference only. So much could be said that is fine and true of the character and spirit of the work of many who were directly and indirectly connected with the six years' operations of the Maryland Oyster Survey, and the desire to say it is so great, that under the circumstances the only practical course in a summary publication of this sort is to omit all such comments. (*XLIV*, pp. 25-26; *XLIII*, pp. 11-25; *XXXIV*, p. 13).<sup>1</sup>

<sup>1</sup> See "References," p. 19.



STATE OF MARYLAND.

*Maryland Shell Fish Commission.*

*Commissioners.*

WALTER J. MITCHELL (1906-1912).  
 CASWELL GRAVE (1906-1912).  
 BENJAMIN K. GREEN (1906-1912).

*Chief Engineer.*

SWEPSON EARLE (1906-1912).

*Assistant Engineers.*

W. GIBSON EMORY (1906-1908).  
 ERNEST REPPENHAGEN (1907-1909).  
 T. H. GRAVE (1907-1911).  
 H. A. MARSTON (1908-1910).  
 H. E. COLLINS (1910).  
 HUGH MITCHELL (1909-1912).

U. S. DEPARTMENT OF COMMERCE.

U. S. BUREAU OF FISHERIES.

*Representative of Bureau,*

H. F. MOORE (1906-1912).

U. S. COAST AND GEODETIC SURVEY.

*Representative of Survey.*

C. C. YATES (1906-1912).

*Assistant Engineers.*

FRANK W. SETH (1906-1912).  
 E. A. BORST (1906, 1907, 1909).  
 N. L. ARBUCKLE (1906-1910).  
 PAUL C. WHITNEY (1907).  
 J. J. PHELAN (1907-1910).  
 TEMPLETON VAN DE BOGERT  
 (1911, 1912).  
 T. H. GRAVE (1911).

*Draftsmen.*

JOHN D. TORREY (1906-1911).  
 G. C. MOORE (1906-1911).  
 R. L. ROSS (1911-1912).  
 T. J. STOCKTON (1911).  
 GEORGE W. MYERS (1911).

*Special Drafting Work.*

DAVID M. HILDRETH.  
 C. R. THOMPSON.  
 ROBERT F. STORM.  
 J. C. MULFORD.

## CONCLUSIONS.

### GENERAL STATEMENT.

The Maryland Oyster Survey is probably the most extensive and complete work of its kind. And for that reason many of the conclusions resulting from experience gained in that work might be of public interest. But in harmony with the plan of this publication only those will be given which are thought to be of special value for use in connection with the consideration of future surveys of similar character.

The primary object of an oyster survey from a national point of view is to conserve and increase the national supply of food. And before this can be done intelligently and economically it is evident that an inventory (or a survey as it is more commonly called) of the oyster resources under investigation must be made and recorded on charts and in other forms. (*XXIII, LIV.*)<sup>1</sup>

As distinguished from a national point of view, the object of an oyster survey of a particular State or locality naturally partakes more of the character of a desire to develop the wealth of that State or locality by increasing its oyster industries or by revenues obtained from the leasing of the land underneath its oyster-producing waters. And like the Government, it is evident that a State can not accomplish these objects intelligently and economically without first having a survey made of its oyster resources. (*XLIII, XLVIII.*)<sup>1</sup>

Considered from both these points of view, the cooperation of the General Government with a State government appears to be not only a legitimate and an economical arrangement, but also the best method of conducting an oyster survey.

### REQUIREMENTS OF AN OYSTER SURVEY.

From the Government standpoint, the chief requirements of an oyster survey appear to be:

First. The representation on charts of the bottoms of the oyster-producing waters in such a manner as to show not only the limits of the natural growth of oysters as to locality and quantity, but also such other related information about these areas and the contiguous bottoms as will best indicate their value for the purpose of oyster culture. (*XXIII, XLIX, LIV.*)<sup>1</sup>

Second. A more detail description of the oyster bottoms than can be shown by symbols on the charts, and such other information as to the saltness of the water, the quantity and quality of the oyster food in the water, currents, tides, surrounding sanitary conditions, character of bottom, etc., as affect the growth and value of oysters. (*X, XXXV, XLI, XLIX.*)<sup>1</sup>

Third. The carrying on of the oyster survey in such a manner that whenever it is economical to do so the results of certain parts of the surveying operations made necessary by the requirements of the oyster survey can be utilized as a geographic

<sup>1</sup> See "References," p. 19.

foundation for chart-making surveys, mapping of the adjacent land regions, river and harbor improvements, etc. (*XXIX*; *XLIV*, pp. 36-171; *XLVIII*, pp. 59-68.)<sup>1</sup>

From the State or local standpoint the desirable requirements of an oyster survey, in addition to those just stated, appear to be:

First. The well-defined representation on published charts, in a more or less arbitrary form, of the so-called "natural oyster bars" which are to be reserved for the use of the public by reason of ancient customs, public sentiment, or the laws of the State in which they are located. (*LIV*.)<sup>1</sup> And a similar well-defined representation on published charts of the boundaries of the bottoms leased from the State by private individuals for the purpose of oyster culture. (*XLVIII*, map.)<sup>1</sup>

Second. A more detail, technical, and legal description of the boundaries of these public natural oyster bars (*XLIV*, pp. 172-242)<sup>1</sup> and private leased oyster bottoms (*XLVIII*, pp. 69-108)<sup>1</sup> than can be secured by their representation on the charts, in order that the State can furnish an easily defined and incontestible title to those oyster bottoms it may desire to lease for the purposes of revenue or for the encouragement of oyster culture.

Third. The representation of the information obtained by the oyster survey in such a manner, both on charts and in publications, as will best combat the obstacles due to ignorance, prejudice, and politics, which are always to be found, to a greater or less extent, in every locality where oyster culture is in progress or being contemplated. (*VII*, *XXIX*, *XXXIV*, *XXXVI*, *XXXVII*, *XXXVIII*, *XLI*, *XLII*, *XLV*, *LIII*.)<sup>1</sup>

#### SUGGESTED ORGANIZATION OF AN OYSTER SURVEY.

A complete oyster survey includes a part of the normal scientific operations of three separate bureaus<sup>2</sup> of the General Government, and for that reason, as has been previously indicated, an ideal survey of the oyster resources of any one State would involve the cooperation of these three Government bureaus with a State commission especially created for that purpose. (*XXXIV*.)<sup>1</sup>

Arranged in the order of actual operations, and without reference to priority or magnitude of the interests involved, the distribution of the work of the suggested cooperative oyster survey would be as follows:

*United States Coast and Geodetic Survey*.—The establishment of a surveying foundation of triangulation, topography, and hydrography.

*United States Bureau of Fisheries*.—The delimitation of the boundaries of the various classes of oyster bottoms and other scientific operations pertaining particularly to oysters.

*United States Bureau of Chemistry*.—The sanitary survey of the oyster-producing waters.

*State Oyster Survey Commission*.—The marking, defining, and charting of the boundaries of both public and leased oyster bottoms, and the consideration of matters relating to the economic development of the oyster industry to be based on the results of the oyster survey.

<sup>1</sup> See "References," p. 19.

<sup>2</sup> Bureau of Fisheries, Coast and Geodetic Survey, and Bureau of Chemistry.

## COST OF AN OYSTER SURVEY.

There is no one thing more important to either the layman or the engineer than to be able to make some sort of an estimate of the final cost of any engineering work being considered. And while the cost of any such work as the survey of the vast oyster resources of Maryland is information which should be recorded, it is of value chiefly for the means it furnishes for estimating the cost of future engineering works of similar character.

Adopting the figures of Dr. Caswell Grave,<sup>1</sup> the cost of a new oyster survey based on results obtained by the Maryland Oyster Survey would be approximately 20 cents an acre for the entire area to be covered without reference to the various bottoms as finally classified. The legitimate share of the State's expenses being estimated at 11 cents and those of the Government at 9 cents an acre.

In considering the cost of an oyster survey, it should not be forgotten that the benefit to be derived by the Government from such operations would be not only in the form of an increase in the food supply of the country, but also in the form of a surveying foundation suitable for other chart and map making operations, river and harbor improvements, and so forth.

In further explanation it should be stated that all the uncertain elements of weather, season, character of the topography, refinement of results demanded, urgency for completion of work, and so forth, which make it so difficult to estimate the cost of a geographic survey on land, are further magnified in an oyster survey. Not only by waves produced by winds that would not deter work on land, but also by social and political conditions which are usually associated with such work.

It is also well to state in the way of warning that the preceding cost data when used as a basis for estimating the cost of oyster surveys in other States than Maryland may give only an approximately correct estimate under certain conditions. That for large open bodies of water, it might give an overestimate for good weather and an underestimate for bad weather, while for small bodies of water with complicated shore line and numerous small scattered oyster areas, it would probably furnish an underestimate because of the increased detail of the work in proportion to the total area of the survey.

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<sup>1</sup> See p. 13.

## REFERENCES.

NOTE.—This list of publications was prepared solely for the purpose of furnishing such references as best suit the plan of this publication, and it should not be considered as being complete in any other sense.

Reference number.	Date.	Title.	Author or editor.	Publisher.	Pages, etc.
I	1880	Report of the Commissioners of Fisheries of Maryland.	T. B. Ferguson, Thos. Hughlett, Wm. K. Brooks, Francis Winslow.	Commission of Fisheries of Maryland.	347; illus.
II	1881	Report on the oyster beds of the James River, Va., and of Tangier and Pocomoke Sounds, Md. and Va.	Francis Winslow.....	U. S. Coast and Geodetic Survey.	87; maps; illus.
III	1881	Report of Commissioner of Fisheries of Maryland.	T. B. Ferguson, John A. Ryder, Francis Winslow.	Commission of Fisheries of Maryland.	158; illus.
IV	1881	The oyster industry.....	Ernest Ingersol.....	Bureau of Census.....	251; illus.
V	1884	The development and protection of the oyster in Maryland.	Wm. K. Brooks.....	Johns Hopkins University.	193; maps; illus.
VI	1891	The oyster.....	.....do.....	.....do.....	230; illus.
VII	1893	Oysters and roads.....	B. Howard Haman.....	Maryland Road League.	44.
VIII	1893	Oyster records. Distances and bearings of numbered corners of public grounds, etc., of the State of Virginia.	J. B. Baylor.....	Virginia Fish Commission.	Pamphlet for each county.
IX	1895	The oyster industry of Maryland.....	Charles H. Stevenson.	U. S. Bureau of Fisheries.	110; illus.
X	1897	Oysters and methods of oyster culture with notes on clam culture.	H. F. Moore.....	.....do.....	78; illus.
XI	1899	Report on the oyster beds of Louisiana.....	.....do.....	.....do.....	55; illus.
XII	1904	Investigations for the promotion of the oyster industry of North Carolina.	Caswell Grave.....	.....do.....	95; map; illus.
XIII	1905	The crab industry of Maryland.....	Winthrop A. Roberts.....	.....do.....	18.
XIV	1907	First report of the Shell Fish Commission of Maryland.	Caswell Grave.....	Maryland Shell Fish Commission.	231; illus.
XV	1907	Survey of oyster bottoms in Matagorda Bay, Tex.	H. F. Moore.....	U. S. Bureau of Fisheries.	86; map; illus.
XVI	1907	Survey of oyster bars, Anne Arundel County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	106; map.
XVII	1908	Fisheries of the United States.....	Bureau of Census.....	Bureau of Census.....	324.
XVIII	1908	Survey of oyster bars, Somerset County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	118; map.
XIX	1909	Second report of the Shell Fish Commission of Maryland.	Caswell Grave.....	Maryland Shell Fish Commission.	149; illus.
XX	1909	Survey of oyster bars, Wicomico County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	54; map.
XXI	1909	Oyster supply of Maryland.....	Caswell Grave.....	Conservation Commission of Maryland.	13; illus.
XXII	1909	Survey of oyster bars, Worcester County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	67; map.
XXIII	1910	Condition and extent of the oyster beds of James River, Va.	H. F. Moore.....	U. S. Bureau of Fisheries.	83; map.
XXIV	1910	Shell-fish industries.....	James L. Kellogg.....	Henry Holt & Co.....	361; illus.
XXV	1910	Oyster-culture experiments and investigations in Louisiana.	H. F. Moore, T. E. D. Pope.	U. S. Bureau of Fisheries.	54.
XXVI	1910	Survey of oyster bars, Calvert County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	94; map.
XXVII	1911	Condition and extent of the natural oyster beds of Delaware.	H. F. Moore.....	U. S. Bureau of Fisheries.	29; map.

## References—Continued.

Reference number.	Date.	Title.	Author or editor.	Publisher.	Pages, etc.
XXVIII	1911	Survey of oyster bars, St. Marys County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	203; map.
XXIX	1911	Proposed amendments to the Haman Oyster Culture Law.	Maryland Shell Fish Commission.	Maryland Shell Fish Commission.	16.
XXX	1911	Survey of oyster bars, Charles County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	62; map.
XXXI	1911	Third report of the Shell Fish Commission of Maryland.	Caswell Grave.....	Maryland Shell Fish Commission.	133; illus.
XXXII	1911	Survey of oyster bars, Baltimore County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	42; map.
XXXIII	1911	Report of proceedings of the third annual Convention of the National Association of Shellfish Commissioners.	Swepson Earle.....	National Association of Shellfish Commissioners.	98; illus.
XXXIV	1911	The relation of the work of the U. S. Coast and Geodetic Survey to State Oyster Surveys.	C. C. Yates.....		13.
XXXV	1911	Shellfish contamination from sewage-polluted waters and from other sources.	George Whitfield Stiles, Jr.	U. S. Bureau of Chemistry.	53; illus.
XXXVI	1912	History of oyster production in Maryland, 1810-1912.	Caswell Grave.....		11.
XXXVII	1912	Analysis of the Campbell Oyster Bill.	C. C. Yates.....	Maryland Shell Fish Commission.	23.
XXXVIII	1912	What the crab industry is worth to Maryland.	Swepson Earle.....		7.
XXXIX	1912	Survey of oyster bars, Kent County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	130; map.
XL	1912	Survey of oyster bars, Queen Annes County, Md.	.....do.....	.....do.....	176; map.
XLI	1912	A manual of oyster culture of Maryland.	Caswell Grave.....		75; illus.
XLII	1912	Discussion of the Campbell Oyster Culture Bill as amended by the Price Oyster Plan providing for conservation of natural oyster bars along with oyster culture on barren bottoms.	C. C. Yates.....	Maryland Shell Fish Commission.	53.
XLIII	1912	Fourth report of the Shell Fish Commission of Maryland.	Caswell Grave.....	.....do.....	378; illus.
XLIV	1912	Survey of oyster bars, Talbot County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	250; map.
XLV	1912	Notes on the history of the oyster in Maryland and the physical valuation of her oyster properties.	Caswell Grave.....	Maryland Shell Fish Commission.	11; map.
XLVI	1912	Survey of oyster bars, Dorchester County, Md.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	180; map.
XLVII	1913	Fish and oyster law of the State of Maryland.	V. Calvin Trice.....	State Fishery Force...	154.
XLVIII	1913	Report of Delaware Oyster Survey Commission 1909-1912.	C. C. Yates.....	Delaware Oyster Survey Commission.	108; map.
XLIX	1913	Condition and extent of the natural oyster beds and barren bottoms of Mississippi Sound, Ala.	H. F. Moore.....	U. S. Bureau of Fisheries.	61; map.
L	1913	Condition and extent of the natural oyster beds and barren bottoms of Mississippi, east of Biloxi.	.....do.....	.....do.....	41 illus.
LI	1913	Oyster industry of Maryland and Virginia, 1912.	U. S. Bureau of Fisheries.	.....do.....	Large sheet of statistics.
LII	1913	Fifth report of the Shell Fish Commission of Maryland.	William H. Maltbie..	Maryland Shell Fish Commission.	12.
LIII	1913	Oysters: The World's most valuable water crop. (National Geographic Magazine, March, 1913.)	Hugh M. Smith.....	National Geographic Society.	26; illus.
LIV	1906 to 1913	Maryland Oyster Charts showing result of survey by Maryland Shell Fish Commission, U. S. Bureau of Fisheries, and U. S. Coast and Geodetic Survey Charts Nos. 1 to 42 and Index Chart.	C. C. Yates.....	U. S. Coast and Geodetic Survey.	42 charts, scale 1:20,000, each 30 by 40 inches.

## TECHNICAL INDEX TO PUBLICATIONS.

### EXPLANATION.

The technical index to the publications of the Maryland Oyster Survey is divided into four sections of two parts each under the heads of "Natural oyster bars," "Crab bottoms," "Clam beds" and "Landmarks (U. S. Coast and Geodetic Survey triangulation stations)."

The *first part* of each section is an "Alphabetical index," which gives for each natural oyster bar, crab bottom, clam bed, or triangulation station, as the case may be—

1. The serial number of the Maryland oyster chart on which it is shown.
2. The approximate geographic location in latitude and longitude.
3. The county in which it is located.
4. The "County index number" by which it is indicated on the "Index chart."<sup>1</sup>
5. The page number of the United States Coast and Geodetic Survey county publication of "Survey of oyster bars" on which it is technically described as to boundaries and locations.
6. The page number of the Fourth Report of the Shell Fish Commission, on which are described its characteristics pertaining particularly to oysters.

The *second part* of each section is a "Numerical index" arranged in a separate division for each county within which "Natural oyster bars," "Crab bottoms," "Clam beds," or "Triangulation stations" are located, and gives only the names of the bars, bottoms, beds, or stations, as the case may be, corresponding to the "County index number" of these same objects as shown on the "Index chart."

The "County index numbers" are arranged in numerical order on the "Index chart," commencing with No. 1 for each county, and in using an index number obtained from the "Index chart" it should be coupled with the name of the county in which it is located. The names of the different counties are given in large red letters on the "Index chart" and their boundaries are shown by red dash and dot lines.

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<sup>1</sup> See chart in folder of this publication.

# NATURAL OYSTER BARS.

## ALPHABETICAL INDEX.

NOTE.—See Numerical Index for names of natural oyster bars corresponding to numbers on Index Chart.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located.	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic county publication of Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Abell	25	38 17	76 43	St. Marys	95	184	148
Aberdeen	3	38 57	76 32	Anne Arundel	56	54	115
Aisquith Creek	2	39 02	76 32	Anne Arundel	30	42	115
Aldridges Discovery	32	38 52	76 15	Talbot	30	182	209
Almshouse	3	38 56	76 32	Anne Arundel	60	53	115
Along Shore	37, 38	38 31	76 16	Dorchester	54	131	196
Applegarth	40	38 13	76 06	Dorchester	86	147	198
Arnold Point	2	39 02	76 32	Anne Arundel	31	44	115
Ash Craft	32	38 48	76 13	Talbot	19	187	209
Bachelor Point	34, 35	38 40	76 11	Talbot	92	220	206
Back of Island	20	38 19	76 28	Calvert	23	78	126
Back Shore	34, 35, 37	38 39	76 10	Talbot	112	220	210
Bailey	30	39 08	76 09	Kent	52	117	240
Bakers Cove	34	38 42	76 07	Talbot	104	226	207
Bald Eagle (Little Choptank River)	36, 37	38 33	76 18	Dorchester	34	129	196
Bald Eagle (Eastern Bay)	32	38 54	76 14	Queen Annes	62	156	226
Bamings Cove	34	38 43	76 08	Talbot	101	225	207
Barn Gates	20	38 20	76 29	Calvert	24	77	126
Barn Point	37	38 32	76 13	Dorchester	48	137	197
Barnett	34	38 46	76 11	Talbot	16	234	209
Barren Neck	3	38 51	76 32	Anne Arundel	82	58	116
Batis Neck	31	38 54	76 19	Queen Annes	43	137	227
Baxters Hollow	32	38 53	76 11	Queen Annes	85	161	225
Bay Bush Point	30	39 03	76 12	Kent	37	111	239
Bay Hundred	33	38 44	76 21	Talbot	40	194	210
Bay Shore	4	38 48	76 30	Anne Arundel	88	63	117
Bazzles Hill	34	38 47	76 12	Talbot	17	233	209
Beacons	35	38 38	76 07	Talbot	118	236	210
Bean Shoal	41	38 18	75 56	Dorchester	118	159	195
Beard Point	3	38 57	76 32	Anne Arundel	58	54	115
Beef Creek	14, 15	38 06	75 18	Worcester	13	53	246
Bell Buoy	41, 42	38 12	76 01	Dorchester	82	150	198
Belts	30	39 03	76 12	Kent	35	110	239
Benoni	34, 37	38 40	76 13	Talbot	90	219	210
Bibby	32	38 56	76 15	Queen Annes	65	151	226
Big Annemessex	7	38 03	75 50	Somerset	23	73	182
Big Bay Point	15	38 04	75 17	Worcester	21	56	246
Big Hill	12	38 12	75 57	Wicomico	12	46	189
Big Island	2	39 03	76 34	Anne Arundel	34	44	115
Biscoe	24	38 12	76 27	St. Marys	56	165	146
Black	2	39 04	76 28	Anne Arundel	10	29	114



## ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic county publication of Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Black Buoy (Chester River)	30	39 01	76 11	Kent	33	109	239
Black Walnut (Bretons Bay)	25	38 15	76 40	St. Marys	82	177	147
Black Walnut (Big Choptank River)	33, 36, 37	38 40	76 19	Talbot	45	197	210
Blakistone	26	38 17	76 48	St. Marys	114	191	148
Bloodsworth	40, 41	38 13	76 03	Dorchester	84	149	198
Blue Sow	25	38 14	76 42	St. Marys	91	178	147
Bluff Point (Chester River)	30	39 04	76 12	Kent	38	111	239
Bluff Point (Wicomico River)	26	38 16	76 49	St. Marys	113	191	148
Bluff Woods	25	38 16	76 43	St. Marys	100	183	148
Blunt	30	38 59	76 12	Queen Annes	22	120	227
Boat House	30	39 06	76 10	Kent	45	114	240
Bob Wise	20	38 20	76 29	St. Marys	15	139	145
Bodkin Island	31, 32	38 54	76 17	Queen Annes	55	146	227
Bodkin Point North	1	39 09	76 26	Anne Arundel	1	26	117
Bodkin Point South	1	39 07	76 25	Anne Arundel	2	27	117
Bodkin Shoals	31	38 53	76 18	Queen Annes	35	132	226
Bolingbroke Sand	35	38 35	76 03	Talbot	124	239	206
Bolston Bank	3	38 53	76 32	Anne Arundel	76	61	116
Booker Wharf	30	39 08	76 04	Queen Annes	2	129	227
Boundary	42	38 05	76 04	Dorchester	78	161	199
Bozman Neck	32	38 51	76 15	Talbot	26	183	209
Bramleigh Creek	26	38 18	76 50	St. Marys	117	189	149
Brannock	36, 37	38 36	76 17	Dorchester	27	120	199
Bretons Bay	25	38 15	76 42	St. Marys	90	178	147
Brewer (Severn River)	2	39 02	76 32	Anne Arundel	36	43	115
Brewer (South River)	3	38 56	76 32	Anne Arundel	61	52	115
Brice Fence	3	38 52	76 31	Anne Arundel	79	60	116
Brick House	31	38 57	76 22	Queen Annes	31	130	228
Brick House Hill	31	38 53	76 19	Queen Annes	36	133	226
Bridge	38	38 28	76 17	Dorchester	57	138	197
British Harbour	35	38 35	76 00	Talbot	128	241	206
Broad Creek	29	39 00	76 20	Queen Annes	30	116	228
Broad Creek Middle ground	34	38 44	76 14	Talbot	80	210	207
Broad Neck (Calvert Co.)	19	38 28	76 39	Calvert	37	71	126
Broad Neck (St. Marys Co.)	19	38 28	76 39	St. Marys	3	134	145
Brooks Shallows	19	38 30	76 40	St. Marys	1	133	145
Broome Island	19	38 24	76 34	Calvert	30	74	126
Brown	34	38 43	76 16	Talbot	69	208	207
Bruffs Island	32	38 51	76 12	Talbot	6	190	209
Brumell	37	38 33	76 13	Dorchester	45	135	197
Brushy Point	34	38 45	76 16	Talbot	76	212	208
Bryan (Wye River)	32	38 53	76 10	Queen Annes	87	162	225
Bryan (St. Marys River)	24	38 12	76 27	St. Marys	54	166	146

## ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey publication of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Buce	3	38 53	76 32	Anne Arundel	73	62	116
Buckhorn	32	38 58	76 15	Queen Annes	70	147	226
Bugby	32	38 53	76 13	Queen Annes	77	158	226
Bullock	26	38 15	76 49	St. Marys	110	193	148
Bullock Island	26	38 15	76 48	St. Marys	109	193	148
Bungay	41	38 17	76 01	Dorchester	110	155	195
Bunker Hill	31	38 53	76 20	Queen Annes	37	133	226
Buoy	5	38 13	75 53	Somerset	3	62	183
Buoy Rock	29, 30	39 00	76 14	Kent	30	108	239
Butler	22	38 06	76 20	St. Marys	32	148	149
Butterpot	37	38 32	76 14	Dorchester	41	133	196
Buzzard Island	19	38 29	76 40	Calvert	39	70	127
Cabin Creek (Choptank River)	35	38 38	75 59	Dorchester	3	112	197
Cabin Creek (Prospect Bay)	32	38 56	76 13	Queen Annes	74	154	226
Cabin Creek Entrance	35	38 38	75 58	Dorchester	2	111	197
Camden Point	34	38 44	76 07	Talbot	110	229	207
Canoe Creek	25	38 15	76 44	St. Marys	101	182	148
Captain Point	19	38 23	76 32	St. Marys	9	136	145
Carpenter Island	30	39 01	76 11	Queen Annes	20	121	227
Carpenters Yard	26	38 30	76 40	Charles	3	54	132
Carroll Muds (Calvert Co.)	20	38 19	76 25	Calvert	15	82	126-127
Carroll Muds (St. Marys Co.)	20	38 19	76 25	St. Marys	22	142	145-149
Carthagen Creek	24	38 09	76 28	St. Marys	62	157	146
Carvel	29	39 00	76 17	Queen Annes	27	118	227
Cason	37	38 32	76 15	Dorchester	38	132	196
Castle Haven	35, 37	38 38	76 12	Dorchester	18	118	199
Castle Haven Creek	35	38 37	76 10	Dorchester	17	117	199
Cators	36, 37, 38	38 30	76 19	Dorchester	61	124	196
Cedar Island	31	38 55	76 17	Queen Annes	57	144	227
Cedar Point (West River)	3	38 51	76 31	Anne Arundel	84	58	116
Cedar Point (St. George River)	24	38 09	76 30	St. Marys	76	171	147
Cedar Point (Broad Creek)	34	38 44	76 14	Talbot	81	214	207
Cedar Point Hollow	20, 21	38 16	76 23	St. Marys	25	144	149
Cedar Shoal	11	38 18	75 54	Wicomico	6	44	189
Chadwick	24	38 10	76 31	St. Marys	79	173	147
Chain Shoal	7	38 07	75 58	Somerset	11	67	183
Chancellor Point	35	38 35	76 01	Talbot	127	240	206
Change	33	38 43	76 18	Talbot	51	200	208
Chapel Point	25	38 16	76 42	St. Marys	94	182	148
Chaptico Lumps	26	38 20	76 51	St. Marys	121	187	149
Charleston Creek	26	38 17	76 50	Charles	11	50	132
Chase	2	39 01	76 31	Anne Arundel	28	41	114
Cherry (R h o d e River)	3	38 53	76 31	Anne Arundel	72	60	115
Cherry (St. Marys River)	24	38 07	76 28	St. Marys	66	154	146

## ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey publication of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Cherry Island	37	38 34	76 13	Dorchester	44	136	197
Cherry Tree (Patuxent River)	20	38 19	76 27	Calvert	21	79	126
Cherry Tree (Nanticoke River)	11	38 18	75 55	Wicomico	8	44	189
Chester River Middleground	30	39 05	76 11	Kent	39	112	239
Cheston Point	3	38 52	76 31	Anne Arundel	80	59	116
Chicken Cock	24	38 07	76 26	St. Marys	41	153	146
Chinese Muds (Calvert Co.)	20	38 21	76 23	Calvert	13	83	127
Chinese Muds (St. Marys Co.)	20	38 19	76 22	St. Marys	24	143	149
Chinks Point	2	38 58	76 28	Anne Arundel	44	35	115
Chlora Point	35	38 38	76 09	Talbot	117	235	210
Choptank Lumps	34, 37	38 40	76 14	Talbot	89	218	210
Church Creek	8	37 59	76 05	Somerset	37	74	183
Church Hill	33, 34	38 41	76 18	Talbot	48	198	210
Clay Bank	33, 36	38 27	76 23	Talbot	43	196	210
Clay Island	41	38 14	75 59	Dorchester	112	153	195
Clem Point	2	39 01	76 32	Anne Arundel	37	42	115
Cliff	30	39 06	76 09	Kent	56	118	239
Coad	24	38 09	76 28	St. Marys	63	156	146
Coal Lump	28	39 15	76 15	Kent	3	96	241
Cobb Point	26	38 15	76 50	Charles	15	52	132
Coffee	32	38 52	76 13	Queen Annes	80	158	226
Cohouck	26	38 21	76 51	St. Marys	122	187	149
Collins Flats	3	38 51	76 31	Anne Arundel	85	57	116
Commander	35	38 35	76 07	Dorchester	14	116	199
Commegys Bight	30	39 06	76 08	Kent	57	119	239
Cook Point	36, 37	38 39	76 17	Dorchester	22	118	199
Cooper Creek	24	38 10	76 27	St. Marys	59	161	146
Coopers Point	34	38 45	76 16	Talbot	74	211	208
Coppage	24	38 10	76 27	St. Marys	60	161	146
Cornal	7	38 08	75 50	Somerset	17	69	182
Corners Wharf	37	38 37	76 13	Dorchester	19	129	199
Cove Point Bight	20	38 22	76 22	Calvert	9	85	127
Cow Island	36, 37	38 33	76 18	Dorchester	33	128	196
Cox	34	38 46	76 09	Talbot	15	235	209
Cox Neck	31	38 54	76 17	Queen Annes	56	145	227
Crab Alley Lumps	31, 32	38 55	76 16	Queen Annes	59	144	227
Crab Point	40	38 16	76 08	Dorchester	89	147	198
Creces Cove	2	38 59	76 29	Anne Arundel	23	37	114
Curtis	3	38 52	76 30	Anne Arundel	86	57	117
Daddie Dare	17	38 34	76 30	Calvert	5	66	127
Dark Point	40	38 18	76 10	Dorchester	94	144	198
Davis Creek	30	39 07	76 10	Kent	47	115	240
Dawson	34	38 41	76 17	Talbot	66	206	210
Deep Landing Hole	28, 29	39 09	76 16	Kent	11	101	241
Deep Neck	34	38 44	76 15	Talbot	70	209	207
Deep Point	30	39 07	76 07	Kent	59	119	239
Deep Point Mud	20	38 18	76 26	St. Marys	21	142	145
Deep Shoal	28	39 15	76 14	Kent	2	95	241
Deep Water	15	38 04	75 17	Worcester	23	57	246

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Deep Water Point	32	38 48	76 13	Talbot	20	186	209
Diamond (Chesapeake Bay)	36, 37	38 37	76 20	Dorchester	25	120	199
Diamond (Chincoteague Bay)	14, 15	38 06	75 17	Worcester	12	54	246
Dickinson	35	38 36	76 06	Talbot	121	238	210
Dividing	32	38 53	76 10	Queen Annes	96	166	225
Dixon	35	38 36	75 59	Dorchester	5	112	197
Dominion	32	38 56	76 15	Queen Annes	66	151	226
Double Mills	34	38 44	76 08	Talbot	108	228	207
Dredge Rock	29	39 01	76 15	Kent	26	106	239
Drum	15	38 04	75 16	Worcester	19	56	246
Drum Point (Choptank River)	35	38 39	75 57	Dorchester	1	111	197
Drum Point (Langford Creek)	30	39 07	76 10	Kent	46	114	240
Drum Point (Wye River)	32	38 53	76 11	Queen Annes	89	163	225
Drum Point (Manokin River)	7	38 07	75 53	Somerset	19	71	182
Drum Point (Broad Creek)	34	38 45	76 13	Talbot	82	214	207
Duck Island	41	38 16	76 00	Dorchester	111	155	195
Dukehart Channel	25	38 13	76 45	St. Marys	104	179	147
Dunbar	24	38 07	76 24	St. Marys	37	162	145
Dupont	36, 37	38 37	76 18	Dorchester	26	120	199
Durдин	30	39 02	76 12	Kent	34	109	239
Dutchman	3	38 52	76 30	Anne Arundel	70	56	117
Dutchman Hollow	3	38 52	76 31	Anne Arundel	71	59	115
Duvall	3	38 57	76 32	Anne Arundel	57	53	115
Eagle Point (Langford Creek)	30	39 08	76 10	Kent	49	116	240
Eagle Point (Harris Creek)	33	38 44	76 19	Talbot	52	201	208
Earle Cove	30	39 05	76 08	Queen Annes	10	126	228
East End	32	38 50	76 13	Talbot	9	189	209
East Neck Bay	29	39 04	76 16	Kent	23	105	241
Easter Cove	15	38 04	75 19	Worcester	16	55	246
Ebb Point	30	39 06	76 09	Kent	55	118	239
Edmund	24	38 08	76 27	St. Marys	64	155	146
Elbow	26	38 31	76 40	Charles	2	53	132
Emanuel	17, 18	38 30	76 29	Calvert	7	67	127
Emory Hollow	30	39 06	76 08	Queen Annes	6	128	227
Emory Wharf	30	39 05	76 08	Queen Annes	11	125	228
Ennis	14	38 11	75 14	Worcester	5	50	246
Entrance Lumps	29	39 03	76 15	Kent	24	106	240
Erickson Sands	31	38 55	76 19	Queen Annes	45	138	227
Evans (Fishing Bay)	41	38 15	76 01	Dorchester	102	154	195
Evans (Wicomico River)	5	38 13	75 54	Somerset	4	62	182
Fairhaven	4	38 45	76 33	Anne Arundel	90	64	116
Fenwick	26	38 18	76 50	Charles	9	49	132
Ferry (Kent Co.)	29	39 00	76 15	Kent	29	107	239
Ferry (Queen Annes Co.)	29	39 00	76 15	Queen Annes	26	118	227

NATURAL OYSTER BARS.

ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Ferry Point	2	39 00	76 29	Anne Arundel	24	37	114
Fish Hawk	21, 22	38 09	76 19	St. Marys	29	146	149
Fishing Creek	37	38 32	76 12	Dorchester	50	138	197
Flag Pond	18	38 26	76 26	Calvert	8	68	127
Flat Island	3	38 53	76 32	Anne Arundel	74	62	116
Flat Rock	41	38 20	76 00	Dorchester	106	157	195
Flatty	34	38 43	76 08	Talbot	106	227	207
Flood Point	29	38 59	76 15	Queen Annes	24	119	226
Fort	24	38 08	76 26	St. Marys	42	155	146
Fox	34	38 46	76 14	Talbot	86	216	207
Fox Island	9	37 55	75 56	Somerset	26	75	183
Fox Hole	34	38 41	76 11	Talbot	93	221	206
Fox Point	3	38 56	76 31	Anne Arundel	54	51	115
France	34	38 41	76 17	Talbot	65	206	210
Frog Point	41	38 14	75 57	Dorchester	114	158	195
Gales Lumps	28	39 13	76 17	Kent	6	96	241
Gatton	19	38 24	76 34	St. Marys	8	136	145
Georges	5, 7	38 08	75 50	Somerset	15	64	182
Gibsons Flats	34	38 47	76 12	Talbot	13	233	209
Goodwin	20	38 19	76 28	St. Marys	18	140	145
Goose Creek	41	38 16	76 01	Dorchester	103	154	195
Goose Neck	34	38 42	76 10	Talbot	97	223	206
Goose Point (St. George River)	24	38 08	76 29	St. Marys	69	168	147
Goose Point (Choptank River)	35	38 36	76 00	Talbot	129	241	206
Gough	25	38 15	76 40	St. Marys	83	176	147
Governors Run	17, 18	38 31	76 30	Calvert	6	67	127
Granary Point	32	38 53	76 08	Queen Annes	98	167	225
Granger	36, 37, 38	38 30	76 20	Dorchester	62	124	196
Grapevine	37	38 32	76 11	Dorchester	51	138	197
Gravelly Run	24	38 11	76 26	St. Marys	51	162	146
Graves	24	38 07	76 25	St. Marys	39	151	145
Great Bar	34	38 43	76 15	Talbot	68	208	207
Great Marsh	34	38 42	76 17	Talbot	64	207	208
Great Rock	9	37 56	75 56	Somerset	25	75	183
Great Shoals	12	38 13	75 53	Wicomico	13	47	189
Green Marsh	35	38 35	76 04	Dorchester	9	114	199
Greenwood Creek	32	38 53	76 12	Queen Annes	78	157	226
Greaves Cove	31	38 55	76 20	Queen Annes	41	135	227
Guest Marshes	25	38 18	76 43	St. Marys	97	185	148
Gum	39, 40	38 20	76 12	Dorchester	97	142	198
Gum Spring	29	39 07	76 15	Kent	19	103	240
Gum Thicket	31	38 53	76 23	Queen Annes	32	131	228
Gunby	10	37 56	75 46	Somerset	30	77	182
Hackett Point	2	38 59	76 25	Anne Arundel	15	32	116
Hackley Creek	26	38 14	76 47	St. Marys	107	194	148
Haddaway	30	39 08	76 06	Kent	61	120	239
Hail Creek	30	39 01	76 12	Kent	31	108	239
Hail Point	30	39 00	76 12	Kent	32	109	239
Haines	5	38 11	75 58	Somerset	7	61	183
Half Pone	20	38 22	76 31	St. Marys	13	138	145
Hali Way Mark	41	38 19	76 01	Dorchester	107	157	195
Halls Point	5	38 12	75 57	Somerset	6	61	182
Hambleton	32	38 50	76 14	Talbot	23	185	209

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
		° /	° /				
Hambleton Hill	32	38 50	76 14	Talbot	25	184	209
Hambrooks	35	38 36	76 05	Dorchester	10	114	199
Handys Hammock	13, 14	38 12	75 14	Worcester	2	49	246
Harris	7	38 03	75 53	Somerset	22	73	183
Harrison	34	38 47	76 16	Talbot	79	214	207
Harry Jacks	25	38 18	76 43	St. Marys	98	186	148
Hawks Nest	20	38 20	76 30	St. Marys	14	138	145
Hellen	20	38 22	76 29	Calvert	26	76	126
Hells Delight	30	39 04	76 11	Queen Annes	17	123	227
Henpeck	36, 37, 38	38 31	76 19	Dorchester	60	125	196
Heron Island Reef	25	38 13	76 43	St. Marys	80	179	147
Heron Island Sound	25	38 14	76 43	St. Marys	81	179	147
Herring Island	32	38 50	76 13	Talbot	8	189	209
Hess	32	38 52	76 11	Queen Annes	91	164	225
Hickory Thicket	29	39 04	76 15	Kent	22	105	240
Hickory Nut	11	38 19	75 54	Wicomico	4	43	189
Hickory	40	38 16	76 10	Dorchester	92	145	198
High Island	3	38 53	76 32	Anne Arundel	75	61	116
Hill	41	38 19	76 01	Dorchester	108	156	195
Hill Point (Severn River)	3	38 55	76 30	Anne Arundel	53	51	115
Hill Point East	3	38 55	76 30	Anne Arundel	52	50	115
Hills and Holes	41	38 16	75 56	Dorchester	116	158	195
Hills Point (Chesapeake Bay)	36, 37	38 35	76 19	Dorchester	29	121	199
Hills Point North	36, 37	38 35	76 21	Dorchester	30	121	199
Hills Point South	36, 37	38 34	76 21	Dorchester	31	122	199
Hobbs	32	38 53	76 12	Queen Annes	84	160	225
Hodges	28	39 11	76 16	Kent	7	98	241
Hog Island (Prospect Bay)	32	38 58	76 15	Queen Annes	68	149	226
Hog Island (Patuxent River)	20	38 19	76 23	St. Marys	23	143	149
Hog Point	16	38 42	76 30	Calvert	1	64	127
Holland Straits	42	38 07	76 05	Dorchester	79	162	198
Holland	12	38 15	75 51	Wicomico	15	48	189
Holland Point (Chesapeake Bay)	4	38 44	76 30	Anne Arundel	91	65	117
Holland Point (Patuxent River)	19	38 30	76 40	Calvert	40	69	127
Holland Point (Broad Creek)	34	38 46	76 15	Talbot	78	213	207
Hollyday (Kent Co.)	30	39 08	76 05	Kent	62	120	239
Hollyday (Queen Annes Co.)	30	39 08	76 05	Queen Annes	3	129	227
Holton Point	30	39 05	76 09	Queen Annes	8	124	227
Hood	32	38 56	76 14	Queen Annes	73	153	226
Hooper	36, 37, 38	38 31	76 17	Dorchester	55	125	196
Hooper Strait	40	38 13	76 07	Dorchester	75	148	198
Hopkins	34, 35	38 40	76 09	Talbot	113	230	206
Hopkins Cove	41	38 13	76 03	Dorchester	85	149	198
Horn Point (Severn River)	2	38 58	76 28	Anne Arundel	43	36	115
Horn Point (Choptank River)	35	38 36	76 09	Dorchester	15	116	199

NATURAL OYSTER BARS.

ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic county publication of Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Horse	25	38 14	76 44	St. Marys	103	180	147
Horsehead North	15	38 03	75 16	Worcester	27	58	246
Horsehead South	15	38 03	75 16	Worcester	28	59	246
Horse Point Channel	39, 40	38 18	76 14	Dorchester	72	140	199
Horse Race	30	39 02	76 11	Queen Annes	19	122	227
Horseshoe (St. Marys River)	24	38 12	76 27	St. Marys	53	165	146
Horseshoe (Miles River)	32	38 52	76 14	Talbot	29	182	209
Howells Point	35	38 37	76 07	Talbot	120	237	210
Hudson (Little Choptank River)	37	38 33	76 15	Dorchester	39	133	19
Hudson (Chester River)	30	39 06	76 11	Kent	43	113	240
Hungerford Hollow	20	38 20	76 29	Calvert	25	76	126
Huntingfield	29	39 07	76 15	Kent	18	103	240
Hunts	33	38 44	76 19	Talbot	55	202	208
Hurdle	24	38 08	76 29	St. Marys	68	167	147
Ingram Shoal	12	38 14	75 52	Wicomico	14	47	189
Inner Round Point	3	38 55	76 31	Anne Arundel	64	50	115
Irish Creek	34	38 41	76 13	Talbot	88	217	210
Inside Greenbury Island	2	38 59	76 27	Anne Arundel	20	35	114
Island	25	38 16	76 39	St. Marys	86	174	147
Island Cove	31	38 57	76 19	Queen Annes	50	141	227
Island Creek (Patuxent River)	19	38 24	76 33	Calvert	29	74	126
Island Creek (Choptank River)	34, 35	38 40	76 08	Talbot	115	231	206
Island Point	30	39 08	76 10	Kent	48	115	240
Island Shore	24	38 08	76 29	St. Marys	70	168	147
Jackass	3	38 53	76 31	Anne Arundel	77	61	116
Jacks Bay	19	38 25	76 35	Calvert	32	73	126
Jacks Marsh	19	38 26	76 37	Calvert	33	72	126
Jamaica Point	35	38 37	75 59	Talbot	131	242	206
James Point	36	38 33	76 22	Dorchester	65	122	199
Jane	41	38 12	76 01	Dorchester	81	151	198
Joe Harris Flats	34	38 44	76 13	Talbot	83	215	207
Joes Lumps	26	38 19	76 51	Charles	7	48	132
Johnson Island	31	38 56	76 17	Queen Annes	58	143	227
Johnston	34	38 44	76 08	Talbot	109	229	207
Jones (Little Choptank River)	37	38 33	76 12	Dorchester	46	136	197
Jones St. Marys River)	24	38 10	76 26	St. Marys	46	159	146
Jones Hole	31	38 56	76 19	Queen Annes	48	140	227
Judys Point	34	38 45	76 17	Talbot	75	212	208
Juniper	32	38 53	76 09	Talbot	1	193	209
Jutland	24	38 07	76 25	St. Marys	38	151	145
Kedge Straits	6	38 04	76 05	Somerset	35	65	183
Kennedy	24	38 10	76 26	St. Marys	49	159	146
Kennel	15	38 04	75 17	Worcester	20	56	246
Kent Island Narrows	29	38 58	76 15	Queen Annes	25	120	226
Kent Point	31	38 51	76 23	Queen Annes	33	131	228

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Key	26	38 22	76 51	St. Marys	123	186	149
Kings Creek	30	39 08	76 09	Kent	51	116	240
Kirby	35	38 36	76 05	Talbot	122	238	210
Kitts Creek East	10	37 58	75 42	Somerset	33	79	182
Kitts Creek West	10	37 58	75 43	Somerset	32	78	182
Kitts Marsh	19	38 27	76 37	Calvert	35	71	126
La Grande	20	38 18	76 27	St. Marys	19	141	145
La Trappe	35	38 38	76 07	Talbot	119	236	206
Lakes Cove	40	38 17	76 09	Dorchester	93	144	198
Lambertson Landing	14	38 12	75 15	Worcester	4	50	246
Lancaster	26	38 17	76 50	Charles	12	50	132
Langley Hollow	24	38 09	76 26	St. Marys	43	156	146
Le Compte	35	38 37	76 09	Dorchester	16	117	199
Levin Tump	15	38 04	75 16	Worcester	25	58	246
Light House	34, 35, 37	38 39	76 11	Talbot	91	219	210
Light House Lump	20	38 19	76 25	Calvert	17	82	126
Limekiln	30	39 05	76 12	Kent	40	112	240
Little Choptank	36, 37	38 31	76 19	Dorchester	59	126	196
Little Cove Point	20	38 21	76 23	Calvert	10	85	127
Little Neck (Swan Creek)	28, 29	39 08	76 16	Kent	10	101	241
Little Neck (Harris Creek)	33, 34	38 46	76 18	Talbot	60	205	208
Little Pollard	37	38 32	76 16	Dorchester	37	132	196
Little Sandy	2	38 59	76 28	Anne Arundel	22	37	114
Lodges	33	38 45	76 19	Talbot	57	203	208
Logans Hill	37	38 39	76 13	Dorchester	20	129	199
Long (Chesapeake Bay)	4	38 45	76 32	Anne Arundel	89	64	117
Long (St. George River)	24	38 09	76 31	St. Marys	78	173	147
Long Point (Chester River)	29, 30	39 00	76 14	Queen Annes	23	119	227
Long Point (Eastern Bay)	31	38 52	76 20	Queen Annes	34	132	226
Long Point (Pocomoke Sound)	9	37 57	75 49	Somerset	29	77	182
Long Point (Piles River)	34	38 46	76 11	Talbot	14	234	209
Long Point Woods	34	38 42	76 16	Talbot	67	207	207
Long Shoal	11	38 18	75 55	Wicomico	7	44	189
Louis Cove	34	38 42	76 09	Talbot	100	224	206
Love Point	29	39 03	76 18	Queen Annes	29	117	228
Lovers Point	25	38 16	76 39	St. Marys	84	175	147
Lower Forrest	19	38 25	76 36	St. Marys	7	135	145
Lower Newfoundland	41	38 19	75 55	Dorchester	120	160	195
Lower Steps	16	38 38	76 31	Calvert	3	65	127
Lower Thoroughfare	40	38 15	76 09	Dorchester	88	146	198
Lows Point	31, 33	38 48	76 20	Talbot	37	178	210
Lulu	3	38 53	76 27	Anne Arundel	69	55	117
Lumps East of Craig-hill Channel	1	39 07	76 22	Anne Arundel	3	26	117



ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic county publication of Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
McKay	21	38 10	76 20	St. Marys	28	146	149
McKeils Point	37	38 33	76 14	Dorchester	42	134	196
Macks Hollow	19	38 29	76 39	Calvert	38	70	127
Man O'War Shoals	27	39 11	76 22	Baltimore	3	34	103
Manahowic Creek	26	38 19	76 50	St. Marys	118	189	149
Mares Point	34	38 42	76 09	Talbot	99	224	206
Marshall	36, 37, 38	38 29	76 20	Dorchester	64	123	197
Marshy	34	38 43	76 09	Talbot	105	227	207
Marshy Island	7	38 07	75 53	Somerset	18	70	182
Marshy Point	3	38 54	76 29	Anne Arundel	67	48	115
Martin Point	14, 15	38 05	75 18	Worcester	15	54	246
Marumscó	10	37 57	75 44	Somerset	31	78	182
Marys Delight	31	38 49	76 19	Talbot	36	178	210
Mattapex	31	38 55	76 20	Queen Annes	42	136	227
Matthews	34, 35	38 40	76 08	Talbot	116	232	206
Mears (Calvert Co.)	19, 20	38 22	76 30	Calvert	27	75	126
Mears (St. Marys Co.)	19, 20	38 22	76 30	St. Marys	12	137	145
Melton Point	30	39 08	76 04	Kent	63	121	239
Melvin	32	38 53	76 10	Queen Annes	95	166	225
Middle Block	31	38 54	76 18	Queen Annes	53	134	226
Middleground	12	38 14	75 55	Wicomico	11	46	189
Middleground Lump	24	38 08	76 27	St. Marys	65	155	146
Milbourne Shore	24	38 08	76 29	St. Marys	71	169	147
Mileys Creek	25	38 16	76 43	St. Marys	99	183	148
Mill Dam	35	38 36	75 59	Talbot	130	242	206
Mill Hill	32	38 54	76 13	Queen Annes	76	156	226
Mill Point (Chesapeake Bay)	36, 37	38 36	76 18	Dorchester	28	121	199
Mill Point (Harris Creek)	33	38 45	76 18	Talbot	54	202	208
Millers Island	27	39 13	76 21	Baltimore	2	34	103
Mills	32	38 52	76 12	Queen Annes	83	160	225
Mills East	26	38 20	76 51	St. Marys	120	188	149
Mills West	26	38 20	76 51	Charles	6	47	132
Millstone	20	38 18	76 26	St. Marys	20	141	145
Mink Tump	15	38 04	75 19	Worcester	17	55	246
Mitchells Bluff Buoy	28	39 13	76 16	Kent	5	97	241
Mouldy Creek	25	38 16	76 38	St. Marys	85	174	147
Mouth of Creek	24	38 07	76 28	St. Marys	124	153	146
Mouth of River	26	38 15	76 49	St. Marys	111	192	148
Mount Vernon Wharf	5	38 15	75 48	Somerset	1	63	183
Mountain Point	1, 2	39 05	76 25	Anne Arundel	4	27	117
Mud (Dorchester Co.)	41	38 10	76 00	Dorchester	80	151	198
Mud (Chester River)	29, 30	39 01	76 14	Kent	28	107	239
Mud (Somerset Co.)	5	38 09	76 00	Somerset	9	60	183
Muddy Drain	29	39 08	76 16	Kent	17	102	240
Mulberry Point	34	38 45	76 15	Talbot	71	209	207
Mummys Cove	30	39 07	76 06	Queen Annes	4	129	227
Mussel Hole	7	38 04	75 59	Somerset	12	66	183
Neale	19, 20	38 23	76 31	St. Marys	11	137	145

## ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic county publication of Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
New	41	38 15	75 56	Dorchester	115	158	195
New Discovery	39	38 18	76 17	Dorchester	71	139	199
Newport	13, 14	38 12	75 14	Worcester	3	50	246
Newtown Flats	25	38 14	76 43	St. Marys	93	181	148
Nichols	30	39 05	76 11	Kent	42	113	239
Nine Acres	36, 37	38 31	76 18	Dorchester	58	126	196
Norman	40	38 15	76 07	Dorchester	87	147	198
Normans Fine Eyes	31, 32	38 55	76 17	Queen Annes	60	145	227
Normans Marsh	32	38 56	76 15	Queen Annes	64	152	226
Northwest (Kent Co)	30	39 08	76 05	Kent	64	121	239
Northwest (Queen Annes Co)	30	39 09	76 05	Queen Annes	1	130	227
Northwest Middle-ground	42	38 07	76 11	Dorchester	76	160	199
Old Field	30	39 05	76 10	Queen Annes	14	124	227
Old Fort	2	38 59	76 28	Anne Arundel	21	36	114
Old Hare	24	38 06	76 25	St. Marys	35	149	145
Old House	41	38 18	76 02	Dorchester	104	156	195
Old House Point	34	38 43	76 08	Talbot	102	225	207
Old Lump	20	38 19	76 25	Calvert	16	82	126
Old Orchard (Tangier Sound)	5	38 10	75 58	Somerset	8	60	183
Old Orchard (Miles River)	34	38 47	76 12	Talbot	18	232	209
Old Woman	3	38 54	76 28	Anne Arundel	49	47	117
Old Womens Patch	11	38 18	75 54	Wicomico	5	43	189
Old Wreck	25	38 14	76 44	St. Marys	102	181	148
Orem	34	38 43	76 09	Talbot	107	228	207
Outer Hole	41	38 18	75 55	Dorchester	119	159	195
Outer Magothy	2	39 03	76 24	Anne Arundel	12	30	117
Outer Round Point	3	38 55	76 30	Anne Arundel	65	50	115
Oyster Creek (Little Choptank River)	36, 37, 38	38 30	76 20	Dorchester	63	124	197
Oyster Creek (Kedge Straits)	6	38 04	76 04	Somerset	34	65	183
Oyster Shell Point	35	38 35	76 00	Dorchester	6	113	197
Paca	32	38 53	76 11	Queen Annes	86	161	225
Pagan	24	38 12	76 27	St. Marys	57	164	146
Park	2	39 05	76 29	Anne Arundel	8	29	114
Parker Moore	20	38 21	76 24	Calvert	11	84	127
Parkers Wharf	19	38 25	76 34	Calvert	31	73	126
Parsons Island	32	38 54	76 16	Queen Annes	61	146	227
Parsons Island Narrows	32	38 55	76 15	Queen Annes	63	155	226
Pattison	37	38 34	76 11	Dorchester	47	137	197
Paul	40	38 16	76 08	Dorchester	90	146	198
Paw Paw Hollow	25	38 16	76 39	St. Marys	87	175	147
Pea Hill	31	38 55	76 19	Queen Annes	46	139	227
Peach Hill	2	39 05	76 27	Anne Arundel	6	28	114
Peach Orchard	2	39 00	76 29	Anne Arundel	25	38	114
Peanut	39, 40	38 21	76 12	Dorchester	98	142	198
Peanut Hill	36, 37	38 33	76 19	Dorchester	32	127	196

NATURAL OYSTER BARS.

ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Pecks Point	34	38 42	76 10	Talbot	98	223	206
Persimmon	2	39 03	76 26	Anne Arundel	11	30	114
Persimmon Tree	32	38 51	76 13	Queen Annes	81	159	225
Peterson (Calvert Co.)	19, 20	38 24	76 31	Calvert	28	75	126
Peterson (St. Marys Co.)	19, 20	38 24	76 32	St. Marys	10	137	145
Philibys	9	37 57	75 55	Somerset	24	74	183
Philips	30	39 08	76 09	Kent	53	117	240
Phoenix Shoal	28	39 17	76 13	Kent	1	95	241
Pin Cushion	34	38 44	76 12	Talbot	84	215	207
Pine Tree	31	38 54	76 20	Queen Annes	39	135	226
Piney Island East	7	38 04	75 54	Somerset	21	72	183
Piney Island Swash	7	38 07	75 55	Somerset	14	68	182
Piney Island West	7	38 05	75 57	Somerset	13	67	183
Piney Point (Kent Co.)	30	39 03	76 12	Kent	36	110	239
Piney Point (Queen Annes Co.)	30	39 03	76 12	Queen Annes	18	122	227
Pleasant Hill	33, 34, 36	38 41	76 17	Talbot	47	198	210
Plum Point	16, 17	38 37	76 29	Calvert	4	66	127
Point (Severn River)	2	39 02	76 32	Anne Arundel	29	42	114
Point (Fishing Bay)	41	38 19	76 01	Dorchester	109	156	195
Point Look-in	22	38 05	76 19	St. Marys	33	148	149
Point Lookout	22, 23	38 03	76 19	St. Marys	34	149	149
Pompes	34	38 45	76 16	Talbot	73	211	208
Pond Marsh	31	38 56	76 19	Queen Annes	49	140	227
Pone	33	38 42	76 22	Talbot	41	195	210
Poplar	30	39 00	76 11	Queen Annes	21	121	227
Poplar Island	31, 33	38 46	76 23	Talbot	38	177	210
Poplar Island Narrows	33	38 46	76 21	Talbot	39	193	208
Poplar Point	32	38 53	76 10	Talbot	2	192	209
Poppin Point	2	39 02	76 33	Anne Arundel	35	43	115
Possum Point	30	39 05	76 07	Queen Annes	13	127	228
Potato Hill	3	38 52	76 31	Anne Arundel	81	57	116
Prickly Point	7	38 05	75 54	Somerset	20	72	183
Priest	24	38 09	76 26	St. Marys	44	157	146
Prison Point	19	38 27	76 37	Calvert	34	72	126
Prospect	32	38 57	76 14	Queen Annes	72	150	226
Prospect Point	32	38 53	76 12	Queen Annes	79	157	226
Punch Island Creek	38	38 25	76 19	Dorchester	67	139	199
Purdy Flats	3	38 56	76 31	Anne Arundel	62	52	115
Purnell Hammock	14	38 06	75 17	Worcester	11	53	246
Rabbit Island	34	38 46	76 17	Talbot	61	205	208
Race Horse (Queen Annes Co.)	32	38 52	76 11	Queen Annes	93	165	225
Race Horse (Talbot Co.)	32	38 52	76 11	Talbot	4	191	209
Ragged Point	36, 37	38 32	76 18	Dorchester	36	127	196
Ragged Point Flats	36, 37	38 33	76 17	Dorchester	35	128	196
Railway	25	38 15	76 42	St. Marys	89	177	147
Raleys Shore	24	38 09	76 26	St. Marys	45	158	146
Rattlesnake	14, 15	38 06	75 18	Worcester	14	54	246

## ALPHABETICAL INDEX TO NATURAL OYSTER BARS—Continued.

Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Red Buoy	36, 37	38 39	76 18	Dorchester	23	119	199
Red Sector	41	38 13	76 02	Dorchester	83	150	198
Reed Point	25	38 17	76 43	St. Marys	96	184	148
Reeds	30	39 04	76 10	Queen Annes	16	123	227
Richland	40	38 13	76 08	Dorchester	74	148	199
Rich Neck	31	38 52	76 17	Talbot	33	180	209
Ringold Middle-ground	31	38 54	76 18	Queen Annes	44	138	227
Roaring Point, East	11, 12	38 16	75 56	Wicomico	10	45	189
Roaring Point, West	41	38 16	75 56	Dorchester	117	159	195
Robins Cove	30	39 04	76 10	Queen Annes	15	123	227
Robins Marsh	14	38 09	75 15	Worcester	8	52	246
Rock Creek	5	38 12	75 55	Somerset	5	62	182
Rockhall	28, 29	39 09	76 15	Kent	14	100	241
Rock Point (South River)	3	38 55	76 31	Anne Arundel	63	51	115
Rock Point (Wicomico River)	26	38 16	76 50	Charles	13	51	132
Rock Point, Lower	2	39 01	76 31	Anne Arundel	27	41	114
Rock Point, Upper	2	39 03	76 33	Anne Arundel	32	45	115
Rocky Beach	21	38 12	76 22	St. Marys	26	144	149
Rollin	24	38 09	76 30	St. Marys	75	171	147
Rooks	31	38 57	76 19	Queen Annes	51	142	227
Rosecroft Hollow	24	38 10	76 26	St. Marys	50	162	146
Ross	37	38 33	76 15	Dorchester	40	134	197
Rough Point	3	38 57	76 33	Anne Arundel	59	54	115
Round Bay	2	39 03	76 33	Anne Arundel	33	44	115
Royston	34	38 41	76 14	Talbot	87	217	210
Ruler Flats	3	38 55	76 29	Anne Arundel	50	49	115
Russell	26	38 20	76 51	St. Marys	119	188	149
St. Catherine	26	38 15	76 47	St. Marys	108	194	148
St. Clement Entrance	25	38 14	76 44	St. Marys	92	180	147
St. George	24	38 08	76 28	St. Marys	67	167	147
St. Inigoes, North	24	38 10	76 25	St. Marys	48	160	146
St. Inigoes, South	24	38 10	76 25	St. Marys	47	160	147
St. Jerome	22	38 07	76 20	St. Marys	30	147	149
St. Margaret	26	38 15	76 49	St. Marys	112	192	148
Saltwork (Little Choptank River)	37	38 32	76 12	Dorchester	49	137	197
Saltworks (Severn River)	2	39 01	76 31	Anne Arundel	38	41	115
Sandgates	19	38 25	76 37	St. Marys	5	134	145
Sand Lump	11	38 19	75 54	Wicomico	3	43	189
Sand Shoal	41	38 14	76 00	Dorchester	101	153	195
Sand Spit	2	39 00	76 26	Anne Arundel	17	33	114
Sand Thistle	30	39 06	76 11	Kent	44	113	240
Sands	33	38 41	76 18	Talbot	46	197	210
Sandy Hill	35	38 36	76 07	Dorchester	13	115	199
Sandy Hill Lumps	35	38 36	76 06	Dorchester	12	115	199
Sandy Point (Prospect Bay)	32	38 58	76 15	Queen Annes	69	149	226
Sandy Point (Manokin River)	7	38 08	75 48	Somerset	16	68	182

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		Latitude	Longitude				
Sandy Point (Chincoteague Bay)	14	38 10	75 15	Worcester	7	51	246
Sandy Point Lumps	20	38 19	76 27	Calvert	22	80	126
Sandy Point, North	2	39 02	76 23	Anne Arundell	13	31	116
Sandy Point, South	2	39 00	76 24	Anne Arundel	14	31	116
Saunders	3	38 53	76 29	Anne Arundel	68	55	117
Saw Mill Creek	32	38 55	76 13	Queen Annes	75	155	226
Scarboro Creek	14	38 09	75 16	Worcester	9	52	246
Scraping Line	35	38 35	76 04	Talbot	123	239	210
Scotland	32	38 49	76 13	Talbot	21	186	209
Sea Turtle	32	38 51	76 15	Talbot	27	183	209
Second Point	32, 34	38 47	76 12	Talbot	12	187	209
Sedge Marsh	31	38 51	76 18	Talbot	34	179	209
Sedge Point	24	38 06	76 26	St. Marys	40	153	146
Seminary	24	38 11	76 26	St. Marys	52	163	146
Seths Point	33	38 45	76 18	Talbot	56	203	208
Sharkfin Shoal	41	38 13	76 00	Dorchester	113	152	198
Sharp	33, 36, 37	38 37	76 21	Talbot	44	196	210
Sharp Point	2	39 00	76 31	Anne Arundel	39	40	115
Shaving Pile	22	38 07	76 18	St. Marys	31	147	149
Shaw Bay Hill	32	38 51	76 11	Talbot	5	191	209
Shawns Wharf	32	38 53	76 09	Queen Annes	97	167	225
Sheep (Kent Co.)	30	39 07	76 07	Kent	58	119	239
Sheep (Queen Annes Co)	30	39 06	76 07	Queen Annes	5	128	227
Sheep (Chincoteague Bay)	15	38 04	75 19	Worcester	18	55	246
Shehan	24	38 09	76 30	St. Marys	77	172	147
Shell Pile	20	38 19	76 27	Calvert	20	78	126
Ship Point	30	39 05	76 07	Queen Annes	12	126	228
Shippen Creek	30	39 07	76 06	Kent	60	120	239
Shippen Hole	32	38 51	76 12	Queen Annes	82	159	225
Shipping Creek	31	38 54	76 20	Queen Annes	40	137	227
Shipping Point	26	38 16	76 50	Charles	14	52	132
Shoal Creek	35	38 34	76 03	Dorchester	8	113	197
Short Point	24	38 12	76 27	St. Marys	55	166	146
Side Shoal	29, 30	39 01	76 14	Kent	27	107	239
Sillery Bay	1	39 05	76 27	Anne Arundel	7	28	114
Silver Spring	26	38 14	76 47	St. Marys	106	195	148
Simmons	20	38 20	76 24	Calvert	14	83	127
Slaughter Creek	36, 37, 38	38 30	76 16	Dorchester	56	125	196
Smith Creek	24	38 07	76 25	St. Marys	36	150	145
Smith Point	33	38 46	76 18	Talbot	59	204	208
Smoke Point	40	38 18	76 12	Dorchester	95	143	198
Sothoron	19	38 30	76 40	St. Marys	2	133	145
South Point	13, 14	38 12	75 13	Worcester	1	49	246
Southeast Middle-ground (Patuxent River)	20	38 19	76 26	Calvert	18	81	126
Southeast Middle-ground (Chesapeake Bay)	42	38 06	76 10	Dorchester	77	161	199
Southwest	14	38 09	75 16	Worcester	10	53	246
Southwest Middle-ground	6, 8	38 00	76 09	Somerset	36	65	183

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		Latitude	Longitude				
Spaniard Point	30	39 06	76 09	Queen Annes	7	127	227
Spar Buoy	35	38 38	75 59	Talbot	132	242	206
Spedden	36, 37	38 38	76 19	Dorchester	24	119	199
Spencers	20	38 19	76 29	St. Marys	16	139	145
Spout	19	38 31	76 40	Calvert	41	69	127
States Bank	35	38 34	76 02	Dorchester	7	113	197
Stevens	31	38 55	76 19	Queen Annes	47	139	227
Stewart Island	34	38 42	76 10	Talbot	96	222	206
Stoddard	26	38 22	76 51	Charles	4	46	132
Stone (Pocomoke Sound)	9	37 56	75 48	Somerset	27	76	182
Stone (Chesapeake Bay)	33, 36	38 39	76 22	Talbot	42	195	210
Stone Church	34, 35	38 41	76 11	Talbot	94	221	206
Stone Pile	39	38 20	76 17	Dorchester	68	139	199
Stone Wharf	32	38 52	76 11	Queen Annes	92	164	225
Stony	25	38 16	76 40	St. Marys	88	176	147
Stony Hollow	3	38 53	76 31	Anne Arundel	78	60	116
Straits	24	38 08	76 30	St. Marys	72	170	147
Striking Marsh	15	38 04	75 16	Worcester	24	57	246
Strong Bay	29	39 01	76 17	Queen Annes	28	117	227
Sugar Loaf	35	38 34	76 02	Talbot	126	240	206
Susquehanna	37	38 31	76 16	Dorchester	53	132	196
Swan	24	38 09	76 30	St. Marys	74	171	147
Swan Creek	28	39 09	76 15	Kent	15	100	241
Swan Point	28, 29	39 08	76 18	Kent	8	99	241
Swan Reef	3	38 55	76 29	Anne Arundel	51	49	115
Swash	20	38 19	76 27	Calvert	19	80	126
Sycamore	32	38 50	76 12	Talbot	10	188	209
Tanners Patch	35	38 37	75 59	Dorchester	4	112	197
Tar Bay	39	38 20	76 15	Dorchester	69	141	196
Tarkhill	24	38 09	76 30	St. Marys	73	170	147
Tavern Creek	28, 29	39 09	76 16	Kent	9	102	241
Tea Table	27	39 13	76 19	Baltimore	1	33	103
Teague	26	38 32	76 40	Charles	1	53	132
Tenacres	21	38 11	76 21	St. Marys	27	145	149
The Black Buoy (Choptank River)	35	38 34	76 02	Talbot	125	239	206
The Haven	28, 29	39 09	76 15	Kent	13	101	241
Thomas (Calvert Co.)	19	38 28	76 39	Calvert	36	71	126
Thomas (St. Marys Co.)	19	38 27	76 38	St. Marys	4	134	145
Thomas Point North	3	38 55	76 26	Anne Arundel	47	46	116
Thomas Point South	3	38 54	76 27	Anne Arundel	48	47	116
Thompson Creek	24	38 09	76 27	St. Marys	61	158	146
Thompsons	31	38 57	76 19	Queen Annes	52	143	227
Thorough	41	38 19	76 02	Dorchester	105	157	195
Three Sisters	3	38 51	76 29	Anne Arundel	87	56	117
Thunder and Lightning	3	38 56	76 31	Anne Arundel	55	52	115
Tidemill	32	38 49	76 14	Talbot	22	185	209
Tilghman Wharf	33	38 42	76 19	Talbot	50	200	208
Tilghmans Point	31, 32	38 52	76 16	Talbot	32	180	209

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		Latitude	Longitude				
Tobacco Stick	37	38 32	76 14	Dorchester	52	133	196
Toby	15	38 04	75 18	Worcester	22	57	246
Todd Point	37	38 39	76 15	Dorchester	21	130	199
Tolchester Lump	28	39 13	76 15	Kent	4	97	241
Tolly Point	2, 3	38 57	76 27	Anne Arundel	45	34	116
Town	37	38 33	76 13	Dorchester	43	135	196
Town Creek	20	38 19	76 29	St. Marys	17	140	145
Town Point (Cortica River)	30	39 05	76 08	Queen Annes	9	125	228
Town Point (Tred Avon River)	34	38 42	76 11	Talbot	95	222	206
Traces Hollow	2	39 00	76 30	Anne Arundel	26	40	114
Travers	36, 38	38 30	76 22	Dorchester	66	123	199
Trippe	34	38 43	76 07	Talbot	103	226	207
Tubbmans Drain	39, 40	38 21	76 13	Dorchester	99	142	198
Tucker	3	38 51	76 32	Anne Arundel	83	59	116
Turkey Neck	33	38 44	76 18	Talbot	53	201	208
Turkey Point (South River)	3	38 55	76 30	Anne Arundel	66	48	115
Turkey Point (Eastern Bay)	31	38 54	76 18	Queen Annes	54	134	226
Turnrow	33, 34	38 43	76 18	Talbot	63	199	208
Turpin	14	38 10	75 15	Worcester	6	51	246
Turtle Back (Choptank River)	35	38 36	76 06	Dorchester	11	114	199
Turtle Back (Miles River)	32	38 51	76 14	Talbot	28	182	209
Turtle Egg Island	5, 7	38 07	76 00	Somerset	10	59	183
Umphasis	2	39 04	76 29	Anne Arundel	9	29	114
Under the Bar	29	39 06	76 16	Kent	20	104	240
Under the Cliffs	20	38 21	76 24	Calvert	12	84	127
Under the Gums	3	38 56	76 27	Anne Arundel	46	45	116
Upper Forrest	19	38 25	76 36	St. Marys	6	135	145
Upper Harris Creek	31, 32, 34	38 47	76 16	Talbot	62	181	208
Upper Hill	32	38 52	76 15	Talbot	31	181	209
Upper Newfoundland	41	38 19	75 54	Dorchester	121	160	195
Upper Stake	11	38 20	75 53	Wicomico	1	42	189
Upper Steps	16	38 41	76 31	Calvert	2	65	127
Wade	2	39 00	76 30	Anne Arundel	40	39	115
Wades Point	31	38 50	76 18	Talbot	35	179	209
Walnut	33	38 46	76 18	Talbot	58	204	208
Walter White	32	38 57	76 15	Queen Annes	67	150	226
Ware (Chesapeake Bay)	39, 40	38 17	76 13	Dorchester	73	140	199
Ware (Langford Creek)	30	39 09	76 09	Kent	54	117	240
Ware Sands	41	38 13	76 02	Dorchester	100	152	195
Waterloo	26	38 14	76 47	St. Marys	105	195	148
Watermelon Point	34	38 45	76 07	Talbot	111	229	207
Watkins	9	37 56	75 48	Somerset	28	76	182
Weems Lower	2	39 00	76 29	Anne Arundel	42	38	115
Weems Upper	2	39 00	76 30	Anne Arundel	41	39	115
Welch	2	39 05	76 27	Anne Arundel	5	28	114
Well Cove	32	38 58	76 15	Queen Annes	71	148	226

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Name of oyster bar	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic county publication of Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Well Point	34	38 45	76 16	Talbot	72	210	208
West End	32	38 50	76 13	Talbot	24	184	209
West St. Marys	24	38 11	76 27	St. Marys	58	163	146
Wetipquin	11	38 20	75 53	Wicomico	2	42	189
Whetstone	32	38 52	76 10	Queen Annes	94	165	225
Whitehall	2	38 58	76 27	Anne Arundel	19	33	114
Whitehall Creek	2	39 00	76 26	Anne Arundel	18	32	114
White Horse	28, 29	39 09	76 15	Kent	12	100	241
White Marsh	29	39 06	76 15	Kent	21	104	240
White Point	26	38 17	76 49	St. Marys	116	190	148
White Point Hollow	26	38 17	76 49	St. Marys	115	190	149
White Rock	15	38 03	75 17	Worcester	26	58	246
White Wood	39	38 19	76 14	Dorchester	70	141	196
Wickes Beach	29	39 02	76 16	Kent	25	106	239
Wicomico Lumps	26	38 21	76 51	Charles	5	47	132
Wicomico Middle-ground	26	38 18	76 50	Charles	10	49	132
Wild Cherry Tree	33	38 42	76 18	Talbot	49	199	208
Wild Ground (Eastern Bay)	31	38 54	76 19	Queen Annes	38	135	226
Wild Ground (Miles River)	32	38 49	76 13	Talbot	11	188	209
Willeys Island	34	38 45	76 14	Talbot	85	216	207
Willeys Island Flats	34	38 45	76 14	Talbot	77	212	207
Willis	34, 35	38 40	76 09	Talbot	114	230	206
Willow Bottom	30	39 05	76 11	Kent	41	112	239
Wilson Shoals	11	38 18	75 55	Wicomico	9	45	189
Wilsons Point	30	39 09	76 11	Kent	50	116	240
Winders Bank	32	38 52	76 10	Talbot	3	192	209
Windmill (Wicomico River)	26	38 19	76 51	Charles	8	48	132
Windmill (Honga River)	40	38 16	76 10	Dorchester	91	145	198
Windmill Flats	29	39 08	76 16	Kent	16	102	240
Wingate	5	38 14	75 52	Somerset	2	63	183
Wreck Buoy	2	38 58	76 26	Anne Arundel	16	34	116
Wroten Island	39, 40	38 19	76 12	Dorchester	96	143	198
Wye Island	32	38 53	76 11	Queen Annes	88	162	225
Wye River Middle-ground	32	38 53	76 11	Queen Annes	90	163	225
Wye Town	32	38 51	76 12	Talbot	7	190	209



## NATURAL OYSTER BARS.

### NUMERICAL INDEX.

NOTE.—See Alphabetical Index for other references relating to natural oyster bars.

#### ANNE ARUNDEL COUNTY.

County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar
1	Bodkin Point North	33	Round Bay	63	Rock Point (South River)
2	Bodkin Point South	34	Big Island		
3	Lumps East of Craig-hill Channel	35	Poppin Point	64	Inner Round Point
4	Mountain Point	36	Brewer (Severn River)	65	Outer Round Point
5	Welch	37	Clem Point	66	Turkey Point (South River)
6	Peach Hill	38	Saltworks (Severn River)	67	Marshy Point
7	Sillery Bay	39	Sharp Point	68	Saunders
8	Park	40	Wade	69	Lulu
9	Umphasis	41	Weems Upper	70	Dutchman
10	Black	42	Weems Lower	71	Dutchman Hollow
11	Persimmon	43	Horn Point (Severn River)	72	Cherry (Rhode River)
12	Outer Magothy			73	Buce
13	Sandy Point North	44	Chinks Point	74	Flat Island
14	Sandy Point South	45	Tolly Point	75	High Island
15	Hackett Point	46	Under The Gums	76	Bolston Bank
16	Wreck Buoy	47	Thomas Point North	77	Jackass
17	Sand Spit	48	Thomas Point South	78	Stony Hollow
18	Whitehall Creek	49	Old Woman	79	Brice Fence
19	Whitehall	50	Ruler Flats	80	Cheston Point
20	Inside Greenbury Point	51	Swan Reef	81	Potato Hill
21	Old Fort	52	Hill Point East	82	Barren Neck
22	Little Sandy	53	Hill Point (Severn River)	83	Tucker
23	Creces Cove	54	Fox Point	84	Cedar Point (West River)
24	Ferry Point	55	Thunder and Lightning.	85	Collins Flats
25	Peach Orchard			86	Curtis
26	Traces Hollow	56	Aberdeen	87	Three Sisters
27	Rock Point Lower	57	Duvall	88	Bay Shore
28	Chase	58	Beard Point	89	Long (Chesapeake Bay)
29	Point (Severn River)	59	Rough Point		
30	Aisquith Creek	60	Almshouse	90	Fairhaven
31	Arnold Point	61	Brewer (South River)	91	Holland Point (Chesapeake Bay)
32	Rock Point Upper	62	Purdy Flats		

#### BALTIMORE COUNTY.

1	Tea Table	2	Millers Island	3	Man-O'-War Shoals
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## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## NUMERICAL INDEX TO NATURAL OYSTER BARS—Continued.

## CALVERT COUNTY.

County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar
1	Hog Point	16	Old Lump	29	Island Creek (Patuxent River)
2	Upper Steps	17	Light House Lump	30	Broome Island
3	Lower Steps	18	Southeast Middle-ground (Patuxent River)	31	Parkers Wharf
4	Plum Point			32	Jacks Bay
5	Daddie Dare			33	Jacks Marsh
6	Governors Run	19	Swash	34	Prison Point
7	Emanuel	20	Shell File	35	Kitts Marsh
8	Flag Pond	21	Cherry Tree (Patuxent River)	36	Thomas (Calvert County)
9	Cove Point Bight			37	Broad Neck (Calvert County)
10	Little Cove Point	22	Sandy Point Lumps	38	Macks Hollow
11	Parker Moore	23	Back of Island	39	Buzzard Island
12	Under The Cliffs	24	Barn Gates	40	Holland Point (Patuxent River)
13	Chinese Muds (Calvert County)	25	Hungerford Hollow	41	Spout
14	Simmons	26	Hellen		
15	Carroll Muds (Calvert County)	27	Mears (Calvert County)		
		28	Peterson (Calvert County)		

## CHARLES COUNTY.

1	Teague	7	Joess Lumps	11	Charleston Creek
2	Elbow	8	Windmill (Wicomico River)	12	Lancaster
3	Carpenters Yard			13	Rock Point (Wicomico River)
4	Stoddard	9	Fenwick	14	Shipping Point
5	Wicomico Lumps	10	Wicomico Middle-ground	15	Cobb Point
6	Mills West				

## DORCHESTER COUNTY.

1	Drum Point (Choptank River)	20	Logans Hill	39	Hudson (Little Choptank River)
2	Cabin Creek Entrance	21	Todd Point	40	Ross
3	Cabin Creek (Choptank River)	22	Cook Point	41	Butterpot
4	Tanners Patch	23	Red Buoy	42	McKells Point
5	Dixon	24	Spedden	43	Town
6	Oyster Shell Point	25	Diamond (Chesapeake Bay)	44	Cherry Island
7	States Bank	26	Dupont	45	Brumell
8	Shoal Creek	27	Brannock	46	Jones (Little Choptank River)
9	Green Marsh	28	Mill Point (Chesapeake Bay)	47	Pattison
10	Hambrooks	29	Hills Point (Chesapeake Bay)	48	Barn Point
11	Turtle Back (Choptank River)	30	Hills Point North	49	Saltwork (Little Choptank River)
12	Sandy Hill Lumps	31	Hills Point South	50	Fishing Creek
13	Sandy Hill	32	Peanut Hill	51	Grapevine
14	Commander	33	Cow Island	52	Tobacco Stick
15	Horn Point (Choptank River)	34	Bald Eagle (Little Choptank River)	53	Susquehanna
16	Le Compte	35	Ragged Point Flats	54	Along Shore
17	Castle Haven Creek	36	Ragged Point	55	Hooper
18	Castle Haven	37	Little Pollard	56	Slaughter Creek
19	Corners Wharf	38	Cason	57	Bridge
				58	Nine Acres

NATURAL OYSTER BARS.

NUMERICAL INDEX TO NATURAL OYSTER BARS—Continued.

DORCHESTER COUNTY—Continued.

County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar
59	Little Choptank	78	Boundary	100	Ware Sands
60	Henpeck	79	Holland Straits	101	Sand Shoal
61	Cators	80	Mud (Dorchester County)	102	Evans (Fishing Bay)
62	Granger			103	Goose Creek
63	Oyster Creek (Little Choptank River)	81	Jane	104	Old House
		82	Bell Buoy	105	Thorough
64	Marshall	83	Red Sector	106	Flat Rock
65	James Point	84	Bloodsworth	107	Half Way Mark
66	Travers	85	Hopkins Cove	108	Hill
67	Punch Island Creek	86	Applegarth	109	Point (Fishing Bay)
68	Stone File	87	Norman	110	Bungay
69	Tar Bay	88	Lower Thoroughfare	111	Duck Island
70	White Wood	89	Crab Point	112	Clay Island
71	New Discovery	90	Paul	113	Sharkfin Shoal
72	Horse Point Channel	91	Windmill (Honga River)	114	Frog Point
73	Ware (Chesapeake Bay)			115	New
		92	Hickory	116	Hills and Holes
74	Richland	93	Lakes Cove	117	Roaring Point West
75	Hooper Strait	94	Dark Point	118	Bean Shoal
76	Northwest Middle-ground	95	Smoke Point	119	Outer Hole
		96	Wroten Island	120	Lower Newfoundland
77	Southeast Middle-ground (Chesapeake Bay)	97	Gum	121	Upper Newfoundland
		98	Peanut		
		99	Tubbmans Drain		

KENT COUNTY.

1	Phoenix Shoal	25	Wickes Beach	45	Boat House
2	Deep Shoal	26	Dredge Rock	46	Drum Point (Langford Creek)
3	Coal Lump	27	Side Shoal	47	Davis Creek
4	Tolchester Lump	28	Mud (Chester River)	48	Island Point
5	Mitchells Bluff Buoy	29	Ferry (Kent County)	49	Eagle Point (Langford Creek)
6	Gales Lumps	30	Buoy Rock	50	Wilsons Point
7	Hodges	31	Hail Creek	51	Kings Creek
8	Swan Point	32	Hail Point	52	Bailey
9	Tavern Creek	33	Black Buoy (Chester River)	53	Phillips
10	Little Neck (Swan Creek)	34	Durbin	54	Ware (Langford Creek)
11	Deep Landing Hole	35	Belts	55	Ebb Point
12	White Horse	36	Piney Point (Kent County)	56	Cliff
13	The Haven	37	Bay Bush Point	57	Commegys Bight
14	Rockhall	38	Bluff Point (Chester River)	58	Sheep (Kent County)
15	Swan Creek			59	Deep Point
16	Windmill Flats	39	Chester River Middle-ground	60	Shippen Creek
17	Muddy Drain	40	Limekiln	61	Haddaway
18	Huntingfield	41	Willow Bottom	62	Hollyday (Kent County)
19	Gum Spring	42	Nichols	63	Melton Point
20	Under The Bar	43	Hudson (Chester River)	64	Northwest (Kent County)
21	White Marsh				
22	Hickory Thicket	44	Sand Thistle		
23	East Neck Bay				
24	Entrance Lumps				

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## NUMERICAL INDEX TO NATURAL OYSTER BARS—Continued.

## QUEEN ANNES COUNTY.

County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar
1	North west (Queen Annes County)	33	Kent Point	67	Walter White
2	Booker Wharf	34	Long Point (Eastern Bay)	68	Hog Island (Prospect Bay)
3	Holly day (Queen Annes County)	35	Bodkin Shoals	69	Sandy Point (Prospect Bay)
4	Mummys Cove	36	Brick House Hill	70	Buckhorn
5	Sheep (Queen Annes County)	37	Bunker Hill	71	Well Cove
6	Emory Hollow	38	Wild Ground (Eastern Bay)	72	Prospect
7	Spaniard Point	39	Pine Tree	73	Hood
8	Holton Point	40	Shipping Creek	74	Cabin Creek (Prospect Bay)
9	Town Point (Corsica River)	41	Greeves Cove	75	Saw Mill Creek
10	Earle Cove	42	Mattapex	76	Mill Hill
11	Emory Wharf	43	Batts Neck	77	Bugby
12	Ship Point	44	Ringold Middleground	78	Greenwood Creek
13	Possum Point	45	Erickson Sands	79	Prospect Point
14	Old Field	46	Pea Hill	80	Coffee
15	Robins Cove	47	Stevens	81	Persimmon Tree
16	Reeds	48	Jones Hole	82	Shippen Hole
17	Hells Delight	49	Pond Marsh	83	Mills
18	Piney Point (Queen Annes County)	50	Island Cove	84	Hobbs
19	Horse Race	51	Rooks	85	Baxters Hollow
20	Carpenter Island	52	Thompsons	86	Paca
21	Poplar	53	Middle Block	87	Bryan (Wye River)
22	Blunt	54	Turkey Point (Eastern Bay)	88	Wye Island
23	Long Point (Chester River)	55	Bodkin Island	89	Drum Point (Wye River)
24	Flood Point	56	Cox Neck	90	Wye River Middle-ground.
25	Kent Island Narrows	57	Cedar Island	91	Hess
26	Ferry (Queen Annes County)	58	Johnson Island	92	Stone Wharf
27	Carvel	59	Crab Alley Lumps	93	Race Horse (Queen Annes County)
28	Strong Bay	60	Normans Fine Eyes	94	Whetstone
29	Love Point	61	Parsons Island	95	Melvin
30	Broad Creek	62	Bald Eagle (Eastern Bay)	96	Dividing
31	Brick House	63	Parsons Island Narrows	97	Shawns Wharf
32	Gum Thicket	64	Normans Marsh	98	Granary Point
		65	Bibby		
		66	Dominion		

## ST. MARYS COUNTY.

1	Brooks Shallows	10	Peterson (St. Marys County)	19	La Grande
2	Sothoron	11	Neale	20	Millstone
3	Broad Neck (St. Marys County)	12	Mears (St. Marys County)	21	Deep Point Mud
4	Thomas (St. Marys County)	13	Half Pone	22	Carroll Muds (St. Marys County)
5	Sandgates	14	Hawks Nest	23	Hog Island (Patuxent River)
6	Upper Forrest	15	Bob Wise	24	Chinese Muds (St. Marys County)
7	Lower Forrest	16	Spencers	25	Cedar Point Hollow
8	Gatton	17	Town Creek	26	Rocky Beach
9	Captain Point	18	Goodwin		

## NUMERICAL INDEX TO NATURAL OYSTER BARS—Continued.

## ST. MARYS COUNTY—Continued.

County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar
27	Tenacres	61	Thompson Creek	92	St. Clement Entrance
28	McKay	62	Carthagena Creek	93	Newtown Flats
29	Fish Hawk	63	Coad	94	Chapel Point
30	St. Jerome	64	Edmund	95	Abell
31	Shaving Pile	65	Middleground Lump	96	Reed Point
32	Butler	66	Cherry (St. Marys River)	97	Guest Marshes
33	Point Look-in	67	St. George	98	Harry Jacks
34	Point Lookout	67	Hurdle	99	Mileys Creek
35	Old Hare	68	Goose Point (St. George River)	100	Bluff Woods
36	Smith Creek	69	Island Shore	101	Canoe Creek
37	Dunbar	70	Milbourne Shore	102	Old Wreck
38	Jutland	71	Straits	103	Horse
39	Graves	72	Tarkill	104	Dukehart Channel
40	Sedge Point	73	Swan	105	Waterloo
41	Chicken Cock	74	Rollin	106	Silver Spring
42	Fort	75	Cedar Point (St. George River)	107	Hackley Creek
43	Langley Hollow	76	Shehan	108	St. Catherine
44	Priest	77	Long (St. George River)	109	Bullock Island
45	Raleys Shore	78	Chadwick	110	Bullock
46	Jones (St. Marys River)	79	Heron Island Reef	111	Mouth of River
47	St. Inigoes South	80	Heron Island Sound	112	St. Margaret
48	St. Inigoes North	81	Black Walnut (Bre-tons Bay)	113	Bluff Point (Wicomico River)
49	Kennedy	82	Gough	114	Blakistone
50	Rosecroft Hollow	83	Lovers Point	115	White Point Hollow
51	Gravelly Run	84	Mouldy Creek	116	White Point
52	Seminary	85	Island	117	Bramleigh Creek
53	Horseshoe (St. Marys River)	86	Paw Paw Hollow	118	Manahowic Creek
54	Bryan (St. Marys River)	87	Stony	119	Russell
55	Short Point	88	Railway	120	Mills East
56	Biscoe	89	Bretons Bay	121	Chaptico Lumps
57	Pagan	90	Blue Sow	122	Cohouck
58	West St. Marys	91		123	Key
59	Cooper Creek			124	Mouth of Creek
60	Coppage				

## SOMERSET COUNTY.

1	Mount Vernon Wharf	14	Piney Island Swash	27	Stone (Pocomoke Sound)
2	Wingate	15	Georges	28	Watkins
3	Buoy	16	Sandy Point (Manokin River)	29	Long Point (Pocomoke Sound)
4	Evans (Wicomico River)	17	Cornal	30	Gunby
5	Rock Creek	18	Marshy Island	31	Marumsc
6	Halls Point	19	Drum Point (Manokin River)	32	Kitts Creek West
7	Haines	20	Prickly Point	33	Kitts Creek East
8	Old Orchard (Tangier Sound)	21	Piney Island East	34	Oyster Creek (Kedge Straits)
9	Mud (Somerset Co.)	22	Harris	35	Kedge Straits
10	Turtle Egg Island	23	Big Annemessex	36	Southwest Middle-ground
11	Chain Shoal	24	Philibys	37	Church Creek
12	Mussel Hole	25	Great Rock		
13	Piney Island West	26	Fox Island		

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## NUMERICAL INDEX TO NATURAL OYSTER BARS—Continued.

## TALBOT COUNTY.

County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar
1	Juniper	43	Clay Bank	86	Fox
2	Poplar Point	44	Sharp	87	Royston
3	Winders Bank	45	Black Walnut (Big	88	Irish Creek
4	Race Horse (Talbot County)	46	Choptank River) Sands	89	Choptank Lumps
5	Shaw Bay Hill	47	Pleasant Hill	90	Benoni
6	Bruffs Island	48	Church Hill	91	Light House
7	Wye Town	49	Wild Cherry Tree	92	Bachelor Point
8	Herring Island	50	Tilghman Wharf	93	Fox Hole
9	East End	51	Change	94	Stone Church
10	Sycamore	52	Eagle Point (Harris Creek)	95	Town Point (Tred Avon River)
11	Wild Ground (Miles River)	53	Turkey Neck	96	Stewart Island
12	Second Point	54	Mill Point (Harris Creek)	97	Goose Neck
13	Gibsons Flats	55	Hunts	98	Pecks Point
14	Long Point (Miles River)	56	Seths Point	99	Mares Point
15	Cox	57	Lodges	100	Louis Cove
16	Barnett	58	Walnut	101	Bamings Cove
17	Bazzles Hill	59	Smith Point	102	Old House Point
18	Old Orchard (Miles River)	60	Little Neck (Harris Creek)	103	Trippe
19	Ash Craft	61	Rabbit Island	104	Bakers Cove
20	Deep Water Point	62	Upper Harris Creek	105	Marshy
21	Scotland	63	Turnrow	106	Flatty
22	Tidemill	64	Great Marsh	107	Orem
23	Hambleton	65	France	108	Double Mills
24	West End	66	Dawson	109	Johnston
25	Hambleton Hill	67	Long Point Woods	110	Camden Point
26	Bozman Neck	68	Great Bar	111	Watermelon Point
27	Sea Turtle	69	Brown	112	Back Shore
28	Turtle Back (Miles River)	70	Deep Neck	113	Hopkins
29	Horseshoe (Miles River)	71	Mulberry Point	114	Willis
30	Aldridges Discovery	72	Well Point	115	Island Creek (Choptank River)
31	Upper Hill	73	Pompes	116	Mathews
32	Tilghmans Point.	74	Coopers Point	117	Chlora Point
33	Rich Neck	75	Judys Point	118	Beacons
34	Sedge Marsh (Tred Avon River)	76	Brushy Point	119	La Trappe
35	Wades Point	77	Willeys Island Flats	120	Howells Point
36	Marys Delight	78	Holland Point (Broad Creek)	121	Dickinson
37	Lows Point	79	Harrison	122	Kirby
38	Poplar Island	80	Broad Creek Middle-ground	123	Scraping Line
39	Poplar Island Narrows	81	Cedar Point (Broad Creek)	124	Bolingbroke Sand
40	Bay Hundred	82	Drum Point (Broad Creek)	125	The Black Buoy (Choptank River)
41	Pone	83	Joe Harris Flats	126	Sugar Leaf
42	Stone (Chesapeake Bay)	84	Pin Cushion	127	Chancellor Point
		85	Willeys Island	128	British Harbour
				129	Goose Point (Choptank River)
				130	Mill Dam
				131	Jamaica Point
				132	Spar Buoy

## NUMERICAL INDEX TO NATURAL OYSTER BARS—Continued.

## WICOMICO COUNTY.

County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar	County index number indicating oyster bars on Index Chart	Name of oyster bar
1	Upper Stake	7	Long Shoal	12	Big Hill
2	Wetipquin	8	Cherry Tree (Nanticoke River)	13	Great Shoals
3	Sand Lump	9	Wilson Shoals	14	Ingram Shoal
4	Hickory Nut	10	Roaring Point East	15	Holland
5	Old Womans Patch	11	Middleground		
6	Cedar Shoal				

## WORCESTER COUNTY.

1	South Point	11	Purnell Hammock	20	Kennel
2	Handys Hammock	12	Diamond (Chincoteague Bay)	21	Big Bay Point
3	Newport	13	Beef Creek	22	Toby
4	Lambertson Landing	14	Rattlesnake	23	Deep Water
5	Ennis	15	Martin Point	24	Striking Marsh
6	Turpin	16	Easter Cove	25	Levin Tump
7	Sandy Point (Chincoteague Bay)	17	Mink Tump	26	White Rock
8	Robins Marsh	18	Sheep (Chincoteague Bay)	27	Horsehead North
9	Scarboro Creek	19	Drum	28	Horsehead South
10	Southwest				

## CRAB BOTTOMS.

### ALPHABETICAL INDEX.

NOTE.—See Numerical Index for names of crab bottoms corresponding to numbers on Index Chart.

Name of crab bottom	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Adam Island	42	38 09	76 05	Dorchester	3	170	193
Apes Hole	9	37 57	75 48	Somerset	38	110	151
Back Creek	9	37 59	75 52	Somerset	29	104	151
Big Island	9	37 58	75 59	Somerset	39	101	151
Bishop Head	41	38 13	76 02	Dorchester	14	167	193
Bloodsworth Island	41, 42	38 11	76 02	Dorchester	7	168	193
Broad Creek	9	37 55	75 51	Somerset	36	108	151
Cancer	9	37 59	75 52	Somerset	28	104	151
Cedar Straits	9	37 55	75 54	Somerset	35	108	151
Colburn	7	38 04	75 47	Somerset	21	98	151
Crane Cove	7	38 04	75 49	Somerset	17	96	151
Daugherty Creek	7	38 02	75 51	Somerset	24	99	151
Deal Island	5, 7	38 08	75 58	Somerset	2	83	152
Deep Banks	5, 6, 7	38 08	76 02	Somerset	46	81	152
Drum	9	38 00	75 58	Somerset	40	102	151
Duck Point Cove	40	38 16	76 06	Dorchester	12	166	193
Fishing Creek	9	37 56	75 54	Somerset	34	107	151
Fishing Point	6, 7	38 02	76 00	Somerset	42	88	152
Fords Wharf	7	38 04	75 50	Somerset	16	95	151
Fox Creek	40	38 18	76 07	Dorchester	10	165	193
Geanquakin	5, 7	38 09	75 51	Somerset	10	85	152
Goose Creek	7	38 06	75 52	Somerset	12	93	151
Grassy	40, 41	38 12	76 03	Dorchester	8	167	193
Great Cove	41, 42	38 10	76 01	Dorchester	6	169	193
Great Point	9	37 57	75 54	Somerset	33	107	151
Hazard	7	38 04	75 53	Somerset	14	94	151
Holland Island	42	38 07	76 05	Dorchester	2	171	193
Holland Straits	5, 6, 7	38 09	76 01	Somerset	45	82	152
Jackson Island	7	38 03	75 50	Somerset	22	98	151
Jenkins Creek	9	37 57	75 52	Somerset	31	105	151
Jenny Island	40, 41	38 14	76 04	Dorchester	13	166	193
Jones Creek	7	38 02	75 50	Somerset	23	99	151
Kings Island	9	37 57	75 53	Somerset	32	106	151
Lavellette	9	37 58	75 52	Somerset	30	105	151
Laws Thoroughfare North	5	38 10	75 57	Somerset	1	83	152
Laws Thoroughfare South	5, 7	38 08	75 55	Somerset	7	84	152
Light House	9	37 58	75 53	Somerset	27	103	151
Little Deal Island	7	38 07	75 56	Somerset	4	91	151
Lower Thoroughfare	7	38 07	75 56	Somerset	6	91	151
Marsh Island	5, 7	38 08	75 53	Somerset	8	84	152
Miles	7	38 04	75 47	Somerset	20	97	151



## ALPHABETICAL INDEX TO CRAB BOTTOMS—Continued.

Name of crab bottom	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location.		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Mine Creek	7	38 05	75 53	Somerset	13	94	151
Moon Bay	7	38 04	75 48	Somerset	18	96	151
Northeast Island	42	38 09	76 04	Dorchester	4	169	193
North Kedge Straits	6	38 05	76 03	Somerset	49	87	152
Okahanikan	40, 41, 42	38 12	76 04	Dorchester	9	167	193
Old House	9	37 58	75 53	Somerset	26	102	151
Piney Island	7	38 06	75 55	Somerset	5	92	151
Pry Cove	6	38 06	76 03	Somerset	48	86	152
Pry Island	42	38 07	76 04	Dorchester	1	172	193
Pungers Creek	5, 6, 7	38 07	76 01	Somerset	44	82	152
Red Cap Creek	7	38 05	75 47	Somerset	19	97	151
Shanks Creek	8	37 58	76 02	Somerset	53	100	151
Shark Point	7	38 04	75 52	Somerset	15	95	151
Sheepshead	6, 7	38 04	76 02	Somerset	50	87	152
Smith Island Thor- oughfare	6, 8, 9	38 00	76 03	Somerset	52	89	151
South Kedge Straits	6	38 02	76 02	Somerset	51	88	152
South Marsh	7	38 05	76 00	Somerset	43	90	151
Spring Island (Dorchester Co.)	42	38 08	76 03	Dorchester	5	170	193
Spring Island (Somerset Co.)	6	38 07	76 03	Somerset	47	86	152
St. Pierre	5, 7	38 08	75 52	Somerset	9	85	152
Teague Creek	7	38 07	75 50	Somerset	11	93	151
Tenth Point	7	38 02	75 51	Somerset	25	100	151
Terrapin Sand	7, 9	38 01	75 58	Somerset	41	89	151
Tylers Creek	8, 9	37 58	76 01	Somerset	54	101	151
Ware Point	9	37 56	75 49	Somerset	37	109	151
Wenona	7	38 07	75 57	Somerset	3	90	151
Wingate	40	38 17	76 06	Dorchester	11	165	193

## CRAB BOTTOMS.

### NUMERICAL INDEX.

NOTE.—See Alphabetical Index for other references relating to crab bottoms.

#### DORCHESTER COUNTY.

County index number indicating crab bottoms on Index Chart	Name of crab bottom	County index number indicating crab bottoms on Index Chart	Name of crab bottom	County index number indicating crab bottoms on Index Chart	Name of crab bottom
1	Pry Island	6	Great Cove	12	Duck Point Cove
2	Holland Island	7	Bloodsworth Island	13	Jenny Island
3	Adam Island	8	Grassy	14	Bishop Head
4	Northeast Island	9	Okahanikan		
5	Spring Island (Dorchester County)	10	Fox Creek		
		11	Wingate		

#### SOMERSET COUNTY.

1	L a w s Thoroughfare North	19	Red Cap Creek	39	Big Island
2	Deal Island	20	Miles	40	Drum
3	Wenona	21	Colburn	41	Terrapin Sand
4	Little Deal Island	22	Jackson Island	42	Fishing Point
5	Piney Island	23	Jones Creek	43	South Marsh
6	Lower Thoroughfare	24	Daugherty Creek	44	Pungers Creek
7	L a w s Thoroughfare South	25	Tenth Point	45	Holland Straits
8	Marsh Island	26	Old House	46	Deep Banks
9	St. Pierre	27	Light House	47	Spring Island (Somerset County)
10	Geanquakin	28	Cancer	48	Pry Cove
11	Teague Creek	29	Back Creek	49	North Kedge Straits
12	Goose Creek	30	Lavellette	50	Sheepshead
13	Mine Creek	31	Jenkins Creek	51	South Kedge Straits
14	Hazard	32	Kings Island	52	Smith Island Thoroughfare
15	Shark Point	33	Great Point	53	Shanks Creek
16	Fords Wharf	34	Fishing Creek	54	Tylers Creek
17	Crane Cove	35	Cedar Straits		
18	Moon Bay	36	Broad Creek		
		37	Ware Point		
		38	Apes Hole		

## CLAM BEDS.

### ALPHABETICAL INDEX.

NOTE.—See Numerical Index for names of clam beds corresponding to number on Index Chart.

Name of clam bed	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Oyster Bars on which boundaries are defined	Page of Fourth Report of Maryland Shell Fish Commission on which characteristics are described
		Latitude	Longitude				
Flat Rock	9, 10	37° 56'	75° 47'	Somerset	3	112	152
Gravel Rock	9	37° 55'	75° 48'	Somerset	2	111	152
Ware Rock	9	37° 35'	75° 48'	Somerset	1	111	152

### NUMERICAL INDEX.

NOTE.—See Alphabetical Index for other references relating to clam beds.

#### SOMERSET COUNTY.

County index number indicating clam beds on Index Chart	Name of clam bed	County index number indicating clam beds on Index Chart	Name of clam bed	County index number indicating clam beds on Index Chart	Name of clam bed
1	Ware Rock	2	Gravel Rock	3	Flat Rock

## LANDMARKS.

### U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS.

#### ALPHABETICAL INDEX.

NOTE.—See Numerical Index for names of triangulation stations corresponding to numbers on Index Chart.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
		° /	° /			
Aber	32	38 2 48	76 11	Talbot	29	66
Adam	37	38 33	76 11	Dorchester	49	71
Adams	24	38 08	76 29	St. Marys	109	87
Albert	32	38 52	76 10	Queen Annes	116	92
All	34	38 43	76 07	Talbot	211	127
Aller	32	38 54	76 10	Queen Annes	106	88
Alley	32	38 56	76 15	Queen Annes	79	77
Almshouse	3	38 56	76 32	Anne Arundel	82	92
Almshouse (Lighting Rod)	3	38 56	76 32	Anne Arundel	81	92
Alpha	3	38 52	76 32	Anne Arundel	96	96
Amour	29	38 43	76 16	Queen Annes	41	33
Annette	34	38 43	76 16	Talbot	123	93
Ansley	34	38 46	76 14	Talbot	157	105
Apple	3	38 50	76 32	Anne Arundel	101	98
Applegarth	40	38 14	76 08	Dorchester	93	87
Ar	41	38 19	75 55	Dorchester	128	98
Arbuckle	24	38 09	76 30	St. Marys	99	91
Arnold	2	39 02	76 32	Anne Arundel	42	80
Arundel	3	38 55	76 28	Anne Arundel	70	88
Asbury Church	9	37 58	75 50	Somerset	45	49
Ash	30	39 08	76 10	Kent	55	66
Ashland	30	39 07	76 06	Queen Annes	12	53
Asquith	40	38 17	76 09	Dorchester	107	90
Assateague Light	( <sup>1</sup> )	37 55	75 21	Virginia	23	<sup>1</sup> 40
Attila	32	38 52	76 10	Queen Annes	118	93
Austin	37	38 32	76 11	Dorchester	61	76
Avalon	33	38 43	76 20	Talbot	89	80
Aye	34	38 44	76 08	Talbot	202	123
Bach	34, 35	38 41	76 11	Talbot	224	132
Back	37	38 33	76 15	Dorchester	36	66
Bailey	26	38 14	76 47	St. Marys	168	126
Bald	34	38 45	76 15	Talbot	136	97
Baldwins	32	38 52	76 10	Talbot	12	58
Ball (Wicomco River)	5	38 14	75 51	Somerset	5	35
Ball (Harris Creek)	33	38 45	76 18	Talbot	119	86
Baltimore Light	( <sup>2</sup> )	39 04	76 24	Anne Arundel	6	<sup>2</sup> 32
Bank (Magothy River)	2	39 05	76 31	Anne Arundel	16	71
Bank (Swan Creek)	28, 29	39 09	76 16	Kent	5	31
Bank (St. Clement Bay)	25	38 16	76 43	St. Marys	147	110

<sup>1</sup> See Worcester County publication.

<sup>2</sup> See Queen Annes County publication.

LANDMARKS.

ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Bank (Tred Avon River)	35	38 37	76 00	Talbot	263	158
Bar (Tangier Sound)	5, 7	38 08	75 58	Somerset	13	38
Bar (Harris Creek)	33	38 41	76 19	Talbot	87	79
Bar (Sinepuxent Bay)	13	38 16	75 08	Worcester	15	32
Barber (Wicomico River)	26	38 23	76 51	St. Marys	181	116
Barber (Tred Avon River)	35	38 36	76 01	Talbot	259	157
Bareda House (Upola)	20	38 19	76 26	Calvert	18	55
Barn	7	38 08	75 48	Somerset	30	44
Barnett	34	38 46	76 11	Talbot	62	149
Bars	19	38 23	76 32	St. Marys	11	47
Bateman	34	38 45	76 07	Talbot	196	121
Bath	30	39 05	76 07	Queen Annes	22	46
Battle	19	38 27	76 37	Calvert	39	42
Batts	31	38 55	76 19	Queen Annes	53	66
Bay (Magothy River)	1	39 06	76 27	Anne Arundel	11	68
Bay (Seyvern River)	2	39 02	76 33	Anne Arundel	49	82
Bay Bush Point	30	39 03	76 13	Kent	23	46
Bay Ridge Stack	3	38 56	76 27	Anne Arundel	66	87
Bay Side	2	39 01	76 24	Anne Arundel	26	75
Bayly	37	38 33	76 15	Dorchester	37	67
Beach (Chesapeake Bay)	16	38 40	76 32	Calvert	2	27
Beach (Sinepuxent Bay)	13	38 17	75 07	Worcester	11	30
Beacon	9	37 55	75 54	Virginia	8	1 50
Beacon Clumps	14	38 08	75 12	Worcester	28	37
Beak	32	38 48	76 11	Talbot	33	68
Beau	25	38 16	76 38	St. Marys	121	98
Beckwith	37	38 34	76 12	Dorchester	44	70
Bee	32	38 54	76 10	Queen Annes	102	86
Beg	34	38 46	76 10	Talbot	39	141
Belle	25	38 16	76 39	St. Marys	130	96
Bellevue	34	38 42	76 11	Talbot	180	115
Bello	24	38 11	76 27	St. Marys	88	78
Ben	20	38 18	76 28	St. Marys	19	58
Bend	24	38 12	76 26	St. Marys	75	81
Bengal	34	38 46	76 15	Talbot	139	98
Benn	32	38 51	76 12	Queen Annes	89	81
Benoni 2	34	38 40	76 12	Talbot	177	114
Bentley	40	38 18	76 11	Dorchester	99	88
Berry	34, 35	38 40	76 09	Talbot	242	139
Bethel	34	38 47	76 08	Talbot	54	145
Between	24	38 07	76 26	St. Marys	55	70
Beverly	34	38 46	76 14	Talbot	155	104
Bight	2	39 02	76 32	Anne Arundel	41	80
Bill	30	39 09	76 05	Queen Annes	6	58
Billiard	19	38 29	76 40	St. Marys	2	38
Birch	13, 14	38 13	75 12	Worcester	22	35
Bird	30	39 04	76 10	Queen Annes	31	41
Bivalve Church	11	38 18	75 53	Wicomico	4	26
Black	33, 36	38 40	76 20	Talbot	84	78
Black Beacon	35	38 37	76 07	Talbot	252	153
Blakford	30	39 00	76 10	Queen Annes	35	37
Blakistone	26	38 17	76 48	St. Marys	172	123
Blakistone Island Light	25	38 12	76 45	St. Marys	163	105

\* See Somerset County publication.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
		° /	° /			
Blanco	34	38 44	76 16	Talbot	128	95
Blank	(1)	39 10	76 02	Kent	92	88
Blind	35	38 38	75 59	Talbot	265	159
Bloody Point Bar Light	31	38 50	76 24	Queen Annes	46	63
Blossom	34	38 44	76 07	Talbot	200	123
Bluebeard	30	38 59	76 11	Queen Annes	36	37
Bluff (Severn River)	2	38 59	76 28	Anne Arundel	34	77
Bluff (Magothy River)	2	39 04	76 27	Anne Arundel	8	70
Bodkin Point (Old Tower)	1	39 08	76 25	Anne Arundel	3	68
Boling	35	38 35	76 02	Talbot	256	155
Bon	20	38 19	76 27	Calvert	19	54
Bonnet	32	38 56	76 14	Queen Annes	86	79
Booker	30	39 08	76 04	Queen Annes	9	56
Boone	34, 35	38 40	76 10	Talbot	225	132
Borough	34	38 42	76 09	Talbot	217	129
Bowman	26	38 20	76 52	Charles	10	27
Bozman	34	38 46	76 16	Talbot	112	91
Bozman M. E. Church Spire	34	38 46	76 16	Talbot	113	91
Bramble	28	39 15	76 13	Kent	2	29
Brannock	36, 37	38 35	76 16	Dorchester	29	56
Break	30	39 02	76 10	Queen Annes	34	38
Brewer (Severn River)	2	39 02	76 32	Anne Arundel	50	83
Brewer (South River)	3	38 57	76 33	Anne Arundel	80	91
Brian Reference Station	32	38 56	76 13	Queen Annes	87	80
Briary	33	38 46	76 18	Talbot	97	83
Brier	2	39 00	76 29	Anne Arundel	35	78
Bridge (Honga River)	39, 40	38 18	76 12	Dorchester	100	87
Bridge (Kent Island Narrows)	29, 32	38 58	76 15	Queen Annes	83	36
Brief	24	38 12	76 27	St. Marys	82	83
Briscoe	20	38 22	76 30	St. Marys	13	49
Broad (Chesapeake Bay)	4	38 47	76 31	Anne Arundel	107	100
Broad (Chester River)	(2)	39 09	76 04	Kent	87	85
Brome	24	38 11	76 26	St. Marys	72	80
Brooks	37	38 32	76 12	Dorchester	63	77
Brown	30	39 06	76 09	Kent	75	75
Bruffs	32	38 52	76 12	Talbot	18	61
Buena	19	38 32	76 39	Calvert	46	34
Buffing	13	38 19	75 07	Worcester	5	27
Buffington Windmill	13	38 19	75 07	Worcester	6	28
Bungay	30	39 09	76 11	Kent	48	63
Bur	20	38 20	76 29	Calvert	26	51
Burns	30	39 08	76 05	Queen Annes	11	54
Burr	26	38 21	76 52	Charles	9	26
Bush	32	38 53	76 08	Queen Annes	128	97
But	32	38 48	76 12	Talbot	28	65
Buzz	19	38 29	76 39	Calvert	43	38
Buzzard	25	38 17	76 38	St. Marys	128	94
Cabin	34	38 45	76 15	Talbot	134	97
Cable	20	38 19	76 29	St. Marys	16	52
Cain	20, 21	38 17	76 23	St. Marys	24	58
Cake	30	39 09	76 04	Queen Annes	7	57

1 See progress map in Kent County publication.

2 See Worcester County publication.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Calf	3	38 53	76 32	Anne Arundel	91	95
Calvert Monument	24	38 11	76 26	St. Marys	73	81
Cam	34	38 43	76 07	Talbot	212	127
Cambridge	35	38 35	76 05	Dorchester	16	50
Cambridge Stand Pipe	35	38 34	76 05	Dorchester	15	50
Camden	34	38 45	76 07	Talbot	199	122
Can	36, 37, 38	38 30	76 18	Dorchester	81	59
Canoe	25	38 15	76 41	St. Marys	161	107
Carrie	37	38 33	76 15	Dorchester	38	67
Carroll 2	20	38 18	76 25	St. Marys	21	56
Castle	35	38 38	76 10	Dorchester	24	53
Catholic Church Cross	20	38 20	76 28	Calvert	24	52
Catholic Church Cross (Benedict)	26	38 31	76 41	Charles	4	37
Catholic Church Cross (Newtown Neck)	25	38 15	76 42	St. Marys	143	108
Catholic Church Spire (Annapolis)	2	38 58	76 29	Anne Arundel	60	85
Cato	3	38 52	76 31	Anne Arundel	88	94
Caulk	34	38 45	76 16	Talbot	130	95
Cecil	25	38 17	76 43	St. Marys	148	112
Cedar (South River)	3	38 56	76 32	Anne Arundel	83	92
Cedar (Severn River)	2	39 04	76 34	Anne Arundel	45	81
Cedar (Bretons Bay)	25	38 16	76 38	St. Marys	124	95
Cedar (Broad Creek)	34	38 44	76 14	Talbot	166	109
Cedar Point Light	20, 39	38 18	76 22	St. Marys	23	58
Cedok	25	38 14	76 41	St. Marys	114	104
Chadwick	24	38 10	76 31	St. Marys	102	92
Chalk	3	38 50	76 32	Anne Arundel	99	97
Chan	24	38 10	76 27	St. Marys	70	78
Chancellor	35	38 35	76 02	Talbot	258	156
Change 1910	33, 34	38 43	76 18	Talbot	121	86
Chap	32	38 48	76 07	Talbot	50	70
Chapel	25	38 16	76 42	St. Marys	144	108
Charles (Wicomico River)	26	38 17	76 50	Charles	14	30
Charles (Hoga River)	40	38 19	76 10	Dorchester	105	89
Charles (Island Creek)	34, 35	38 40	76 08	Talbot	231	135
Chase (Severn River)	2	39 01	76 31	Anne Arundel	39	79
Chase (Whitehall Bay)	2	39 00	76 26	Anne Arundel	30	76
Chief	33, 36, 37	38 38	76 17	Dorchester	27	55
Cherry	24	38 08	76 28	St. Marys	93	86
Cherry Cove	25	38 16	76 41	St. Marys	135	100
Cherry Island Water Tank	37	38 34	76 13	Dorchester	45	70
Ches	3	38 52	76 31	Anne Arundel	95	96
Chester (Chester River)	30	39 06	76 07	Queen Annes	15	51
Chester (Virginia)	( <sup>1</sup> )	37 57	75 26	Virginia	21	41
Chestnut	24	38 10	76 25	St. Marys	63	76
Chew	32	38 53	76 08	Talbot	4	55
Chief	35	38 35	75 59	Dorchester	8	47
Child	12	38 15	75 50	Wicomico	13	30
Chin	32	38 54	76 10	Queen Annes	105	87
Chlora	35	38 38	76 09	Talbot	245	150
Choctank River Light	34, 35, 37	38 39	76 11	Talbot	244	140

<sup>1</sup> See Worcester County publication.

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS —Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Church	24	38 10	76 26	St. Marys	60	73
Church Creek (No. 1 West)	37	38 31	76 11	Dorchester	60	76
City	26	38 31	76 40	Charles	3	37
Clark	34	38 44	76 12	Talbot	163	108
Clay	30	39 09	76 09	Kent	61	68
Clem	2	39 01	76 32	Anne Arundel	51	83
Close	32	38 54	76 10	Queen Annes	103	87
Clump (Chesapeake Bay)	2	39 00	76 25	Anne Arundel	27	75
Clump (Harris Creek)	34	38 47	76 16	Talbot	105	89
Coal	34	38 44	76 15	Talbot	125	93
Cobb Point Bar Light	26	38 15	76 50	Charles	18	32
Cobrums	25	38 17	76 43	St. Marys	155	113
Coffee	31	38 56	76 19	Queen Annes	56	67
Cohouck	26	38 21	76 50	St. Marys	179	118
Colburn	7	38 03	75 48	Somerset	38	46
Cole	19	38 24	76 35	St. Marys	9	45
Collier	( <sup>1</sup> )	38 21	75 05	Worcester	38	24
Collins	19	38 28	76 40	St. Marys	4	39
Colonel	32	38 51	76 11	Talbot	16	60
Comb (Miles River)	34	38 46	76 10	Talbot	60	148
Combs (Honga River)	24	38 08	76 29	St. Marys	96	88
Command	35	38 36	76 05	Dorchester	18	51
Compton	25	38 15	76 42	St. Marys	136	102
Convent Water Tower	( <sup>1</sup> )	38 21	75 05	Worcester	39	25
Cook	34	38 43	76 14	Talbot	168	110
Cook Point Windmill	36, 37	38 37	76 17	Dorchester	28	55
Cool	2	39 01	76 31	Anne Arundel	38	79
Coppage	24	38 10	76 28	St. Marys	89	77
Corn (Chesapeake Bay)	2	39 01	76 24	Anne Arundel	24	74
Corn (Langford Creek)	30	39 07	76 10	Kent	69	71
Corn (Bretons Bay)	25	38 17	76 38	St. Marys	125	95
Corner (Wicomico River)	26	38 16	76 50	Charles	17	32
Corner (Choptank River)	37	38 37	76 12	Dorchester	25	64
Corner (Wye River)	32	38 53	76 08	Talbot	2	55
Corpse	30	39 06	76 07	Queen Annes	14	51
Corr	28	39 10	76 15	Kent	10	32
Corsica	30	39 05	76 09	Queen Annes	18	47
Cottage (Chesapeake Bay)	3	38 55	76 28	Anne Arundel	67	87
Cottage (St. Inigoes Creek)	24	38 10	76 26	St. Marys	67	74
Counallor	3	38 51	76 32	Anne Arundel	98	97
Cousin	32	38 52	76 10	Talbot	13	59
Cove	3	38 51	76 32	Anne Arundel	102	98
Cove Point Light	18, 20, 38	38 23	76 23	Calvert	14	32
Cow	41	38 16	75 57	Dorchester	126	97
Cox (Crab Alley Bay)	31	38 55	76 18	Queen Annes	73	74
Cox (Manokin River)	7	38 09	75 47	Somerset	28	43
Crab	41	38 11	76 01	Dorchester	96	93
Crack	34	38 42	76 07	Talbot	214	128
Craddock	20	38 18	76 27	St. Marys	20	56
Craighill Channel Light (Front Range)	27	39 11	76 24	Baltimore	2	25
Craighill Channel Light (Rear Range)	27	39 14	76 24	Baltimore	1	25

<sup>1</sup> See Worcester County progress map.



## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Crane	20	38 19	76 29	St. Marys	18	53
Craney	31	38 56	76 22	Queen Annes	45	63
Creek (Irish Creek)	34	38 42	76 13	Talbot	176	113
Creek (Wicomico River)	12	38 16	75 49	Wicomico	14	31
Cremona	19	38 27	76 39	St. Marys	5	40
Croch	41	38 15	76 02	Dorchester	115	93
Crow	30	39 03	76 10	Queen Annes	30	41
Cult	30	39 08	76 09	Kent	67	70
Cummings	33, 34	38 46	76 18	Talbot	99	84
Cup	10	37 56	75 38	Virginia	15	1 53
Cupola (Rhodé River)	3	38 52	76 32	Anne Arundel	93	95
Cupola (Manokin River)	7	38 08	75 49	Somerset	34	44
Curtis	3	38 51	76 30	Anne Arundel	103	98
Cut	30	39 06	76 13	Kent	33	52
Cutoff Channel Light (Front Range)	27	39 12	76 27	Baltimore	4	26
Cutoff Channel Light (Rear Range)	27	39 13	76 28	Baltimore	6	26
Dago	24	38 07	76 24	St. Marys	40	64
Dan	33, 34	38 46	76 18	Talbot	116	84
Darce	32	38 53	76 11	Queen Annes	109	89
David	37	38 33	76 12	Dorchester	51	72
Davis	30	39 07	76 10	Kent	42	61
Day	24	38 06	76 25	St. Marys	54	69
Deal Island Church	5	38 09	75 57	Somerset	12	38
Deck	32	38 53	76 09	Talbot	7	57
Deep	24	38 11	76 27	St. Marys	85	80
Deep Cove	30	39 06	76 11	Kent	38	59
Deep Point 2	30	39 07	76 07	Kent	78	77
Deewat	32	38 48	76 13	Talbot	68	72
Delahay	34, 35	38 40	76 09	Talbot	228	134
Dell	31	38 55	76 19	Queen Annes	70	73
Delta (Rhodé River)	3	38 53	76 31	Anne Arundel	89	94
Delta (Broad Creek)	34	38 46	76 16	Talbot	142	100
Desert	20, 21	38 16	76 24	St. Marys	25	58
Deux	34	38 42	76 07	Talbot	213	128
Dicks Water Tank	35	38 35	76 05	Dorchester	19	50
Divide	32	38 53	76 09	Queen Annes	123	95
Dixon	32	38 51	76 16	Talbot	73	75
Dobbins	2	39 05	76 28	Anne Arundel	13	71
Doctor (Little Choptank River)	37	38 32	76 12	Dorchester	64	77
Doctor (Miles River)	34	38 47	76 09	Talbot	56	146
Dog	34	38 47	76 17	Talbot	100	87
Dorrance	34	38 47	76 09	Talbot	45	144
Dot	37	38 38	76 14	Dorchester	26	64
Double	35	38 36	76 03	Talbot	255	155
Dove	5	38 12	75 52	Somerset	8	36
Down	30	39 09	76 04	Queen Annes	5	59
Draw	32	38 48	76 08	Talbot	49	70
Drum (Langford Creek)	30	39 07	76 10	Kent	41	60
Drum (Smith Creek)	24	38 07	76 24	St. Marys	24	65
Drum Point Light	20	38 19	76 25	Calvert	17	55

<sup>1</sup> See Somerset County publications.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Oyster Bars on which locations are described
		Latitude	Longitude			
Duck (Honga River)	40	38 17	76 06	Dorchester	110	92
Duck (Choptank River)	35	38 36	76 00	Talbot	260	157
Dull	32	38 56	76 15	Queen Annes	81	78
Dune	25	38 14	76 41	St. Marys	116	103
Dunk	33	38 45	76 19	Talbot	94	82
Dunnock	38	38 23	76 17	Dorchester	86	83
Dupont	37	38 34	76 13	Dorchester	43	69
Dusky	24	38 10	76 26	St. Marys	66	74
Dutchman	3	38 52	76 31	Anne Arundel	87	93
Dwarf	19	38 30	76 40	Calvert	44	37
Dynard	25	38 18	76 43	St. Marys	153	115
Eagle (Langford Creek)	30	39 08	76 11	Kent	44	61
Eagle (Harris Creek)	33	38 44	76 19	Talbot	93	81
Ear	41	38 17	76 00	Dorchester	122	96
Earle (Corsica River)	30	39 05	76 08	Queen Annes	26	44
Earle (Nanticokè River)	11	38 21	75 52	Wicomico	1	25
East	9	37 56	75 50	Somerset	48	51
E. Cambridge Spire	35	38 34	76 04	Dorchester	13	50
E. Cambridge Tall Stack	35	38 34	76 04	Dorchester	14	49
Eastman	34	38 46	76 15	Talbot	140	99
Easton	32	38 48	76 08	Talbot	52	71
Edmond	33	38 46	76 18	Talbot	117	85
Edward	32	38 52	76 11	Talbot	15	60
Eedling	26	38 19	76 51	Charles	11	28
Eleanor	37	38 32	76 13	Dorchester	65	78
Ella	12	38 15	75 52	Wicomico	11	29
Elliason	28	39 09	76 15	Kent	8	34
Elliott	41	38 19	76 01	Dorchester	121	95
Ellpow	13	38 18	75 08	Worcester	10	30
Elmore	34	38 46	76 14	Talbot	154	104
Emanuel Church	9	37 59	75 51	Somerset	43	49
End (Harris Creek)	31, 32, 34	38 48	76 17	Talbot	107	41
End (Wicomico River)	12	38 15	75 49	Wicomico	15	31
Engineer	30	39 05	76 08	Queen Annes	20	46
Enough	24	38 07	76 24	St. Marys	43	65
Enter	34, 35	38 40	76 10	Talbot	226	133
Episcopal Church Cross (Old St. Marys)	24	38 11	76 26	St. Marys	74	81
Etna	3	38 53	76 31	Anne Arundel	90	94
Etta	37	38 32	76 12	Dorchester	55	74
Evans	30	39 06	76 08	Queen Annes	16	49
Ewell Church Spire (Smith Island)	8	37 58	76 01	Somerset	58	47
Face	32	38 49	76 11	Talbot	31	67
Fact	26	38 20	76 51	St. Marys	177	120
Fair	32	38 48	76 12	Talbot	26	65
Fairbanks	34	38 45	76 16	Talbot	131	96
Fairhaven	4	38 45	76 34	Anne Arundel	110	101
Fairmount Church	7	38 06	75 48	Somerset	33	44
Farm	41	38 19	76 03	Dorchester	118	94
Farr	26	38 19	76 50	St. Marys	176	121
Fassett	13	38 17	75 08	Worcester	12	31
Fence	25	38 15	76 41	St. Marys	117*	101
Ferry (Magothy River)	2	39 04	76 30	Anne Arundel	19	72

LANDMARKS.

ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Ferry (Choptank River)	35	38 34	76 02	Dorchester	11	48
Ferry (Wye River)	32	38 53	76 11	Queen Annes	96	84
Field	2	39 00	76 30	Anne Arundel	55	84
Fig	34	38 47	76 08	Talbot	55	145
Fight	19	38 26	76 39	St. Marys	7	42
Finish	35	38 28	76 17	Dorchester	75	81
Fir	30	39 03	76 11	Queen Annes	33	39
First	34, 35	38 41	76 10	Talbot	223	132
Fish	41	38 16	75 59	Dorchester	123	96
Fishbone	9	37 53	76 00	Virginia	6	148
Fishstack	20	38 19	76 27	Calvert	20	54
Fitz	(1)	38 09	75 47	Somerset	25	43
Flagpole	24	38 08	76 25	St. Marys	48	68
Flag Pond	18	38 27	76 28	Calvert	11	31
Flag Staff (Naval Academy Boathouse)	2	38 59	76 29	Anne Arundel	57	85
Flat (Wye River)	32	38 52	76 11	Queen Annes	115	92
Flat (Smith Creek)	24	38 08	76 25	St. Marys	50	68
Flat Cap	7	38 02	75 53	Somerset	40	46
Folder	26	38 32	76 41	Charles	1	35
Fog 2	6	38 02	76 02	Somerset	54	39
Ford (Langford Creek)	30	39 08	76 11	Kent	45	62
Ford (Chesapeake Bay)	21	38 14	76 24	St. Marys	26	59
Ford (Big Annemessex River)	7	38 04	75 50	Somerset	36	45
Fore	30	39 06	76 12	Kent	34	53
Fork	28	39 09	76 15	Kent	7	35
Forr	19	38 25	76 36	St. Marys	8	43
Fort (Severn River)	2	38 59	76 28	Anne Arundel	33	77
Fort (St. Marys River)	24	38 08	76 25	St. Marys	56	71
Fort Howard						
Taller Water Tank	27	39 12	76 27	Baltimore	5	26
Fox	34	38 46	76 17	Talbot	115	92
Fox Island Poplar	9	37 54	75 54	Virginia	9	50
Foxwell	25	38 17	76 38	St. Marys	127	94
Frank	32	38 51	76 12	Talbot	21	62
Franklin	4	38 49	75 30	Anne Arundel	105	99
Frog	41	38 14	75 57	Dorchester	125	96
Front	33	38 44	76 21	Talbot	81	77
Gander	35	38 36	75 59	Dorchester	7	47
Gantt	(3)	38 20	75 06	Worcester	40	25
Gash	34	38 45	76 07	Talbot	198	122
Geog	7	38 03	75 49	Somerset	39	46
Gibbs	34	38 47	76 11	Talbot	37	141
Ginger	3	38 57	76 33	Anne Arundel	75	90
Gis	35	38 38	76 07	Talbot	250	153
Go	32	38 53	76 10	Queen Annes	122	94
Golds	31	38 42	76 09	Talbot	218	130
Goose (Grays Inn River)	30	39 06	76 13	Kent	28	50
Goose (St. George River)	24	38 08	76 29	St. Marys	95	88
Gordon	30	39 03	76 11	Queen Annes	32	40
Gover	11	38 21	75 54	Dorchester	129	98
Gowan	3	38 53	76 29	Anne Arundel	86	93

Somerset County publication.

<sup>2</sup> See progress map in Worcester County publication.

<sup>3</sup> See Somerset County publication.

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Grace	34	38 46	76 17	Talbot	102	88
Grace M. E. Church	15	38 01	75 23	Virginia	17	41
Gram (Severn River)	3	38 57	76 28	Anne Arundel	64	86
Gram (Broad Creek)	34	38 46	76 15	Talbot	138	98
Granary	32	38 53	76 08	Queen Annes	126	96
Grason	24	38 10	76 26	St. Marys	61	75
Gratitude	28, 29	39 08	76 16	Kent	16	37
Grave	34	38 46	76 14	Talbot	149	102
Gravel	24	38 10	76 26	St. Marys	71	79
Gray	30	39 06	76 13	Kent	30	51
Great	33	38 45	76 21	Talbot	80	77
Great Shoals Light	12	38 13	75 53	Wicomico	10	35
Greek	31	38 56	76 18	Queen Annes	68	72
Green (Eastern Bay)	32	38 54	76 12	Queen Annes	88	80
Green (Manokin River)	7	38 09	75 47	Somerset	29	44
Green Run Inlet Life Saving Station Flag-staff.	14, 15	38 05	75 12	Worcester	31	38
Greenbury	2	38 58	76 27	Anne Arundel	31	77
Greenbury Point Light	2	38 58	76 27	Anne Arundel	32	77
Greenwell	37	38 33	76 14	Dorchester	40	68
Grind	24	38 10	76 27	St. Marys	90	76
Grove (Reeds Creek)	30	39 03	76 10	Queen Annes	29	42
Grove (Bretons Bay)	25	38 14	76 41	St. Marys	115	104
Grubin	35	38 38	76 07	Talbot	251	153
Guest	25	38 18	76 43	St. Marys	150	114
Guilberts Cupola	14	38 09	75 17	Worcester	27	38
Guthier	24	38 10	76 31	St. Marys	103	93
Gull	13	38 19	75 06	Worcester	7	28
Gunners	39, 40	38 20	76 13	Dorchester	101	86
Gust	26	38 19	76 51	Charles	12	28
Gusta	32	38 53	76 10	Talbot	10	58
Gut	30	39 09	76 09	Kent	63	69
Hackett	2	38 59	76 25	Anne Arundel	28	76
Haddaway	33	38 47	76 20	Talbot	77	76
Haines	5	38 11	75 57	Somerset	11	37
Hall (Potomac River)	22	38 04	76 22	St. Marys	36	62
Hall (Miles River)	34	38 45	76 10	Talbot	61	148
Hall House (Middle Chimney)	22	38 04	76 22	St. Marys	37	63
Hallowing	19	38 31	76 40	Calvert	45	36
Ham (Magothy River)	2	39 05	76 30	Anne Arundel	15	71
Ham (Miles River)	34	38 46	76 10	Talbot	59	147
Hambrooks Bar Beacon	35	38 36	76 05	Dorchester	17	50
Hamilton	13	38 20	75 05	Worcester	1	26
Hammett	24	38 13	76 28	St. Marys	78	85
Handys Hammock	13, 14	38 13	75 15	Worcester	25	36
Hard	26	38 16	76 50	Charles	15	31
Harmon	13	38 20	75 07	Worcester	3	26
Harp	30	39 09	76 09	Kent	60	68
Harper	34	38 46	76 14	Talbot	158	106
Harrington	38	38 29	76 18	Dorchester	77	82
Harrison	34	38 47	76 17	Talbot	104	89

<sup>1</sup> See Worcester County publication.

ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
		° /	° /			
Harry	34, 35	38 40	76 08	Talbot	230	134
Iias	7	38 04	75 52	Somerset	35	45
Iiaven	28, 29	39 09	76 15	Kent	13	35
Iiawk	33	38 45	76 19	Talbot	95	82
Iiayden	26	38 21	76 52	Charles	8	26
Iiead	41	38 13	76 02	Dorchester	114	93
Iieailey (Bretons Bay)	25	38 16	76 39	St. Marys	131	97
Iieailey (Island Creek)	34, 35	38 40	76 08	Talbot	238	137
Iiedney	26	38 18	76 51	Charles	13	29
Iiellen	20	38 21	76 29	Calvert	28	49
Iiен	33	38 44	76 18	Talbot	120	86
Iienderson	32, 34	38 47	76 08	Talbot	53	71
Iiенry	37	38 33	76 15	Dorchester	34	66
Iiere	31	38 57	76 20	Queen Annes	57	68
Iieron	25	38 13	76 43	St. Marys	164	105
Iierr	32	38 50	76 13	Talbot	23	63
Iierring	30	39 07	76 13	Kent	31	51
Iierring Pond 2	( <sup>1</sup> )	38 10	76 41	Virginia	1	<sup>1</sup> 105
Iiickory	1	39 05	76 27	Anne Arundel	12	69
Iiigh (Savern River)	2	39 04	76 33	Anne Arundel	44	81
Iiigh (Honga River)	41	38 19	76 01	Dorchester	120	95
Iiigher	34	38 43	76 07	Talbot	210	127
Iiill	3	38 55	76 30	Anne Arundel	71	88
Iiog 2	20	38 19	76 24	St. Marys	22	56
Iiog Point (Holland 3)	16	38 43	76 32	Calvert	1	26
Iiolland (Chesapeake Bay)	4	38 44	76 32	Anne Arundel	111	101
Iiolland (Wicomico River)	12	38 15	75 51	Wicomico	12	30
Iiolland Island Bar Light	6	38 04	76 06	Somerset	53	39
Iiolland Island Church Spire	42	38 07	76 05	Dorchester	95	101
Iiollow	25	38 16	76 39	St. Marys	132	98
Iiolly	34	38 44	76 12	Talbot	164	108
Iiolton Point	30	39 05	76 09	Queen Annes	27	43
Iioo	30	39 08	76 09	Kent	66	70
Iiook	32	38 54	76 11	Queen Annes	98	85
Iioooper Island Light	39	38 15	76 15	Dorchester	92	84
Iioooper Strait Light	40	38 14	76 05	Dorchester	113	93
Iioopersville Methodist Church Cupola	40	38 16	76 11	Dorchester	98	88
Iiope	31	38 58	76 19	Queen Annes	63	70
Iiopkins (Herring Bay)	4	38 46	76 33	Anne Arundel	109	100
Iiopkins (Broad Creek)	34	38 45	76 13	Talbot	160	106
Iiopkins Memorial Church Cupola	40	38 15	76 08	Dorchester	97	88
Iiorn (Magothy River)	2	39 05	76 31	Anne Arundel	17	72
Iiorn (Savern River)	2	38 58	76 28	Anne Arundel	62	85
Iiornor	30	39 08	76 10	Kent	53	65
Iiorse	9	37 57	76 00	Virginia	5	<sup>2</sup> 49
Iiorseshoe (Chesapeake Bay)	3	38 50	76 29	Anne Arundel	104	99

<sup>1</sup> See St. Marys County publications.

<sup>2</sup> See Somerset County publications.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
		° /	° /			
Horseshoe (St. Marys River)	24	38 12	76 27	St. Marys	76	82
Hosier Memorial Church Spire	39, 40	38 20	76 14	Dorchester	89	87
Hospital Cupola (Naval Academy)	2	38 59	76 30	Anne Arundel	56	85
Hough	32	38 51	76 12	Queen Annes	90	81
House	35	38 38	75 58	Dorchester	3	45
Howard (Choptank River)	35	38 35	76 07	Dorchester	20	51
Howards (St. Clement Bay)	25	38 16	76 42	St. Marys	146	110
Howells	35	38 37	76 07	Talbot	253	154
Huddle	2	39 04	76 29	Anne Arundel	20	73
Hudson	37	38 32	76 15	Dorchester	32	65
Hugh	37	38 32	76 12	Dorchester	54	73
Hunter	34	38 43	76 08	Talbot	203	124
Hunting	34	38 46	76 10	Talbot	42	143
Hut	35	38 38	75 58	Dorchester	2	44
Hutchins	19	38 23	76 33	St. Marys	10	46
Hydrographic	30	39 05	76 08	Queen Annes	25	44
Ide	30	39 08	76 08	Kent	65	70
Ila	34	38 42	76 13	Talbot	175	113
Ill 2	16	38 39	76 32	Calvert	3	27
In	24	38 07	76 24	St. Marys	45	66
Indian (Patuxent River)	26	38 30	76 41	Charles	5	38
Indian (Chester River)	30	39 07	76 06	Queen Annes	13	52
Inez	35	38 38	76 07	Talbot	219	152
Ingraya	13	38 14	75 10	Worcester	19	34
Inigoes	24	38 10	76 26	St. Marys	68	73
Inkquill	13	38 18	75 07	Worcester	8	28
Inn	30	39 05	76 12	Kent	37	54
Irish	34	38 42	76 14	Talbot	171	111
Iron	2	39 05	76 29	Anne Arundel	14	71
Island (Severn River)	2	39 02	76 34	Anne Arundel	48	82
Island (Patuxent River)	19	38 21	76 32	Calvert	35	44
Island (Grays Inn Creek)	30	39 06	76 12	Kent	35	53
Isle	30	39 08	76 10	Kent	43	61
Ivee	5	38 15	75 50	Somerset	3	34
Jam	35	38 37	75 59	Talbot	261	158
James (Chesapeake Bay)	36, 37	38 32	76 20	Dorchester	84	61
James (Miles River)	32	38 51	76 12	Talbot	20	62
James Island Light	9	37 58	75 55	Somerset	41	49
Jarrett	30	39 08	76 05	Kent	82	81
Jay	34, 35	38 40	76 08	Talbot	241	139
Jean	5, 7	38 09	75 51	Somerset	22	39
Jenifer	37	38 33	76 15	Dorchester	33	65
Jere	33, 36	38 37	76 22	Talbot	86	79
Johnson	32, 34	38 47	76 08	Talbot	47	69
Jones	5	38 15	75 49	Somerset	2	34
Joseph	6, 8	38 01	76 03	Somerset	55	40
Joshua	7	38 07	75 57	Somerset	14	41
Journey	30	39 08	76 04	Queen Annes	8	56
Judge	34	38 45	76 14	Talbot	152	103

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Juliet	11	38 20	75 53	Wicomico	2	25
Julius	30	39 09	76 03	Queen Annes	4	59
June	32	38 54	76 10	Queen Annes	104	87
Jutland	24	38 07	76 25	St. Marys	47	67
Kaywood	25	38 14	76 42	St. Marys	139	104
Keenes	39, 40	38 22	76 13	Dorchester	102	86
Kelley	7	38 08	75 55	Somerset	19	41
Kemp	31	38 50	76 18	Talbot	76	40
Kemp Tower	31	38 50	76 18	Talbot	75	40
Kennedy	24	38 10	76 26	St. Marys	69	77
Kent	34, 35	38 40	76 08	Talbot	229	134
Kerwin	40	28 22	76 11	Dorchester	103	89
Key	26	38 22	76 50	St. Marys	180	117
Killick Shoal Light	(1)	38 57	75 23	Virginia	22	40
King	30	39 08	76 10	Kent	54	65
Kinsley	30	39 08	76 11	Kent	46	62
Kirby	37	38 32	76 11	Dorchester	58	75
Kirk	34	38 46	76 09	Talbot	58	147
Kirwan	32	38 57	76 15	Queen Annes	82	79
Kit (Island Creek)	34, 35	38 41	76 07	Talbot	235	136
Kitt (Patuxent River)	19	38 28	76 37	Calvert	40	41
Knee	32	38 54	76 10	Queen Annes	99	85
K. of P. Flagstaff (Solomons)	20	38 19	76 27	Calvert	21	53
Knob	2	39 00	76 30	Anne Arundel	36	78
Knock	31	38 57	76 19	Queen Annes	64	70
Koot	34	38 46	76 17	Talbot	114	91
Labor	24	38 06	76 28	St. Marys	111	69
Lakes	40	38 19	76 09	Dorchester	106	90
Lan	35	38 38	76 07	Talbot	247	151
Landeye	34, 35	38 40	76 09	Talbot	243	139
Landing	31	38 57	76 19	Queen Annes	65	71
Landlet	14	38 07	75 18	Worcester	29	38
Laney	37	38 32	76 13	Dorchester	66	78
Langford	30	39 06	76 10	Kent	73	73
Large Water Tank	35	38 38	76 10	Dorchester	23	52
Larramore	3	38 57	76 34	Anne Arundel	79	91
Law	32	38 51	76 12	Talbot	19	61
Lawn	31, 32, 34	38 47	76 16	Talbot	106	41
Lawyer	30	39 07	76 11	Kent	40	60
Layor	34	38 43	76 08	Talbot	216	129
Layton	37	38 33	76 12	Dorchester	50	72
Leary	30	39 08	76 09	Kent	57	66
Leaven	32	38 53	76 11	Queen Annes	112	90
Le Compte	35	38 36	76 10	Dorchester	22	52
Lee	37	38 33	76 13	Dorchester	46	70
Leeds	32	38 48	76 12	Talbot	35	68
Leitch	19	38 32	76 40	Calvert	47	33
Lend	19, 20	38 23	76 30	Calvert	30	48
Lerch Windmill	3	38 50	76 32	Anne Arundel	100	97
Le Seur	32	38 52	76 10	Queen Annes	117	92
Little	5	38 13	75 50	Somerset	7	35
Little Gum	30	39 05	76 12	Kent	24	48

1 See Worcester County publication.

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Liver	31	38 57	76 19	Queen Annes	59	68
Lloyd	32	38 52	76 10	Talbot	14	59
Locust (Chesapeake Bay)	1	39 06	76 26	Anne Arundel	4	68
Locust (Langford Creek)	30	39 09	76 11	Kent	49	63
Locust (Manokin River)	7	38 09	75 48	Somerset	24	42
Long (Severn River)	2	39 03	76 33	Anne Arundel	47	82
Long (Miles River)	34	38 46	76 10	Talbot	38	141
Long Point	15	38 00	75 22	Virginia	18	1 41
Longwells Windmill	13	38 15	75 09	Worcester	16	33
Louise	37	38 33	76 15	Dorchester	39	68
Love Point Light	29	39 03	76 17	Queen Annes	42	33
Lovely	30	39 09	76 09	Kent	62	69
Lovers	25	38 16	76 39	St. Marys	120	99
Lowell	21	38 09	76 30	St. Marys	100	91
Lowndes	32	38 48	76 08	Talbot	48	69
Luce	2	39 01	76 31	Anne Arundel	53	84
Lucy	30	39 06	76 13	Kent	27	50
Luna	34	38 45	76 16	Talbot	133	96
Lynch Point 3	( <sup>2</sup> )	38 03	76 31	Virginia	2	<sup>2</sup> 70
Lyon	26	38 18	76 50	St. Marys	175	122
McConnell	34	38 47	76 09	Talbot	57	146
McCoy	24	38 13	76 28	St. Marys	79	85
McKay	24	38 11	76 27	St. Marys	86	79
Mac	37	38 32	76 13	Dorchester	67	78
Mackall	19, 20	38 23	76 30	Calvert	32	46
Macum	29	39 00	76 17	Queen Annes	39	35
Madison Southern M. E. Church Spire	37	38 30	76 13	Dorchester	68	79
Magothy	2	39 02	76 25	Anne Arundel	23	74
Maiden	34	38 46	76 11	Talbot	63	149
Mais	32	38 48	76 11	Talbot	32	67
Major	30	39 07	76 10	Kent	71	72
Make	30	39 09	76 05	Kent	86	84
Mansion	25	38 16	76 42	St. Marys	145	109
Marge	34	38 47	76 11	Talbot	36	140
Marion	34	38 47	76 16	Talbot	143	100
Mars	34	38 46	76 15	Talbot	147	101
Marsh (Broad Creek)	34	38 44	76 13	Talbot	165	109
Marsh (Manokin River)	7	38 08	75 53	Somerset	20	42
Marshall	34	38 44	76 12	Talbot	162	107
Marshy	32	38 57	76 14	Queen Annes	85	79
Martin (St. Marys River)	24	38 12	76 27	St. Marys	77	84
Martin (Tred Avon River)	34	38 43	76 09	Talbot	186	117
Mary	37	38 32	76 12	Dorchester	56	74
Maryland	36, 37, 38	38 29	76 17	Dorchester	73	58
Maryland-Virginia (Life-Saving Station Beach)	15	38 02	75 15	Worcester	34	39
Maryland-Virginia (Pope Island)	15	38 02	75 15	Worcester	35	39
Maryland-Virginia (Railroad)	15	38 01	75 23	Worcester	36	42
Maslin	34, 35	38 40	76 08	Talbot	239	138
Matta	31	38 54	76 20	Queen Annes	50	65

<sup>1</sup> See Worcester County publication.<sup>2</sup> See St. Marys County publication.



LANDMARKS.

ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
		° /	° /			
Matter	32	38 53	76 09	Talbot	6	56
May	34	38 44	76 08	Talbot	190	119
Mayo	3	38 55	76 31	Anne Arundel	84	92
Mean	34, 35	38 40	76 08	Talbot	240	138
Melfield	30	39 04	76 07	Queen Annes	23	45
Melon	34	38 45	76 07	Talbot	197	121
Melton	30	39 08	76 04	Kent	83	82
M. E. Church (Solomons)	20	38 19	76 28	Calvert	23	53
M. E. Church (Tilghman Island)	33	38 42	76 20	Talbot	88	80
Miles	7	38 06	76 00	Somerset	16	41
Mileys	25	38 16	76 43	St. Marys	158	110
Mill (Langford Creek)	30	39 08	76 11	Kent	51	64
Mill (Patuxent River)	20	38 20	76 30	St. Marys	15	51
Mill (Chincoteague Bay)	15	38 03	75 20	Worcester	33	42
Miller	34	38 47	76 16	Talbot	110	90
Millwind	32	38 48	76 13	Talbot	67	72
Mink	34	38 47	76 17	Talbot	103	89
Mint	39	38 21	76 14	Dorchester	87	85
Mistle	34	38 43	76 08	Talbot	215	129
Mitchell	37	38 33	76 15	Dorchester	35	66
Mitchells Bluff 2	28	39 13	76 14	Kent	3	29
Moke	34, 35	38 40	76 07	Talbot	236	137
Money	15	38 01	75 23	Virginia	16	1 41
Monkey	9	37 57	75 48	Somerset	49	52
Moon	7	38 04	75 48	Somerset	37	45
Moore	36, 37, 38	38 30	76 17	Dorchester	79	59
Morn	32	38 53	76, 08	Queen Annes	127	96
Morsel	19	38 29	76 39	Calvert	42	39
Mos	10	37 54	75 46	Virginia	10	2 54
Mouldy	25	38 16	76 38	St. Marys	122	97
Mount Pleasant Church	9	37 59	75 51	Somerset	44	49
Mount Vernon M. E. Church	5	38 15	75 50	Somerset	4	35
Mt. Zion M. E. Church Spire	39, 40	38 19	76 14	Dorchester	91	87
Month	31	38 52	76 20	Queen Annes	49	64
Mud (Tred Avon River)	34	38 42	76 09	Talbot	219	130
Mud (Sinepuxent Bay)	13	38 15	75 08	Worcester	18	33
Muddy	29, 30	38 59	76 14	Queen Annes	37	36
Mutton	34	38 41	76 11	Talbot	178	114
Myrtle (Choptank River)	35	38 39	75 58	Dorchester	1	44
Myrtle (Broad Creek)	34	38 44	76 16	Talbot	124	93
Nanti	12	38 14	75 54	Wicomico	8	29
Nanticoke Church	11, 12	38 16	75 54	Wicomico	6	26
Narrows	33	38 43	76 19	Talbot	92	81
Narrows Point	29, 30	39 01	76 13	Kent	20	40
Nat (Langford Creek)	30	39 08	76 11	Kent	50	64
Nat (Patuxent River)	20	38 21	76 30	St. Marys	14	51
Neck (Langford Creek)	30	39 07	76 10	Kent	70	72
Neck (Tred Avon River)	34	38 45	76 07	Talbot	192	120
Neck (Chincoteague Bay)	13	38 14	75 12	Worcester	23	35
Ned	34	38 44	76 17	Talbot	129	95

<sup>1</sup> See Worcester County publication.

<sup>2</sup> See Somerset County publication.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Needle	31	38 54	76 17	Queen Annes	72	74
Neil	37	38 32	76 11	Dorchester	57	74
Nellys	13	38 16	75 09	Worcester	14	32
Nelson 3	34	38 42	76 16	Talbot	122	92
Neptune	34	38 47	76 15	Talbot	145	101
Nest	30	39 08	76 09	Kent	58	67
Neva	34	38 44	76 09	Talbot	197	118
New	20	38 20	76 28	Calvert	25	51
New Barn Cupola	32	38 56	76 16	Queen Annes	80	78
Newport	13	38 14	75 14	Worcester	24	36
Newtown	25	38 14	76 42	St. Marys	138	103
Nils	( <sup>1</sup> )	39 10	76 04	Kent	88	86
No	32	38 55	76 10	Queen Annes	100	85
No Road	30	39 06	76 13	Kent	32	52
Noblec	38	38 29	76 17	Dorchester	74	81
Nodim	32	38 53	76 10	Talbot	9	57
Noname	25	38 16	76 38	St. Marys	129	96
Norman (Honga River)	40	38 15	76 06	Dorchester	112	92
Norman (Eastern Bay)	32	38 55	76 16	Queen Annes	76	76
North	39	38 21	76 16	Dorchester	88	85
North Beach Life Saving Station.	13, 14	38 12	75 09	Worcester	21	35
North Church Spire (Smith Island)	8	38 00	76 02	Somerset	56	47
North Point (Old Tower Foundation)	27	39 12	76 27	Baltimore	3	26
Nose	32	38 52	76 12	Queen Annes	92	82
Noth	30	39 08	76 09	Kent	56	66
Nub	32	38 53	76 08	Queen Annes	129	97
Nut	4	38 48	76 31	Anne Arundel	106	99
Oak	24	38 07	76 25	St. Marys	52	66
Ocean	13	38 19	75 05	Worcester	4	27
Ocean City Water Tower	13	38 20	75 05	Worcester	2	26
Oil	10	37 57	75 41	Virginia	13	<sup>2</sup> 54
Okahanikan	42	38 11	76 05	Dorchester	94	104
Okay	41	38 18	75 56	Dorchester	127	97
Old	10	37 58	75 41	Somerset	51	52
Old Church Spire (Smith Island)	8	37 59	76 03	Somerset	57	47
Ollie	32	38 49	76 12	Talbot	24	64
Oppkit	19	38 27	76 39	St. Marys	6	41
Orb	32	38 53	76 12	Queen Annes	94	83
Orchard	28, 29	39 09	76 16	Kent	15	36
Otto	32, 34	38 47	76 16	Talbot	109	75
Out	24	38 07	76 24	St. Marys	46	67
Over	32	38 56	76 16	Queen Annes	75	76
Overton	30	39 02	76 12	Kent	22	45
Owe	32	38 54	76 10	Queen Annes	97	84
Oyster (Chester River)	30	39 08	76 06	Kent	81	80
Oysters (Wye River)	32	38 55	76 10	Queen Annes	101	86
Pagan	24	38 11	76 27	St. Marys	84	81
Parker (Herring Bay)	4	38 46	76 32	Anne Arundel	108	100
Parker (Chesapeake Bay)	17	38 32	76 31	Calvert	8	30

<sup>1</sup> See progress map of Kent County publication.<sup>2</sup> See Somerset County publications.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Parsons	32	° 38 54	' 76 15	Queen Annes	77	77
Parsons Island Water Tank	32	° 38 55	' 76 15	Queen Annes	78	77
Pat	20	° 38 22	' 76 23	Calvert	16	57
Patch	17	° 38 33	' 76 31	Calvert	7	29
Paul (Honga River)	40	° 38 17	' 76 07	Dorchester	109	91
Paul (Little Choptank River)	( <sup>1</sup> )	° 38 32	' 76 10	Dorchester	59	75
Paw	25	° 38 16	' 76 40	St. Marys	134	99
Peach	30	° 39 06	' 76 10	Kent	72	72
Peach Hill	2	° 39 05	' 76 25	Anne Arundel	5	70
Peak	19	° 38 25	' 76 31	Calvert	34	45
Pearson	32	° 38 51	' 76 15	Talbot	72	74
Peary	34	° 38 43	' 76 14	Talbot	169	110
Peck	34	° 38 42	' 76 10	Talbot	182	116
Peebee	34	° 38 44	' 76 07	Talbot	191	119
Pen (Chesapeake Bay)	17	° 38 34	' 76 31	Calvert	6	29
Pen (Manokin River)	( <sup>2</sup> )	° 38 09	' 75 47	Somerset	27	43
Peoples Chapel	33	° 38 43	' 76 20	Talbot	91	81
Perry	26	° 38 21	' 76 50	St. Marys	178	119
Phil (Magothy River)	1	° 39 05	' 76 26	Anne Arundel	10	69
Phil (Little Choptank River)	37	° 38 34	' 76 13	Dorchester	42	69
Philip (Langford Creek)	30	° 39 09	' 76 09	Kent	64	69
Philip (Wye River)	32	° 38 53	' 76 09	Queen Annes	125	96
Photo	19	° 38 26	' 76 36	Calvert	38	42
Pick	32	° 38 52	' 76 08	Talbot	1	54
Pier (Chesapeake Bay)	16, 17	° 38 36	' 76 30	Calvert	5	28
Pier (Smith Creek)	24	° 38 07	' 76 24	St. Marys	42	64
Pine (Bretons Bay)	25	° 38 16	' 76 38	St. Marys	123	96
Pine (Broad Creek)	34	° 38 45	' 76 16	Talbot	132	96
Piney	32	° 38 53	' 76 12	Queen Annes	95	83
Piney Point Light	24	° 38 08	' 76 32	St. Marys	113	94
Pink	34	° 38 47	' 76 16	Talbot	111	90
Pipe	24	° 38 07	' 76 24	St. Marys	41	65
Place	25	° 38 17	' 76 42	St. Marys	149	113
Plain	34	° 38 43	' 76 09	Talbot	184	116
Plow	34	° 38 43	' 76 07	Talbot	209	126
Plum 3	16	° 38 37	' 76 31	Calvert	4	28
Poco	34, 35	° 38 40	' 76 07	Talbot	237	137
Point	2	° 39 02	' 76 31	Anne Arundel	40	79
Point Agin	21	° 38 11	' 76 21	St. Marys	28	60
Point Look-in	22	° 38 06	' 76 20	St. Marys	33	61
Point Lookout Light	22, 23	° 38 02	' 76 19	St. Marys	35	62
Point No Point	22	° 38 09	' 76 19	St. Marys	29	60
Point No Point Light	22	° 38 08	' 76 17	St. Marys	30	60
Point of Rocks	18	° 38 25	' 76 25	Calvert	13	31
Pole	11	° 38 18	' 75 54	Wicomico	3	26
Pomona	30	° 39 09	' 76 05	Kent	84	83
Pond	24	° 38 08	' 76 28	St. Marys	92	71
Pont	34	° 38 42	' 76 14	Talbot	172	112

<sup>1</sup> See progress map in Dorchester County publications.<sup>2</sup> See progress map in Somerset County publications.

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Pooles Island 2	27, 28	39 17	76 16	Harford	2	1 23
Pooles Island Light	27, 28	39 17	76 16	Harford	1	1 23
Pope Island Life Saving Station	15	38 01	75 15	Virginia	20	2 40
Poplar	18	38 29	76 29	Calvert	10	30
Poplar South	33	38 45	76 23	Talbot	79	77
Potato	34, 35	38 41	76 07	Talbot	232	135
Potomac	22, 23	38 03	76 19	St. Marys	34	62
Pov	37, 38	38 30	76 16	Dorchester	71	80
Prec	26	38 16	76 49	St. Marys	171	124
Price	24	38 08	76 28	St. Marys	94	87
Prickly	7	38 05	75 52	Somerset	34	45
Prince	19, 26	38 32	76 41	Prince George	1	3 33
Princess	32	38 53	76 09	Queen Annes	124	95
Profound	25	38 17	76 43	St. Marys	157	111
Protestant	25	38 15	76 41	St. Marys	118	101
Prussian	30	39 06	76 13	Kent	29	51
Purse	2	39 03	76 26	Anne Arundel	22	73
Quaker	30	39 06	76 10	Kent	74	74
Quarter	32	38 53	76 09	Talbot	8	57
Rabbit	34	38 46	76 17	Talbot	101	88
Raccoon	35	38 38	75 59	Talbot	264	159
Radcliffe	34	38 46	76 07	Talbot	195	121
Radec	25	38 17	76 43	St. Marys	156	112
Rag	11	38 18	75 54	Wicomico	5	26
Ragged Point 3	36, 37	38 32	76 17	Dorchester	31	57
Rail (Swan Creek)	28	39 09	76 15	Kent	12	34
Railroad	29, 32	38 58	76 14	Queen Annes	84	36
Rails (St. Clement Bay)	25	38 15	76 43	St. Marys	142	107
Railway Water Tank	29	39 02	76 19	Queen Annes	40	33
Rain	30	39 01	76 12	Kent	21	44
Raley	24	38 09	76 26	St. Marys	58	72
Ran 2	24	38 08	76 25	St. Marys	49	68
Ray	34	38 45	76 14	Talbot	150	102
Reach Hammock	9	37 53	75 59	Virginia	7	4 48
Rear	35	38 35	76 02	Talbot	257	156
Red	35	38 37	76 05	Talbot	254	154
Red Beacon (1908)	24	38 06	76 24	St. Marys	39	63
Rede	36, 37	38 31	76 20	Dorchester	83	60
Reed (Chesapeake Bay)	21	38 12	76 22	St. Marys	27	59
Reeds (Chester River)	30	39 04	76 10	Queen Annes	28	42
Revell	2	39 04	76 28	Anne Arundel	21	73
Rhode	3	38 52	76 31	Anne Arundel	94	95
Rice	35	38 38	76 07	Talbot	248	152
Rich Neck Water Tank	31, 32	38 51	76 16	Talbot	74	40
Ricks	14	38 10	75 16	Worcester	26	38
Rieman	32	38 48	76 12	Talbot	34	68
Right	32	38 53	76 08	Talbot	3	55
Ring	29	39 01	76 19	Queen Annes	43	32
Ritter	34, 35	38 41	76 07	Talbot	233	136
River Springs Catholic Chapel Cross	25, 26	38 15	76 46	St. Marys	165	126

<sup>1</sup> See Baltimore County publication.<sup>2</sup> See Worcester County publication.<sup>3</sup> See Calvert County publication.<sup>4</sup> See Somerset County publication.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Riverview	34, 35	° / 38 42	° / 76 11	Talbot	221	13
Roar	12	38 16	75 55	Wicomico	7	28
Roast	41	38 17	76 02	Dorchester	116	94
Robertson (Chester River)	( <sup>1</sup> )	39 10	76 03	Kent	90	87
Robertson (Tred Avon River)	34	38 44	76 08	Talbot	188	118
Robertson Windmill	( <sup>1</sup> )	39 10	76 03	Kent	89	86
Robins	36, 37	38 34	76 19	Dorchester	30	56
Robrecht	24	38 09	76 30	St. Marys	106	90
Rock	24	38 10	76 26	St. Marys	65	75
Rock Point	1, 27	39 10	76 29	Anne Arundel	1	67
Rock Point Catholic Church Cross	26	38 16	76 50	Charles	16	31
Rod (Priest's House)	24	38 09	76 26	St. Marys	57	71
Rod (Harris Creek)	32, 34	38 48	76 16	Talbot	108	75
Rolphs	( <sup>2</sup> )	39 10	76 02	Queen Annes	1	62
Roof	25	38 14	76 43	St. Marys	141	107
Room	5	38 11	75 56	Somerset	10	37
Rose	34	38 45	76 14	Talbot	137	98
Ross (Little Choptank River)	37	38 33	76 13	Dorchester	41	68
Ross (Broad Creek)	34	38 44	76 14	Talbot	167	109
Royal	34	38 46	76 14	Talbot	148	102
Roys	34	38 42	76 14	Talbot	170	111
Run	17, 18	38 30	76 30	Calvert	9	30
Russell	24	38 09	76 31	St. Marys	105	91
Ruth	30	39 05	76 07	Queen Annes	24	45
St. Anne's Church Spire	2	38 59	76 30	Anne Arundel	59	85
St. Catherine	26	38 14	76 48	St. Marys	167	127
St. Clement	25	38 14	76 43	St. Marys	140	106
St. George 4	24	38 06	76 29	St. Marys	112	93
St. Inigoes Church Cross	24	38 09	76 25	St. Marys	59	73
St. Jerome	22	38 07	76 20	St. Marys	31	61
St. John's College Cupola	2	38 59	76 30	Anne Arundel	61	85
St. Margaret 2	26	38 15	76 49	St. Marys	170	125
St. Michael Catholic Church Spire	22	38 07	76 22	St. Marys	32	61
St. Michaels P. E. Church Spire	34	38 47	76 13	Talbot	65	140
St. Michaels Water Tank	32, 34	38 47	76 14	Talbot	66	72
St. Patrick	25	38 14	76 44	St. Marys	162	106
St. Pierre	7	38 08	75 51	Somerset	21	42
St. Thomas Church Spire	40	38 16	76 04	Dorchester	111	92
Sacred Heart Church Spire (Bushwood)	26	38 18	76 48	St. Marys	174	122
Salf (Severn River)	2	39 01	76 32	Anne Arundel	52	83
Salt (Sinepuxent River)	13	38 14	75 09	Worcester	20	34
Sam	9	37 55	75 53	Somerset	46	50
Samuel (Cox Creek)	31	38 57	76 20	Queen Annes	58	68
Samuel (Broad Creek)	34	38 46	76 13	Talbot	156	105
Sand	20	38 19	76 27	Calvert	22	54
Sandbar	25	38 15	76 42	St. Marys	137	102
Sandy	5, 7	38 08	75 49	Somerset	23	39

<sup>1</sup> See progress map in Kent County publication.<sup>2</sup> See progress map in Queen Annes County publication.

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Sandy Point Light	2	39 01	76 23	Anne Arundel	25	74
Sang	32	38 53	76 10	Queen Annes	120	94
Sanpoi	13	38 15	75 09	Worcester	17	33
Sara	32	38 49	76 14	Talbot	70	73
Saw	35	38 37	75 58	Dorchester	4	45
Saxis Church Spire	10	37 55	75 43	Virginia	12	<sup>1</sup> 54
Schoolhouse Cupola	33	38 43	76 20	Talbot	90	81
Scot	10	37 58	75 44	Somerset	50	52
Search	34	38 47	76 10	Talbot	40	142
Seaside	13	38 18	75 06	Worcester	9	29
Second	32	38 48	76 12	Talbot	27	65
Selby	3	38 55	76 30	Anne Arundel	85	93
Senator	5, 6, 7	38 08	76 01	Somerset	15	27
Seth (Little Choptank River)	37	38 34	76 11	Dorchester	48	71
Seth (Miles River)	32	38 50	76 15	Talbot	71	74
Seven Foot Knoll Light	1, 27	39 09	76 25	Anne Arundel	2	68
Shanks Hummock 2	8	37 55	76 03	Virginia	4	<sup>1</sup> 47
Sharkfin Shoal Light	41	38 12	75 59	Dorchester	124	103
Sharp	2	39 03	76 34	Anne Arundel	46	81
Sharps Island Light	33, 36	38 38	76 23	Talbot	85	79
Shaw	32	38 52	76 11	Talbot	17	60
Shehan	24	38 10	76 31	St. Marys	101	92
Shell (West River)	3	38 51	76 32	Anne Arundel	97	96
Shell (Choptank River)	35	38 35	76 00	Dorchester	9	48
Sheridan	19	38 28	76 39	Calvert	41	40
Ship	30	39 05	76 07	Queen Annes	21	46
Shippen	30	39 07	76 06	Kent	80	79
Shipping	25	38 16	76 43	St. Marys	159	109
Shoal	35	38 34	76 03	Dorchester	12	49
Shore	13	38 16	75 07	Worcester	13	31
Short	5	38 12	75 53	Somerset	9	37
Show	34, 35	38 41	76 07	Talbot	234	136
Sig	22, 24	38 06	76 24	St. Marys	38	63
Sillery	1, 2	39 05	76 27	Anne Arundel	9	69
Skid	36, 37, 38	38 30	76 20	Dorchester	82	60
Skinner	34	38 45	76 15	Talbot	135	97
Sleep	24	38 10	76 25	St. Marys	64	76
Slim	19	38 25	76 35	Calvert	37	43
Smack	24	38 07	76 28	St. Marys	110	86
Smith	33	38 46	76 19	Talbot	96	83
Smith Point Light	8, 23	37 53	76 11	Virginia	3	<sup>2</sup> 63
Smoke	24	38 10	76 25	St. Marys	62	75
Snout	32	38 52	76 11	Queen Annes	113	91
Snub	30	39 06	76 11	Kent	39	59
Soak	24	38 12	76 28	St. Marys	80	84
Sollers	19, 20	38 23	76 30	Calvert	31	47
Solomon	37	38 34	76 12	Dorchester	47	70
Solomons Lump Light	6, 7	38 03	76 01	Somerset	17	39
Some	31	38 55	76 20	Queen Annes	52	66
Somers Cove Light	9	37 58	75 53	Somerset	42	49
Sothoron	19	38 30	76 40	St. Marys	1	37
Sound	26	38 15	76 47	St. Marys	169	126

<sup>1</sup> See Somerset County publication.<sup>2</sup> See St. Marys County publication.

ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
South (Barren Island)	39	38 20	76 16	Dorchester	90	85
South (Wye River)	32	38 52	76 11	Queen Annes	114	91
Southeast	(1) 39	39 10	76 03	Queen Annes	2	61
Southern M. E. Church	33	38 42	76 21	Talbot	83	78
Spaniard Pt. 2 Upper	30	39 06	76 09	Queen Annes	17	48
Spar	32	38 49	76 13	Talbot	69	73
Spencer	34	38 45	76 13	Talbot	161	107
Spike	28	39 09	76 15	Kent	11	33
Spin	34	38 43	76 09	Talbot	185	117
Spindle	35	38 37	75 59	Talbot	262	158
Spit	2	38 59	76 26	Anne Arundel	29	76
Spree	34	38 47	76 10	Talbot	43	143
Spring (Severn River)	2	39 01	76 30	Anne Arundel	37	78
Spring (Grays Inn Creek)	30	39 06	76 13	Kent	26	49
Stab	34	38 45	76 07	Talbot	193	120
Staff	7	38 08	75 50	Somerset	32	44
Star	32	38 53	76 11	Queen Annes	111	90.
Starkley	30	39 08	76 05	Queen Annes	10	55
Start	2	38 58	76 28	Anne Arundel	63	86
State House Dome	2	38 59	76 29	Anne Arundel	58	85
Steve	31	38 57	76 19	Queen Annes	61	69
Stevens	29	39 07	76 15	Kent	18	38
Sticky	34	38 42	76 14	Talbot	173	112
Stock	20	38 22	76 31	St. Marys	12	48
Stoddard	26	38 22	76 51	Charles	7	25
Stones	25	38 18	76 43	St. Marys	151	116
Stony	34	38 47	76 12	Talbot	64	150
Stop	32	38 53	76 12	Queen Annes	93	82
Straight (Eastern Bay)	31	38 51	76 20	Queen Annes	48	64
Straits (St. George River)	24	38 08	76 30	St. Marys	108	88
Stratton	30	39 06	76 08	Kent	76	75
Straw	34, 35	38 40	76 09	Talbot	227	133
Street	11	38 21	75 53	Dorchester	130	99
Stretch	34	38 44	76 08	Talbot	189	119
Stump	20	38 22	76 29	Calvert	29	48
Stung	24	38 07	76 25	St. Marys	51	67
Summer	10	37 56	75 40	Virginia	14	53
Swan (Severn River)	2	39 03	76 32	Anne Arundel	43	80
Swan (St. George River)	24	38 08	76 30	St. Marys	107	89
Swan Point 3	28	39 09	76 17	Kent	4	31
Sweep	19	38 25	76 33	Calvert	36	44
Sweep	37	38 33	76 13	Dorchester	53	73
Sweepson	30	39 05	76 08	Queen Annes	19	47
Swing	32	38 48	76 12	Talbot	25	64
Switch	3	38 56	76 31	Anne Arundel	72	89
Sylvia	32	38 52	76 10	Talbot	11	58
Tab	24	38 07	76 25	St. Marys	53	64
Taft	34	38 45	76 13	Talbot	159	106
Tail	2	39 04	76 31	Anne Arundel	18	72
Tall	34	38 42	76 09	Talbot	183	116
Tang	34	38 47	76 09	Talbot	46	145
Tar	34	38 43	76 10	Talbot	181	115
Tarkhill	24	38 09	76 30	St. Marys	98	90

<sup>1</sup> See progress map in Queen Annes County publication.

<sup>2</sup> See Somerset County publication.

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Taste	30	39 09	76 05	Kent	85	84
Tavern	28	39 09	76 16	Kent	6	32
Taylor (South River)	3	38 57	76 34	Anne Arundel	78	91
Taylor (Slaughter Creek)	38	38 28	76 18	Dorchester	76	82
Taylor (St. George River)	24	38 08	76 30	St. Marys	97	89
Teague	26	38 32	76 40	Charles	2	36
Tenk	31	38 50	76 22	Queen Annes	47	64
Tenuate	24	38 12	76 27	St. Marys	81	83
Terrapin	7	38 01	75 58	Somerset	18	40
Thelma	34	38 46	76 14	Talbot	153	104
Then	31	38 55	76 20	Queen Annes	51	65
Thin	29	38 59	76 15	Queen Annes	38	35
Thomas	3	38 54	76 27	Anne Arundel	68	88
Thomas Point Shoal Light	3	38 54	76 26	Anne Arundel	69	88
Thompson (Cox Creek)	31	38 57	76 19	Queen Annes	62	69
Thompson (St. Marys River)	24	38 09	76 28	St. Marys	91	72
Thorn	30	39 07	76 07	Kent	79	78
Thoro	41	38 20	76 01	Dorchester	119	95
Thorofare	( <sup>1</sup> )	38 21	75 06	Worcester	37	24
Thorsten	( <sup>2</sup> )	39 10	76 03	Kent	91	87
Timber	31	38 57	76 18	Queen Annes	66	71
Tizz	15	38 04	75 20	Worcester	32	43
Tobacco Stick	37	38 32	76 14	Dorchester	69	79
Tobe	34	38 45	76 15	Talbot	126	94
Tobine	32	38 53	76 10	Queen Annes	119	93
Toddville M. E. Church Spire	40	38 18	76 04	Dorchester	117	91
Toe	34	38 43	76 08	Talbot	206	125
Tolly	3	38 57	76 27	Anne Arundel	65	86
Tom (Little Choptank River)	37	38 32	76 12	Dorchester	62	76
Tom (Cox Creek)	31	38 56	76 19	Queen Annes	69	72
Tomakokin	25	38 18	76 44	St. Marys	154	114
Ton	20	38 21	76 28	Calvert	27	50
Toot	35	38 36	76 08	Dorchester	21	52
Top	31	38 55	76 19	Queen Annes	54	67
Torrey	36, 37, 38	38 30	76 16	Dorchester	72	57
Town (Little Choptank River)	37	38 33	76 13	Dorchester	52	72
Town (Patuxent River)	20	38 19	76 29	St. Marys	17	52
Town (Tred Avon River)	34	38 42	76 10	Talbot	220	131
Trappe	35	38 38	76 07	Talbot	246	151
Travers 2	38	38 28	76 20	Dorchester	85	83
Tray	30	39 06	76 12	Kent	36	53
Treasure	28, 29	39 09	76 15	Kent	14	36
Tred	34	38 42	76 11	Talbot	179	115
Trees	25	38 16	76 39	St. Marys	133	98
Trent	19	38 29	76 40	St. Marys	3	39
Trippie	34	38 43	76 08	Talbot	207	125
Tug	34	38 47	76 10	Talbot	41	142
Tull	31	38 56	76 17	Queen Annes	74	74

<sup>1</sup> See progress map in Kent County publication.<sup>2</sup> See progress map in Worcester County publication.



## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Turf (Rhode River)	3	38 53	76 31	Anne Arundel	92	95
Turf (St. Clement Bay)	25	38 18	76 43	St. Marys	152	115
Turkey	31	38 54	76 18	Queen Annes	71	73
Turn	32	38 53	76 10	Queen Annes	121	94
Turnagain	14, 15	38 05	75 13	Worcester	30	37
Tuxon	31	38 57	76 19	Queen Annes	60	69
Twin	34	38 43	76 08	Talbot	205	125
Twist	32	38 53	76 10	Queen Annes	107	88
Twixt	32	38 53	76 11	Queen Annes	110	90
Two	32	38 49	76 11	Talbot	30	66
Up	35	38 39	75 58	Talbot	266	159
Upper	26	38 22	76 52	Charles	6	24
Urie	28	39 09	76 15	Kent	9	33
Valley	25	38 17	76 38	St. Marys	126	94
Valliant	33	38 46	76 23	Talbot	78	76
Veith	36, 37, 38	38 30	76 17	Dorchester	80	59
Venture	34	38 43	76 07	Talbot	208	126
Venus	34	38 46	76 15	Talbot	146	101
Villa (Miles River)	32	38 48	76 07	Talbot	51	71
Ville (Cox Creek)	31	38 57	76 18	Queen Annes	67	71
Vine	33, 34	38 46	76 18	Talbot	98	83
Vue	34	38 42	76 13	Talbot	174	113
Wab	( <sup>1</sup> )	38 09	75 47	Somerset	26	43
Waggaman	3	38 57	76 32	Anne Arundel	74	89
Waggaman Windmill	3	38 57	76 32	Anne Arundel	73	89
Wall (St. George River)	24	38 09	76 31	St. Marys	104	92
Wall (Tred Avon River)	34	38 44	76 07	Talbot	201	123
Walnut	5	38 15	75 48	Somerset	1	33
Wann	30	39 08	76 09	Kent	68	71
Wap	33	38 42	76 21	Talbot	82	78
War	35	38 36	75 58	Dorchester	6	46
Ware	31	38 56	76 19	Queen Annes	55	67
Warrior	33	38 45	76 18	Talbot	118	85
Wash	29, 31	38 58	76 21	Queen Annes	44	<sup>2</sup> 75
Water	34	38 45	76 07	Talbot	194	120
Water Tower (Porto Bello)	24	38 11	76 27	St. Marys	87	78
Waterloo	26	38 14	76 47	St. Marys	166	127
Watermelon Hummock	9	37 57	75 50	Somerset	47	51
Weather Bureau Staff	34, 35	38 41	76 10	Talbot	222	131
Weave	34	38 43	76 -09	Talbot	204	124
Weeks	30	39 05	76 12	Kent	25	49
Weems	2	39 00	76 30	Anne Arundel	54	84
Weiss	26	38 17	76 49	St. Marys	173	123
Welch	2	39 04	76 26	Anne Arundel	7	70
West	30	39 08	76 10	Kent	52	64
West Hollow	24	38 12	76 27	St. Marys	83	82
Westcotts Windmill	30	39 07	76 07	Kent	77	76
Whale (Langford Creek)	30	39 09	76 11	Kent	47	63
Whale (Wye River)	32	38 53	76 08	Talbot	5	56
Wharf (Saxis Pier)	10	37 56	75 44	Virginia	11	<sup>3</sup> 54
What	25	38 15	76 40	St. Marys	119	100

<sup>1</sup> See progress map in Somerset County publication.<sup>2</sup> See Anne Arundel County publication.<sup>3</sup> See Somerset County publication.

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## ALPHABETICAL INDEX TO TRIANGULATION STATIONS—Continued.

Name of station	Chart number of Maryland Oyster Chart on which shown	Approximate geographic location		County in which located	County index number by which indicated on Index Chart	Page of U. S. Coast and Geodetic Survey county publication of Survey of Oyster Bars on which locations are described
		Latitude	Longitude			
Wheat	19, 20	38 23	76 31	Calvert	33	46
Wheel	32	38 53	76 08	Queen Annes	130	98
Whit	34	38 47	76 09	Talbot	44	144
White	12	38 14	75 54	Wicomico	9	29
White House (N. E. Chimney)	18, 20	38 23	76 24	Calvert	15	32
Whitehall	35	38 35	76 00	Dorchester	10	48
Whitewash	36, 37, 38	38 29	76 17	Dorchester	78	58
Wick	35	38 37	75 58	Dorchester	5	45
Wickes Beach	29	39 02	76 15	Kent	19	40
Wide	32	38 53	76 10	Queen Annes	108	98
Wildcat	15	37 59	75 19	Virginia	19	1 40
Will	10	37 57	75 40	Somerset	52	53
Willey	34	38 45	76 14	Talbot	151	103
Willis	34	38 47	76 15	Talbot	144	100
Wilmers	(2)	39 10	76 03	Queen Annes	3	60
Wilson 2	18	38 26	76 27	Calvert	12	31
Wind	5	38 14	75 52	Somerset	6	35
Windmill 2	40	38 16	76 09	Dorchester	108	91
Windmill Point	29	39 08	76 15	Kent	17	37
Wire	34	38 44	76 16	Talbot	127	94
Woll	30	39 08	76 09	Kent	59	67
Won	32	38 52	76 12	Queen Annes	91	81
Wood (Miles River)	32	38 50	76 12	Talbot	22	63
Woodill	34	38 46	76 15	Talbot	141	99
Woods (St. Clement Bay)	25	38 15	76 43	St. Marys	160	108
Wool	37	38 31	76 15	Dorchester	70	80
Worton Point 2	28	39 19	76 11	Kent	1	28
Wroten	40	38 19	76 11	Dorchester	104	89
Ximo	3	38 57	76 33	Anne Arundel	76	90
Yazoo	3	38 57	76 34	Anne Arundel	77	90

<sup>1</sup> See Worcester County publication.<sup>2</sup> See progress map in Queen Annes County publication.

## LANDMARKS.

### U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS.

#### NUMERICAL INDEX.

NOTE.—See Alphabetical Index for other references relating to triangulation stations.

#### ANNE ARUNDEL COUNTY.

County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station
1	Rock Point	39	Chase (Severn River)	74	Waggaman
2	Seven Foot Knoll	40	Point	75	Ginger
	Light	41	Bight	76	Ximo
3	Bodkin Point (Old Tower)	42	Arnold	77	Yazoo
		43	Swan (Severn River)	78	Taylor (South River)
4	Locust (Chesapeake Bay)	44	High (Severn River)	79	Larramore
		45	Cedar (Severn River)	80	Brewer (South River)
5	Peach Hill	46	Sharp	81	Almshouse (Lightning Rod)
6	Baltimore Light	47	Long (Severn River)	82	Almshouse
7	Welch	48	Island (Severn River)	83	Cedar (South River)
8	Bluff (Magothy River)	49	Bay (Severn River)	84	Mayo
9	Sillery	50	Brewer (Severn River)	85	Selby
10	Phil (Magothy River)	51	Clem	86	Gowan
11	Bay (Magothy River)	52	Salt (Severn River)	87	Dutchman
12	Hickory	53	Luce	88	Cato
13	Dobbins	54	Weems	89	Delta (Rhode River)
14	Iron	55	Field	90	Etna
15	Ham (Magothy River)	56	Hospital Cupola (Naval Academy)	91	Calf
16	Bank (Magothy River)			92	Turf (Rhode River)
17	Horn (Magothy River)	57	Flag Staff (Naval Academy Boathouse)	93	Cupola (Rhode River)
18	Tail	58	State House Dome	94	Rhode
19	Ferry (Magothy River)	59	St. Anne's Church Spire	95	Ches
20	Huddle			96	Alpha
21	Revell	60	Catholic Church Spire (Annapolis)	97	Shell (West River)
22	Purse			98	Counallor
23	Magothy	61	St. John's College Cupola	99	Chalk
24	Corn (Chesapeake Bay)			100	Lerch Windmill
25	Sandy Point Light	62	Horn (Severn River)	101	Apple
26	Bay Side	63	Start	102	Cove
27	Clump (Chesapeake Bay)	64	Gram (Severn River)	103	Curtis
28	Hackett	65	Tolly	104	Horseshoe (Chesapeake Bay)
29	Spit	66	Bay Ridge Stack		
30	Chase (Whitehall Bay)	67	Cottage (Chesapeake Bay)	105	Franklin
31	Greenbury			106	Nut
32	Greenbury Point Light	68	Thomas	107	Broad (Chesapeake Bay)
33	Fort (Severn River)	69	Thomas Point Shoal Light	108	Parker (Herring Bay)
34	Bluff (Severn River)			109	Hopkins (Herring Bay)
35	Brice	70	Arundel	110	Fairhaven
36	Knob	71	Hill	111	Holland (Chesapeake Bay)
37	Spring (Severn River)	72	Switch		
38	Cool	73	Waggaman Windmill		

#### BALTIMORE COUNTY.

1	Craighill Channel Light (Rear Range)	3	North Point (Old Tower Foundation)	5	Fort Howard Teller Water Tank
2	Craighill Channel Light (Front Range)	4	Cutoff Channel Light (Front Range)	6	Cutoff Channel Light (Rear Range)

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## NUMERICAL INDEX TO TRIANGULATION STATIONS—Continued.

## CALVERT COUNTY.

County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station
1	Hog Point (Holland 3)	16	Pat	32	Mackall
2	Beach (Chesapeake Bay)	17	Drum Point Light	33	Wheat
3	Ill 2	18	Bareda House Cupola	34	Peak
4	Plum 3	19	Bon	35	Island (Patuxent River)
5	Pier (Chesapeake Bay)	20	Fishstack	36	Sweep
6	Pen (Chesapeake Bay)	21	K. of P. Flagstaff (Solomons)	37	Slim
7	Patch	22	Sand	38	Photo
8	Parker (Chesapeake Bay)	23	M. E. Church (Solomons)	39	Battle
9	Run	24	Catholic Church Cross	40	Kitt (Patuxent River)
10	Poplar	25	New	41	Sheridan
11	Flag Pond	26	Bur	42	Morsel
12	Wilson 2	27	Ton	43	Buzz
13	Point of Rocks	28	Hellen	44	Dwarf
14	Cove Point Light	29	Stump	45	Hallowing
15	White House (N. E. Chimney)	30	Lend	46	Buena
		31	Sollers	47	Leitch

## CHARLES COUNTY.

1	Fodder	7	Stoddard	14	Charles (Wicomico River)
2	Teague	8	Hayden	15	Hard
3	City	9	Burr	16	Rock Point Catholic Church Cross
4	Catholic Church Cross (Benedict)	10	Bowman	17	Corner (Wicomico River)
5	Indian (Patuxent River)	11	Eedling	18	Cobb Point Bar Light
6	Upper	12	Gust		
		13	Hedney		

## DORCHESTER COUNTY.

1	Myrtle (Choptank River)	19	Dicks Water Tank	40	Greenwell
2	Hut	20	Howard (Choptank River)	41	Ross (Little Choptank River)
3	House	21	Toot	42	Phil (Little Choptank River)
4	Saw	22	Le Compte	43	Dupont
5	Wick	23	Large Water Tank	44	Beckwith
6	War	24	Castle	45	Cherry Island Water Tank
7	Gander	25	Corner (Choptank River)	46	Lee
8	Chief	26	Dot	47	Solomon
9	Shell (Choptank River)	27	Chef	48	Seth (Little Choptank River)
10	Whitehall	28	Cook Point Windmill	49	Adam
11	Ferry (Choptank River)	29	Brannock	50	Layton
12	Shoal	30	Robins	51	David
13	E. Cambridge Spire	31	Ragged Point 3	52	Town (Little Choptank River)
14	E. Cambridge Tall Stack	32	Hudson	53	Swept
15	Cambridge Stand Pipe	33	Jenifer	54	Hugh
16	Cambridge	34	Henry	55	Etta
17	Hambrooks Bar Beacon	35	Mitchell	56	Mary
18	Command	36	Back	57	Neil
		37	Bayly		
		38	Carrie		
		39	Louise		

NUMERICAL INDEX TO TRIANGULATION STATIONS—Continued.

DORCHESTER COUNTY—Continued.

County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station
58	Kirby	82	Skid	106	Lakes
59	Paul (Little Choptank River)	83	Rede	107	Asquith
60	Church Creek (No 1 West)	84	James (Chesapeake Bay)	108	Windmill 2
61	Austin	85	Travers 2	109	Paul (Honga River)
62	Tom (Little Choptank River)	86	Dunnoch	110	Duck (Honga River)
63	Brooks	87	Mint	111	St. Thomas Church Spire
64	Doctor (Little Choptank River)	88	North	112	Norman (Honga River)
65	Eleanor	89	Hosier Memorial Church Spire	113	Hooper Strait Light
66	Laney	90	South (Barren Island)	114	Head
67	Mac	91	Mt. Zion M. E. Church Spire	115	Croch
68	Madison Southern M. E. Church Spire	92	Hooper Island Light	116	Roast
69	Tobacco Stick	93	Applegarth	117	Toddville M. E. Church Spire
70	Wool	94	Okahanikan	118	Farm
71	Pov	95	Holland Island Church Spire	119	Thoro
72	Torrey	96	Crab	120	High (Honga River)
73	Maryland	97	Hopkins Memorial Church Cupola	121	Elliott
74	Noble	98	Hoopersville Methodist Church Cupola	122	Ear
75	Finish	99	Bentley	123	Fish
76	Taylor (Slaughter Creek)	100	Bridge (Honga River)	124	Sharkfin Shoal Light
77	Harrington	101	Gunners	125	Frog
78	Whitewash	102	Keenes	126	Cow
79	Moore	103	Kerwin	127	Okay
80	Veith	104	Wroten	128	Ar
81	Can	105	Charles (Honga River)	129	Gover
				130	Streett

HARFORD COUNTY.

1	Pooles Island Light	2	Pooles Island 2
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KENT COUNTY.

1	Worton Point 2	17	Windmill Point	31	Herring
2	Bramble	18	Stevens	32	No Road
3	Mitchells Bluff 2	19	Wickes Beach	33	Cut
4	Swan Point 3	20	Narrows Point	34	Fore
5	Bank (Swan Creek)	21	Rain	35	Island (Grays Inn Creek)
6	Tavern	22	Overton	36	Tray
7	Fork	23	Bay Bush Point	37	Inn
8	Eliason	24	Little Gum	38	Deep Cove
9	Urie	25	Weeks	39	Snub
10	Corr	26	Spring (Grays Inn Creek)	40	Lawyer
11	Spike	27	Lucy	41	Drum (Langford Creek)
12	Rail (Swan Creek)	28	Goose (Grays Inn River)	42	Davis
13	Haven	29	Prussian	43	Isle
14	Treasure	30	Gray	44	Eagle (Langford Creek)
15	Orchard			45	Ford (Langford Creek)
16	Gratitude				

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## NUMERICAL INDEX TO TRIANGULATION STATIONS—Continued.

## KENT COUNTY—Continued.

County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station
46	Kinsley	61	Clay	77	Westcotts Windmill
47	Whale (Langford Creek)	62	Lovely	78	Deep Point 2.
48	Bungay	63	Gut	79	Thorn.
49	Locust (Langford Creek)	64	Philip (Langford Creek)	80	Shippen
50	Nat (Langford Creek)	65	Ide	81	Oyster (Chester River)
51	Mill (Langford Creek)	66	Hoo	82	Jarrett
52	West	67	Cult	83	Melton
53	Hornor	68	Wann	84	Pomona
54	King	69	Corn (Langford Creek)	85	Taste
55	Ash	70	Neck (Langford Creek)	86	Make
56	Noth	71	Major	87	Broad (Chester River)
57	Leary	72	Peach	88	Nils
58	Nest	73	Langford	89	Robertson Windmill
59	Woll	74	Quaker	90	Robertson (Chester River)
60	Harp	75	Brown	91	Thorsten
		76	Stratton	92	Blank

## PRINCE GEORGE COUNTY.

1	Prince				
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## QUEEN ANNES COUNTY.

1	Rolphs	30	Crow	59	Liver
2	Southeast	31	Bird	60	Tuxon
3	Wilmers	32	Gordon	61	Steve
4	Julius	33	Fir.	62	Thompson (Cox Creek)
5	Down	34	Break	63	Hope
6	Bill	35	Blakeford	64	Knock
7	Cake	36	Bluebeard	65	Landing
8	Journey	37	Muddy	66	Timber
9	Booker	38	Thin	67	Ville (Cox Creek)
10	Starkley	39	Macum	68	Greek
11	Burns	40	Railway Water Tank	69	Tom (Cox Creek)
12	Ashland	41	Amour	70	Dell
13	Indian (Chester River)	42	Love Point Light	71	Turkey
14	Corpse	43	Ring	72	Needle
15	Chester (Chester River)	44	Wash	73	Cox (Crab Alley Bay)
16	Evans	45	Craney	74	Tull
17	Spaniard Pt. (2 Upper)	46	Bloody Point Bar Light	75	Over
18	Corsica	47	Tenk	76	Norman (Eastern Bay)
19	Sweepson	48	Straight (Eastern Bay)	77	Parsons
20	Engineer	49	Mouth	78	Parsons Island Water Tank
21	Ship	50	Matta	79	Alley
22	Bath	51	Then	80	New Barn Cupola
23	Melfield	52	Some	81	Dull
24	Ruth	53	Batts	82	Kirwan
25	Hydrographic	54	Top	83	Bridge (Kent Island Narrows)
26	Earle (Corsica River)	55	Ware	84	Railroad
27	Holton Point	56	Coffee	85	Marshy
28	Reeds (Chester River)	57	Here	86	Bonnet
29	Grove (Reeds Creek)	58	Samuel (Cox Creek)		

## NUMERICAL INDEX TO TRIANGULATION STATIONS—Continued.

## QUEEN ANNES COUNTY—Continued.

County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station
87	Brian Reference Station	101	Oysters (Wye River)	116	Albert
88	Green (Eastern Bay)	102	Bee	117	Le Seur
89	Benn	103	Close	118	Attila
90	Hough	104	June	119	Tobine
91	Won	105	Chin	120	Sang
92	Nose	106	Aller	121	Turn
93	Stop	107	Twist	122	Go
94	Orb	108	Wide	123	Divide
95	Piney	109	Darce	124	Princess
96	Ferry (Wye River)	110	Twixt	125	Philip (Wye River)
97	Owe	111	Star	126	Granary
98	Hook	112	Leaven	127	Morn
99	Knee	113	Snout	128	Bush
100	No	114	South (Wye River)	129	Nub
		115	Flat (Wye River)	130	Wheel

## ST. MARYS COUNTY.

1	Sothoron	37	Hall House (Middle Chimney)	72	Brome
2	Billiard	38	Sig	73	Calvert Monument
3	Trent	39	Red Beacon (1908)	74	Episcopal Church Cross (Old St. Marys)
4	Collins	40	Dago	75	Bend
5	Cremona	41	Pipe	76	Horseshoe (St. Marys River)
6	Oppkit	42	Pier (Smith Creek)	77	Martin (St. Marys River)
7	Fight	43	Enough	78	Hammett
8	Forr	44	Drum (Smith Creek)	79	McCoy
9	Cole	45	In	80	Soak
10	Hutchins	46	Out	81	Tenuate
11	Bars	47	Jutland	82	Brief
12	Stock	48	Flagpole	83	West Hollow
13	Briscoe	49	Ran 2	84	Pagan
14	Nat (Patuxent River)	50	Flat (Smith Creek)	85	Deep
15	Mill (Patuxent River)	51	Stung	86	McKay
16	Cable	52	Oak	87	Water Tower (Porto Bello)
17	Town (Patuxent River)	53	Tab	88	Bello
18	Crane	54	Day	89	Coppage
19	Ben	55	Between	90	Grind
20	Craddock	56	Fort (St. Marys River)	91	Thompson (St. Marys River)
21	Carroll 2	57	Rod (Priest's House)	92	Pond
22	Hog 2	58	Raley	93	Cherry
23	Cedar Point Light	59	St. Inigoes Church Cross	94	Price
24	Cain	60	Church	95	Goose (St. George River)
25	Desert	61	Grason	96	Combs (Honga River)
26	Ford (Chesapeake Bay)	62	Smoke	97	Taylor (St. George River)
27	Reed (Chesapeake Bay)	63	Chestnut	98	Tarkhill
28	Point Agin	64	Sleep	99	Arbuckle
29	Point No Point	65	Rock	100	Lowell
30	Point No Point Light	66	Dusky	101	Shehan
31	St. Jerome	67	Cottage (St. Inigoes Creek)	102	Chadwick
32	St. Michael Catholic Church Spire	68	Inigoes		
33	Point Look-in	69	Kennedy		
34	Potomac	70	Chan		
35	Point Lookout Light	71	Gravel		
36	Hall (Potomac River)				

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## NUMERICAL INDEX TO TRIANGULATION STATIONS—Continued.

## ST. MARYS COUNTY—Continued.

County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station
103	Guither	131	Healey (Bretons Bay)	157	Profound
104	Wall (St. George River)	132	Hollow	158	Mileys
		133	Trees	159	Shipping
105	Russell	134	Paw	160	Woods (St. Clement Bay)
106	Robrecht	135	Cherry Cove	161	Canoe
107	Swan (St. George River)	136	Compton	162	St. Patrick
108	Straits (St. George River)	137	Sandbar	163	Blakistone Island Light
109	Adams	138	Newtown	164	Heron
110	Smack	139	Kaywood	165	River Springs Catholic Chapel Cross
111	Labor	140	St. Clement	166	Waterloo
112	St. George 4	141	Roof	167	St. Catherine
113	Piney Point Light	142	Rails (St. Clement Bay)	168	Bailey
114	Cedoak	143	Catholic Church Cross (Newtown Neck)	169	Sound
115	Grove (Bretons Bay)	144	Chapel	170	St. Margaret 2
116	Dune	145	Mansion	171	Prec
117	Fence	146	Howards (St. Clement Bay)	172	Blakistone
118	Protestant	147	Bank (St. Clement Bay)	173	Weiss
119	What	148	Cecil	174	Sacred Heart Church Spire (Bushwood)
120	Lovers	149	Place	175	Lyon
121	Beau	150	Guest	176	Farr
122	Mouldy	151	Stones	177	Fact
123	Pine (Bretons Bay)	152	Turf (St. Clement Bay)	178	Perry
124	Cedar (Bretons Bay)	153	Dynard	179	Cohouck
125	Corn (Bretons Bay)	154	Tomakokin	180	Key
126	Valley	155	Cobrums	181	Barber (Wicomico River)
127	Foxwell	156	Radec		
128	Buzzard				
129	Noname				
130	Belle				

## SOMERSET COUNTY.

1	Walnut	23	Sandy	43	Emanuel Church
2	Jones	24	Locust (Manokin River)	44	Mount Pleasant Church
3	Ivee	25	Fitz	45	Asbury Church
4	Mount Vernon M. E. Church	26	Wab	46	Sam
5	Ball (Wicomico River)	27	Pen (Manokin River)	47	Watermelon Hummock
6	Wind	28	Cox (Manokin River)	48	East
7	Little	29	Green (Manokin River)	49	Monkey
8	Dove	30	Barn	50	Scot
9	Short	31	Cupola (Manokin River)	51	Old
10	Room	32	Staff	52	Will
11	Haines	33	Fairmount Church	53	Holland Island Bar Light
12	Deal Island Church	34	Prickly	54	Fog 2
13	Bar (Tangier Sound)	35	Has	55	Joseph
14	Joshua	36	Ford (Big Annemessex River)	56	North Church Spire (Smith Island)
15	Senator	37	Moon	57	Old Church Spire (Smith Island)
16	Miles	38	Colburn	58	Ewell Church Spire (Smith Island)
17	Solomons Lump Light	39	Geog		
18	Terrapin	40	Flat Cap		
19	Kelley	41	Janes Island Light		
20	Marsh (Manokin River)	42	Somers Cove Light		
21	St. Pierre				
22	Jean				



## NUMERICAL INDEX TO TRIANGULATION STATIONS—Continued.

## TALBOT COUNTY.

County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station
1	Pick	58	Kirk	112	Bozman
2	Corner (Wye River)	59	Ham (Miles River)	113	Bozman M. E. Church
3	Right	60	Comb (Miles River)		Spire
4	Chew	61	Hall (Miles River)	114	Koot
5	Whale (Wye River)	62	Barnett	115	Fox
6	Matter	63	Maiden	116	Dan
7	Deck	64	Stony	117	Edmond
8	Quarter	65	St. Michaels P. E.	118	Warrior
9	Nodim		Church Spire	119	Ball (Harris Creek)
10	Gusta	66	St. Michaels Water	120	Hen
11	Sylvia		Tank	121	Change 1910
12	Baldwins	67	Millwind	122	Nelson 3
13	Cousin	68	Deewat	123	Annette
14	Lloyd	69	Spar	124	Myrtle (Broad Creek)
15	Edward	70	Sara	125	Coal
16	Colonel	71	Seth (Miles River)	126	Tobe
17	Shaw	72	Pearson	127	Wire
18	Bruffs	73	Dixon	128	Blanco
19	Law	74	Rich Neck Water Tank	129	Ned
20	James (Miles River)	75	Kemp Tower	130	Caulk
21	Frank	76	Kemp	131	Fairbanks
22	Wood (Miles River)	77	Haddaway	132	Pine (Broad Creek)
23	Herr	78	Valliant	133	Luna
24	Ollie	79	Poplar South	134	Cabin
25	Swing	80	Great	135	Skinner
26	Fair	81	Front	136	Bald
27	Second	82	Wap	137	Rose
28	But	83	Southern M. E. Church	138	Gram (Broad Creek)
29	Aber	84	Black	139	Bengal
30	Two	85	Sharps Island Light	140	Eastman
31	Face	86	Jere	141	Woodlill
32	Mais	87	Bar (Harris Creek)	142	Delta (Broad Creek)
33	Beak	88	M. E. Church (Tilgh-	143	Marion
34	Rieman		man Island)	144	Willis
35	Leeds	89	Avalon	145	Neptune
36	Margo	90	Schoolhouse Cupola	146	Venus
37	Gibbs	91	Peoples Chapel	147	Mars
38	Long (Miles River)	92	Narrows	148	Royal
39	Beg	93	Eagle (Harris Creek)	149	Grave
40	Search	94	Dunk	150	Ray
41	Tug	95	Hawk	151	Willey
42	Hunting	96	Smith	152	Judge
43	Spree	97	Briary	153	Thelma
44	Whit	98	Vine	154	Elmore
45	Dorrance	99	Cummings	155	Beverly
46	Tang	100	Dog	156	Samuel (Broad Creek)
47	Johnson	101	Rabbit	157	Ansley
48	Lowndes	102	Grace	158	Harper
49	Draw	103	Mink	159	Taft
50	Chap	104	Harrison	160	Hopkins (Broad Creek)
51	Villa (Miles River)	105	Clump (Harris Creek)	161	Spencer
52	Easton	106	Lawn	162	Marshall
53	Henderson	107	End (Harris Creek)	163	Clark
54	Bethel	108	Rod (Harris Creek)	164	Holly
55	Fig	109	Otto	165	Marsh (Broad Creek)
56	Doctor (Miles River)	110	Miller	166	Cedar (Broad Creek)
57	McConnell	111	Pink	167	Ross (Broad Creek)

## SUMMARY OF SURVEY OF OYSTER BARS OF MARYLAND.

## NUMERICAL INDEX TO TRIANGULATION STATIONS—Continued.

## TALBOT COUNTY—Continued.

County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station
168	Cook	201	Wall (Tred Avon River)	234	Show
169	Peary			235	Kit (Island Creek)
170	Roys	202	Aye	236	Moke
171	Irish	203	Hunter	237	Poco
172	Pont	204	Weave	238	Healey (Island Creek)
173	Sticky	205	Twin	239	Maslin
174	Vue	206	Toe	240	Mean
175	Ila	207	Trippe	241	Jay
176	Creek (Irish Creek)	208	Venture	242	Berry
177	Benoni 2	209	Plow	243	Landeye
178	Mutton	210	Higher	244	Choptank River Light
179	Tred	211	All	245	Chlora
180	Bellevue	212	Cam	246	Trappe
181	Tar	213	Deux	247	Lan
182	Peck	214	Crack	248	Rice
183	Tall	215	Mistle	249	Inez
184	Plain	216	Layor	250	Gis
185	Spin	217	Borough	251	Grubin
186	Martin (Tred Avon River)	218	Golds	252	Black Beacon
187	Neva	219	Mud (Tred Avon River)	253	Howells
188	Robertson (Tred Avon River)	220	Town (Tred Avon River)	254	Red
189	Stretch	221	Riverview	255	Double
190	May	222	Weather Bureau Staff	256	Boling
191	Peebee	223	First	257	Rear
192	Neck (Tred Avon River)	224	Bach	258	Chancellor
193	Stab	225	Boone	259	Barber (Tred Avon River)
194	Water	226	Enter	260	Duck (Choptank River)
195	Radcliffe	227	Straw	261	Jam
196	Bateman	228	Delahay	262	Spindle
197	Melon	229	Kent	263	Bank (Tred Avon River)
198	Gash	230	Harry	264	Raccoon
199	Camden	231	Charles (Island Creek)	265	Blind
200	Blossom	232	Potato	266	Up
		233	Ritter		

## VIRGINIA.

1	Herring Pond 2	9	Fox Island Poplar	17	Grace M. E. Church
2	Lynch Point 3	10	Mos	18	Long Point
3	Smith Point Light	11	Wharf (Saxis Pier)	19	Wildcat
4	Shanks Hammock 2	12	Saxis Church Spire	20	Pope Island Life-Saving Station
5	Horse	13	Oil	21	Chester (Virginia)
6	Fishbone	14	Summer	22	Killick Shoal Light
7	Reach Hammock	15	Cup	23	Assateague Light
8	Beacon	16	Money		

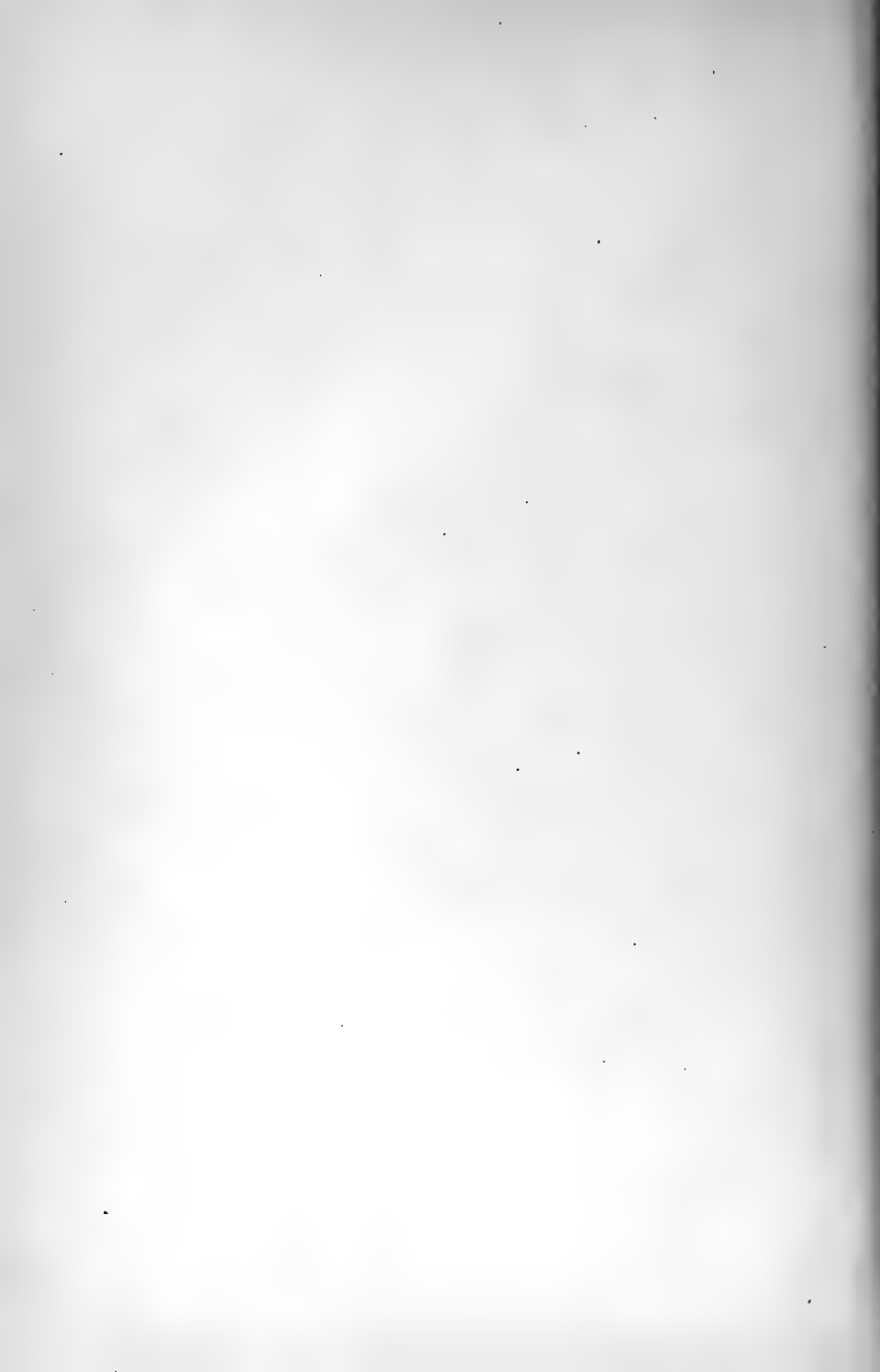
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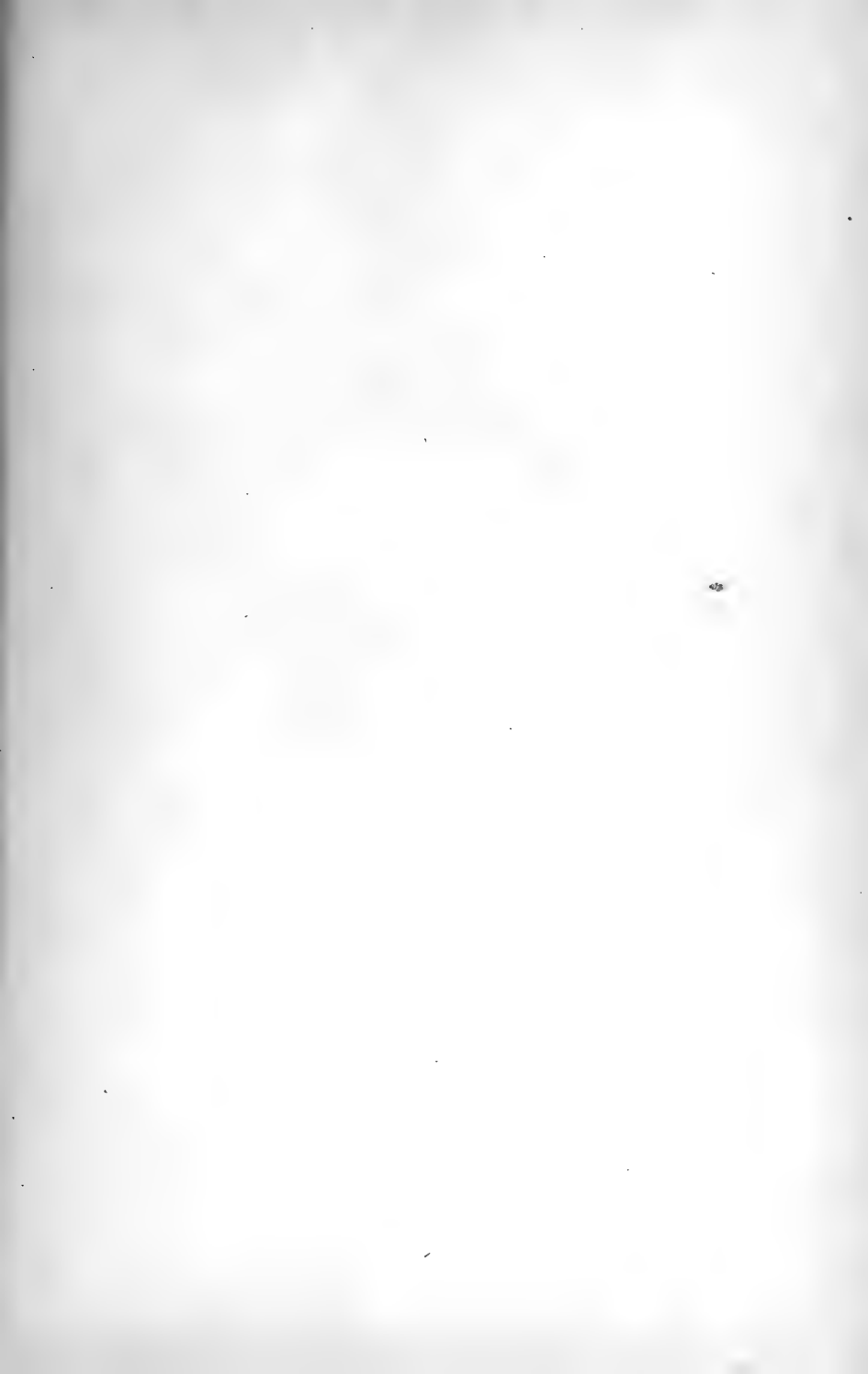
## WICOMICO COUNTY.

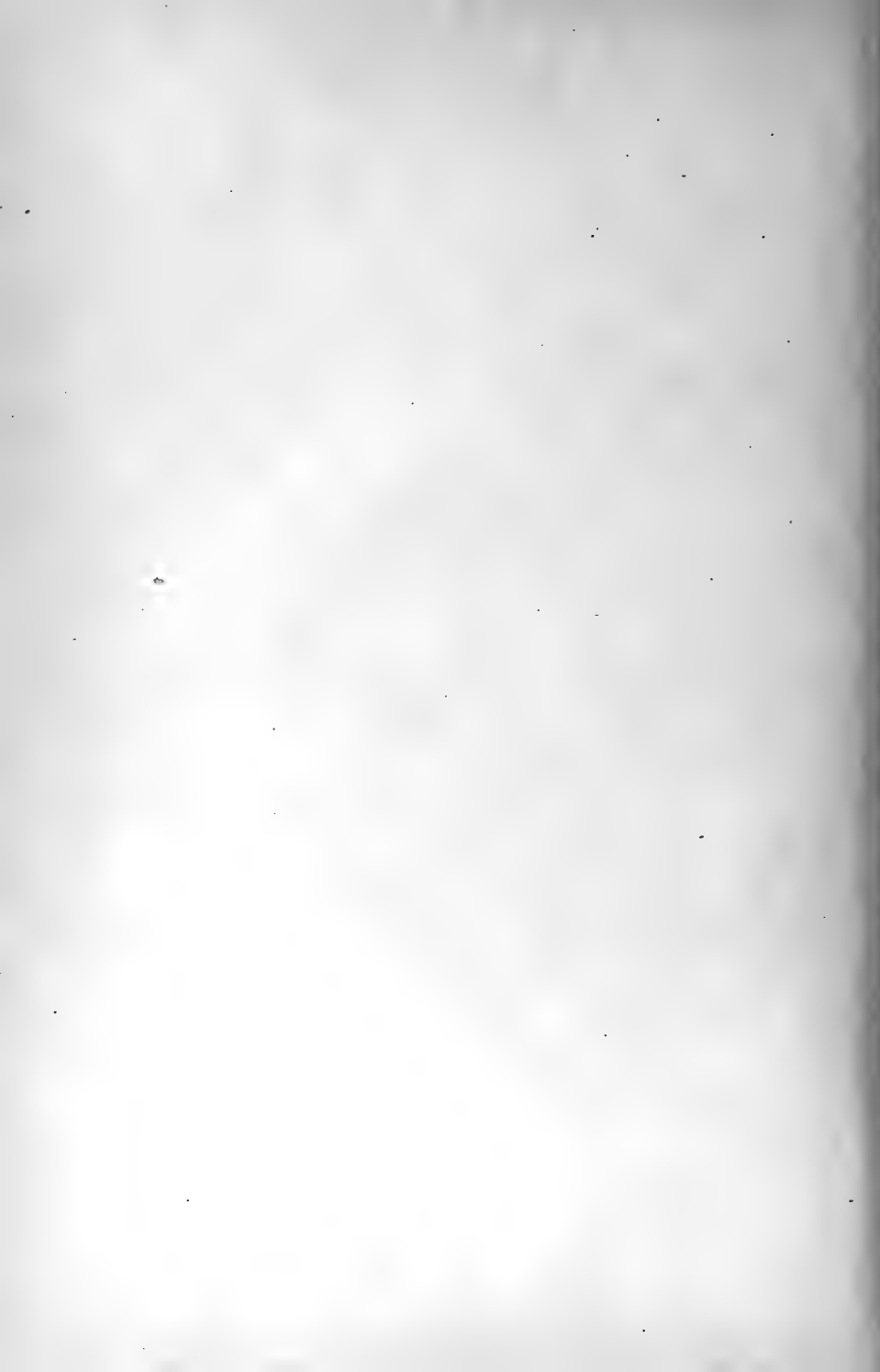
County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station	County index number indicating station on Index Chart	Name of station
1	Earle (Nanticoke River)	7	Roar	13	Child
2	Juliet	8	Nanti	14	Creek (Wicomico River)
3	Pole	9	White	15	End (Wicomico River)
4	Bivalve Church	10	Great Shoals Light		
5	Rag	11	Ella		
6	Nanticoke Church	12	Holland (Wicomico River)		

## WORCESTER COUNTY.

1	Hamilton	17	Sanpoi	31	Green Run Inlet Life-Saving Station Flag-staff
2	Ocean City Water Tower	18	Mud (Sinepuxent Bay)	32	Tizz
3	Harmon	19	Ingrava	33	Mill (Chincoteague Bay)
4	Ocean	20	Salt (Sinepuxent River)	34	Maryland-Virginia (Life-Saving Station Beach)
5	Buffing	21	North Beach Life-Saving Station	35	Maryland-Virginia (Pope Island)
6	Buffington Windmill	22	Birch	36	Maryland-Virginia (Railroad)
7	Gull	23	Neck (Chincoteague Bay)	37	Thorofare
8	Inkquill	24	Newport	38	Collier
9	Seaside	25	Handys Hammock	39	Convent Water Tower
10	Ellpow	26	Ricks	40	Gantt
11	Beach (Sinepuxent Bay)	27	Guilberts Cupola		
12	Fassett	28	Beacon Clumps		
13	Shore	29	Landlet		
14	Nellys	30	Turnagain		
15	Bar (Sinepuxent Bay)				
16	Longwells Windmill				







DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY  
O. H. TITTMANN, Superintendent

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# SURVEY OF OYSTER BARS

ANNE ARUNDEL COUNTY  
MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND REPORT  
OF WORK OF UNITED STATES COAST AND GEODETIC SURVEY  
IN COOPERATION WITH MARYLAND SHELL FISH COMMISSION

By C. C. YATES

ASSISTANT AND CHIEF OF PARTY, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1907

DEPARTMENT OF COMMERCE AND LABOR

Document No. 77.

COAST AND GEODETIC SURVEY



## LETTER OF SUBMITTAL.

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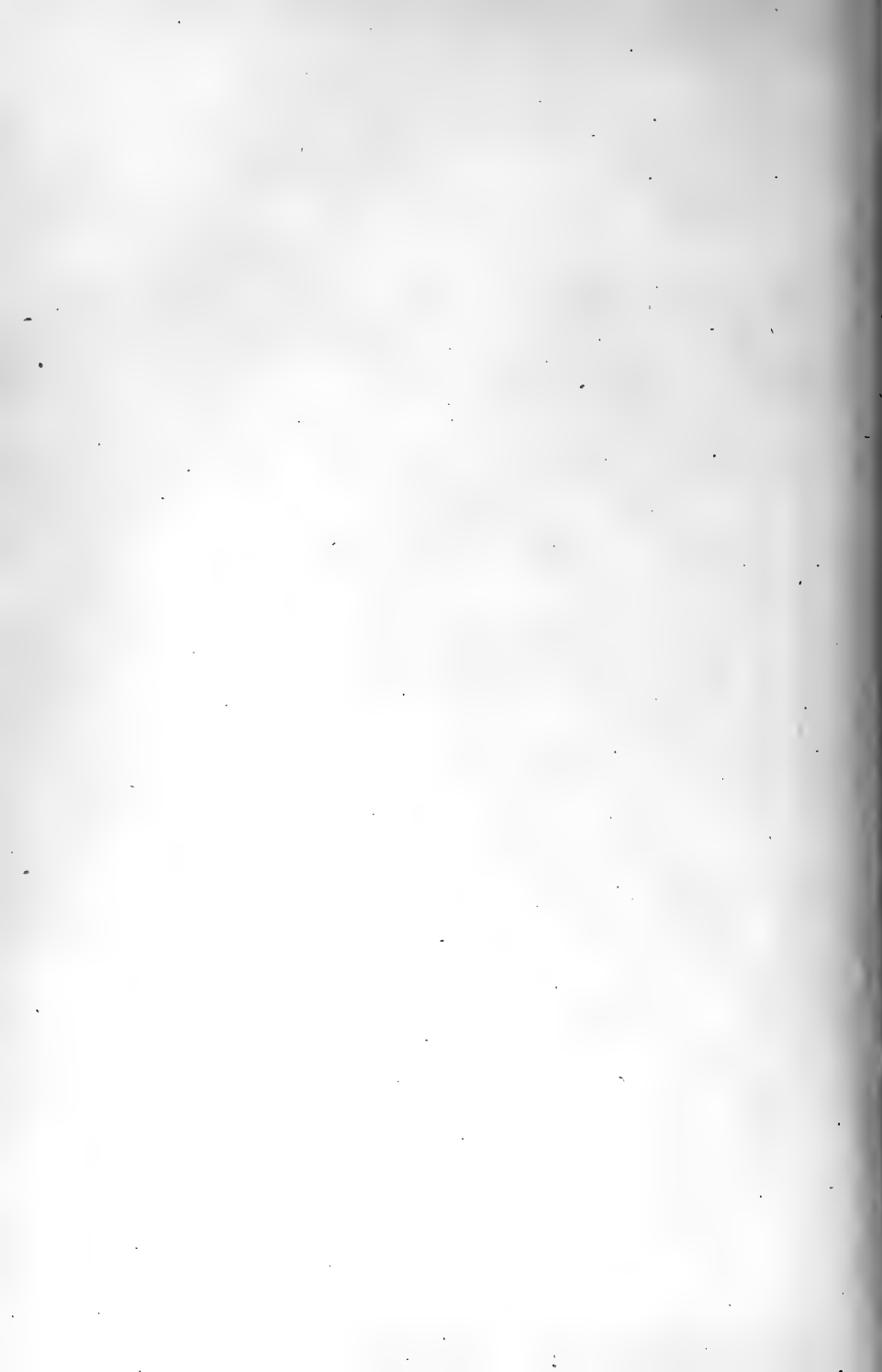
DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, June 1, 1907.*

SIR: I have the honor to transmit herewith the report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Maryland Shell Fish Commission in surveying the oyster beds of the State of Maryland, under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and certain results which are necessary for the interpretation and use of the plats of the survey.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To Hon. OSCAR S. STRAUS,  
*Secretary of Commerce and Labor.*



## CERTIFICATION.

---

ANNAPOLIS, MD., *May 29, 1907.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in Anne Arundel County and contiguous waters by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,

*Assistant and Chief of Party in the Coast and Geodetic Survey.*

---

ANNAPOLIS, MD., *June 6, 1907.*

Examined and certified to be correct.

WALTER J. MITCHELL,

BENJAMIN K. GREEN,

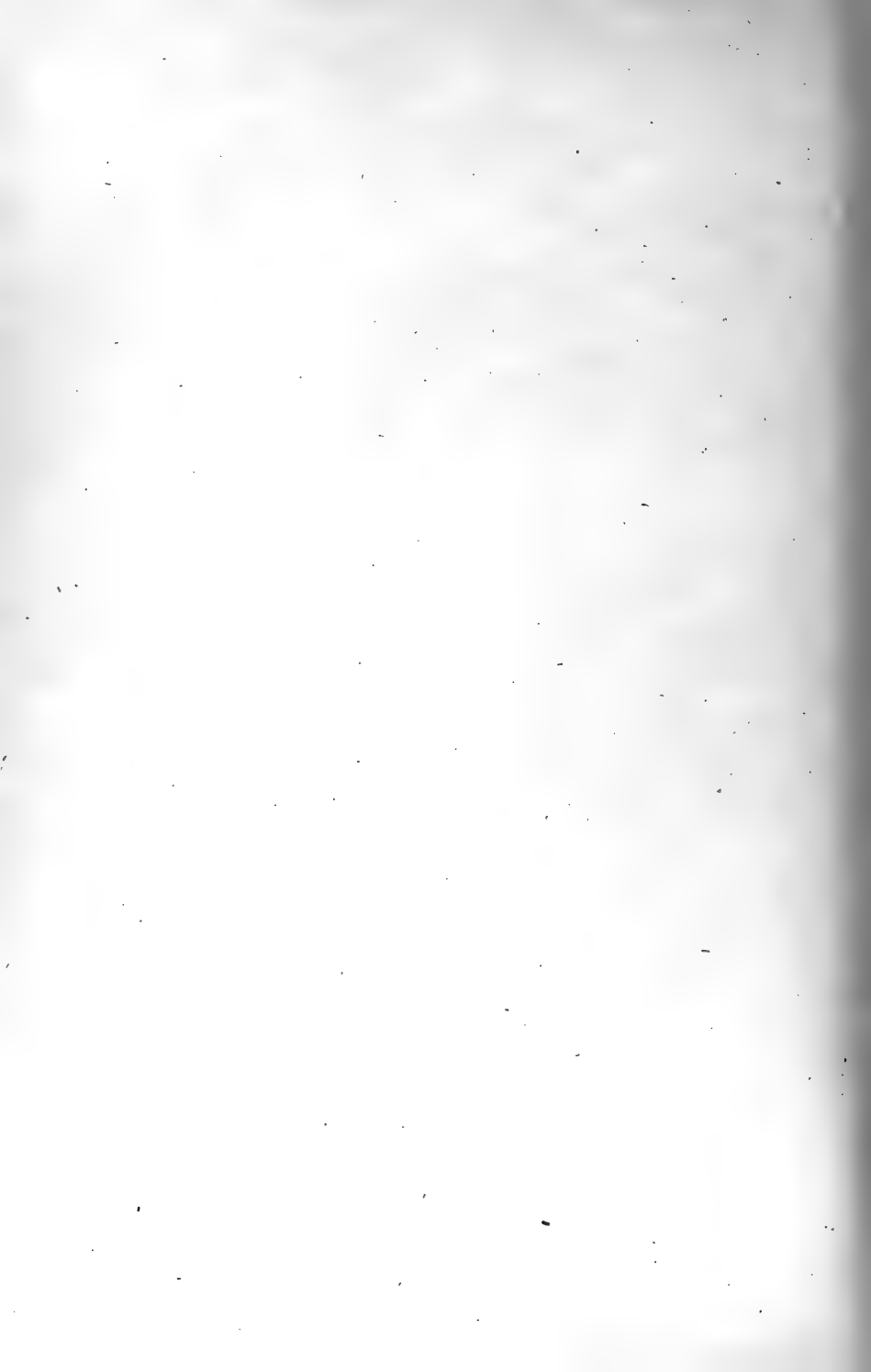
CASWELL GRAVE,

*Maryland Shell Fish Commissioners.*

SWEPSON EARLE,

*Hydrographic Engineer.*

NOTE.—Copies of this publication and of the charts of the natural oyster bars of "Anne Arundel County and Adjacent Waters" were filed in the office of the clerk of the circuit court of Anne Arundel County and in the office of the Board of Shell Fish Commissioners at Annapolis on June 20, 1907.



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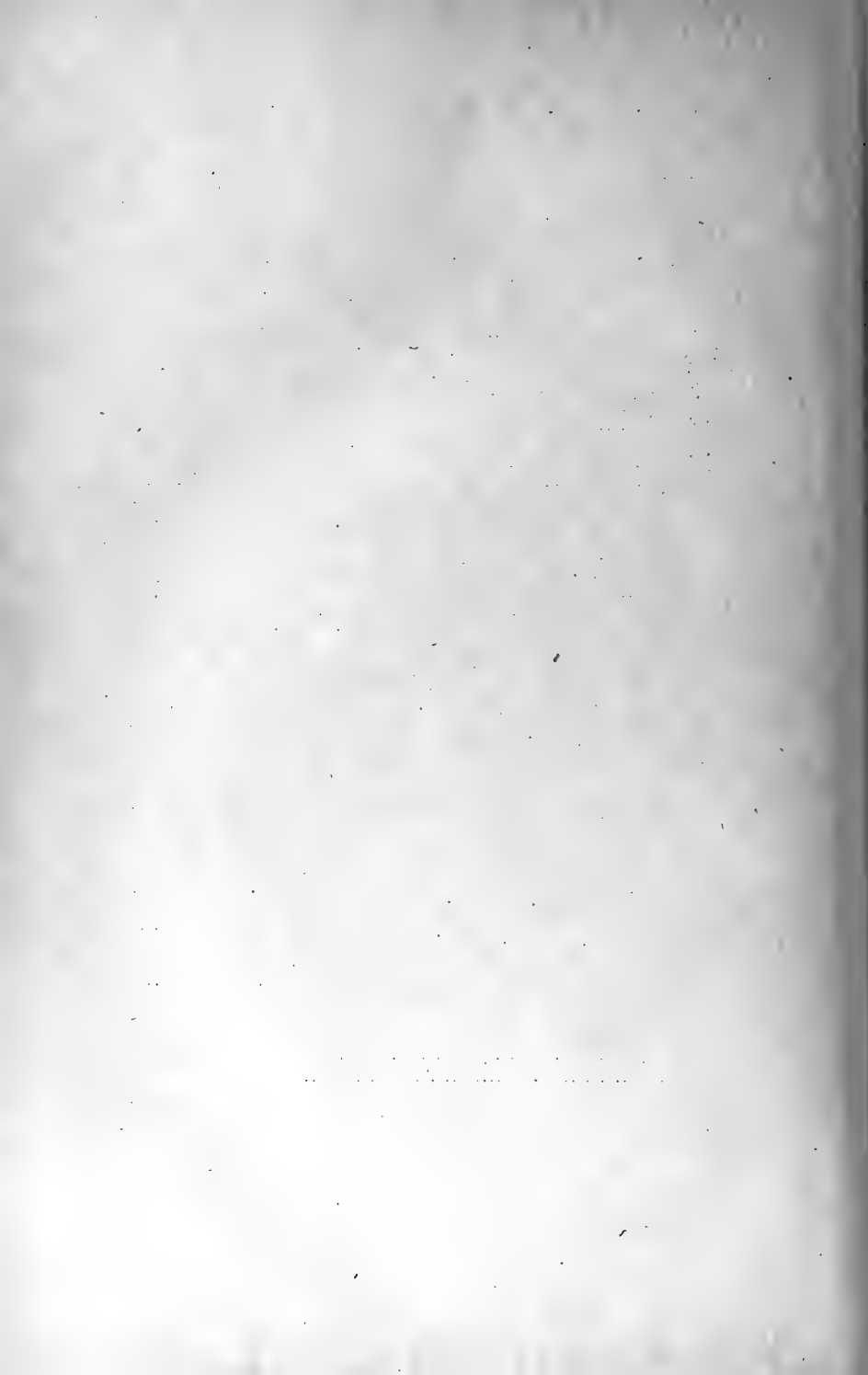
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# SURVEY OF OYSTER BARS, ANNE ARUNDEL COUNTY, MD.

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## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the natural oyster bars of Maryland has been divided between the Government and the State in accordance with the laws authorizing the work and the natural division of the surveying operations of the cooperating forces.

The part prepared under the direction of the Superintendent of the Coast and Geodetic Survey consists of this publication and a series of large-scale charts. The charts show all legal boundaries of natural oyster bars within the waters opened up for leasing with Anne Arundel County and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used in connection with the delineation of these boundaries. This publication gives a technical description of the oyster-bar boundaries and landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey.

The part to be published by the Shell Fish Commission will include a report of the work executed by the commission under the provisions of the oyster-culture laws of Maryland, descriptions of oyster investigations and the delimitation of oyster bars, and other important legal and scientific information.

### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data for all surveying, charting, and other allied purposes within the area of the operations of the service, the cooperation of the Coast and Geodetic Survey with the Maryland Shell Fish Commission is a practical and useful development of Government work.

## LAWS RELATING TO THE COOPERATION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying and publishing charts of natural oyster bars, establishing permanent landmarks over triangulation stations, and preparing for publication the necessary technical and legal descriptions of boundaries and landmarks delineated on the charts, has been executed in compliance with a request from the Governor of the State of Maryland to the Secretary of Commerce and Labor, and by authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the Shell Fish Commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the Board of Shell Fish Commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*

SEC. 4. That this act shall take effect from the date of its passage.

[Act of Congress approved March 4, 1907.]

AN ACT making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the Shell Fish Commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

[Act of the legislature of Maryland approved April 2, 1906.]

AN ACT to establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this act, and \* \* \*

SECTION 1. *Be it enacted by the general assembly of Maryland,* That the following sections be, and they are hereby, added to article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this act, cause to be made a true and accurate survey of the natural oyster beds, bars, and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as herein-after required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States Coast and Geodetic Survey, which said copies shall be filed in the office of the said Commissioners in the city of Annapolis; and the said Commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States Coast and Geodetic Survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars, and rocks, all natural beds, bars, and rocks lying within the waters of such county, which maps shall be filed in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie.

\* \* \* \* \*

SEC. 87. The governor of this State is hereby requested to ask the assistance of the United States Coast and Geodetic Survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section. \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said Commissioners shall organize and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States Coast and Geodetic Survey, and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed, and designated on the said charts the natural beds, and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks, as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said Board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks as shown by a delineation on the maps and charts provided in this act; said report shall be completed and filed in the office of the Board in the city of Annapolis within ninety days after the completion of the survey of any county. Said Commissioners shall cause the same to be published in pamphlet form, and transmit copies of the same to the clerk of the circuit court for the respective counties, where the charts have been filed or directed to be filed, as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars, and rocks lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars, or rocks lying within the waters of the counties wherein such report and survey are filed other than those embraced in the survey authorized by this act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland not shown in the survey to be natural oyster beds, bars, or rocks shall be construed in all the courts of the State to be barren bottoms, and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this act; provided that the said survey and report shall not be so construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this act. \* \* \*

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the U. S. Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the Survey, is as follows:

AN ACT concerning the survey of the coast of Maryland.

SECTION 1. *Be it enacted by the general assembly of Maryland*, that it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or leveling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2. *And be it enacted*, That in case the person or persons employed under the act of Congress aforesaid can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees, or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being, or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and, if required, upon the evidence of witnesses (to be by them sworn or affirmed and examined), shall assess the said damages, and shall afterwards make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid, if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid shall have authority to tax and allow, upon the filing of said report, such costs, fees, and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of Congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid ensuing upon and after said appeal, and it shall be lawful for either party immediately after the entry of such appeal to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against whichever the final judgment shall be entered, and such appeal, at the option of either party, may and shall be heard before, and the damages assessed by, a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted*, That if any person or persons shall wilfully injure or deface or remove any signal, monument, or building, or any appendage thereto, erected, used, or constructed under and by virtue of the act of Congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars, with costs of suit, to be sued for and recovered by any person who shall first prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

CHARTS AND MAPS.

CHARTS OF NATURAL OYSTER BARS.

The charts<sup>a</sup> of the natural oyster bars of "Anne Arundel County and Adjacent Waters," published by the Coast and Geodetic Survey from results of surveys of the Government in cooperation with the Maryland Shell Fish Commission, consist of a series of four sheets, covering the west shore of Chesapeake Bay from Fort Carroll to Holland Point. They are published on the scale of 1 part in 20,000 (approximately  $3\frac{1}{8}$  inches to a statute mile), and are constructed on polyconic projections and based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bar and other boundaries established by the Commission, and are certified by them for the purpose of filing in the office of the clerk of the circuit court of Anne Arundel County and in the office of the Commission at Annapolis, as required by the oyster-culture laws of Maryland.

In addition to the boundaries, the charts show the location and name of all landmarks (U. S. Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography necessary to make the technical definitions and delineations of boundaries readily understandable, both by the people engaged in oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission, and are not designated by numbers, as might suggest itself on first thought as being the best method when the great number of oyster bars in the whole State are considered. By the use of local names, it is believed that much confusion will be avoided in the location of oyster bars, especially by those not familiar with charts.

The corners of the oyster bars are numbered from 1 to the total number of corners in each bar under consideration. Where bars adjoin, making one point a corner of two or more bars, these points have two or more numbers, each corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions given in this publication under the heading "Boundaries of natural oyster bars."

The natural oyster bars and landmarks have been grouped in the contents of this publication in accordance with the charts upon which they are shown. To find a particular oyster bar or landmark which is only known by name, consult the "Contents," and the desired chart and general location will be indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

The contours for the depth of water at mean low tide have been taken from the hydrographic sheets of the Coast and Geodetic Survey at Washington. Four curves

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<sup>a</sup>For copies of these charts apply to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in the oyster industry. The 1-fathom contour (6 feet) and the 5-fathom contour (30 feet) practically include all the natural oyster bars surveyed, while the 3-fathom contour (18 feet) furnishes the curve of about the average depth. The 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the territorial limits of the county and the boundaries of waters not within these limits but opened up for the leasing with the county are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the natural oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements made of the area of the bars as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures on the face of the chart within the boundaries of the bars.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the notes on the charts.

#### PROJECTIONS.

The polyconic projections, like the charts which are described in the preceding section, were all constructed by draftsmen of the Coast and Geodetic Survey. These draftsmen also plotted the sextant positions on the smooth projections which determine the location of the legal boundaries of the natural oyster bars as delineated by the Shell Fish Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the commission, by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all natural oyster bar and other boundaries established by the commission. One set of these projections is filed in the archives of the Coast and Geodetic Survey at Washington and the other set is filed in the office of the Shell Fish Commission at Annapolis.

#### PROGRESS MAP.

The progress map<sup>a</sup> attached to this publication is on a scale of one part in a hundred thousand, and shows in outline the work accomplished by the U. S. Coast and Geodetic Survey in Anne Arundel County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey of the natural oyster bars, the location and names of all triangulation stations used as a basis for the surveying work, and the "Boundaries of county waters" established

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<sup>a</sup> For this map, see folder at end of this publication.



by the commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, the progress map will be of special value for index purposes to engineers and others, searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

## BOUNDARIES OF COUNTY WATERS,

### WATERS WITHIN TERRITORIAL LIMITS OF THE COUNTY.

The laws relating to oyster culture under which the Maryland Shell Fish Commission is executing its survey, provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>a</sup> between the waters "within the territorial limits" of Anne Arundel County and the waters in "any other place," as established by the Shell Fish Commission and delineated on the charts and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:

Commencing at a point defined by the intersection of the northern boundary line of Anne Arundel County with the center line of Fort McHenry Channel; thence along the center line of Fort McHenry Channel past Fort Carroll to a point at the intersection of the center line of Fort McHenry Channel and the center line of Brewerton Channel; thence along the center line of Brewerton Channel to a point defined by the intersection of the center line of Brewerton Channel and a straight line between North Point (Old Tower) and a point defined by latitude  $b$   $39^{\circ} 09' 59.3''$  and longitude  $b$   $76^{\circ} 28' 39.7''$ , situated on Rock Point; thence in a straight line to a point defined by latitude  $39^{\circ} 09' 59.3''$  and longitude  $76^{\circ} 28' 39.7''$  situated on Rock Point; thence following the mean low-water line along the shore of the bay to a point defined by latitude  $39^{\circ} 08' 10.6''$  and longitude  $76^{\circ} 26' 21.2''$ , situated on Frankie Point; thence in a straight line across the mouth of Bodkin Creek to a point situated at the center of the old light-house tower on Bodkin Point; thence following the mean low-water line along the shore of the bay to a point defined by latitude  $39^{\circ} 03' 35.2''$  and longitude  $76^{\circ} 25' 56.4''$ , situated on Mountain Point; thence in a straight line across the mouth of Magotho River to a point defined by latitude  $39^{\circ} 03' 11.1''$  and longitude  $76^{\circ} 26' 18.7''$ , situated on Persimmon Point; thence following the mean low-water line along the shore of the bay around Sandy Point to a point defined by latitude  $38^{\circ} 59' 10.1''$  and longitude  $76^{\circ} 25' 33.4''$ , situated on Hackett Point; thence in a straight line across the mouth of Whitehall Bay to a point defined by latitude  $38^{\circ} 58' 25.0''$  and longitude  $76^{\circ} 27' 19.0''$ , situated on Greenbury Point; thence in a straight line across the mouth of Severn River to a point defined by latitude  $38^{\circ} 56' 28.0''$  and longitude  $76^{\circ} 27' 00.0''$ , situated on Tolly Point; thence following the mean low-water line along the shore of the bay to a point defined by latitude  $38^{\circ} 54' 42.0''$  and longitude  $76^{\circ} 27' 25.2''$ , situated on a point of land on the north side of Fishing Creek; thence in a straight line across the mouth of Fishing Creek to a point defined by latitude  $38^{\circ} 54' 29.1''$  and longitude  $76^{\circ} 27' 12.9''$ , situated on Thomas Point; thence in a straight line across the mouth of South River to a point defined by latitude  $38^{\circ} 53' 13.6''$  and longitude  $76^{\circ} 29' 21.9''$ , situated on Saunders Point; thence following the mean low-water line along the shore of the bay to a point defined by latitude  $38^{\circ} 52' 10.4''$  and longi-

<sup>a</sup>See Charts of Natural Oyster Bars, published by the U. S. Coast and Geodetic Survey, and the progress map at the end of this publication.

<sup>b</sup>Latitudes and longitudes based on the United States standard datum of the U. S. Coast and Geodetic Survey.

tude  $76^{\circ} 30' 35.6''$ , situated on Dutchman Point; thence in a straight line across the mouth of West River to a point defined by latitude  $38^{\circ} 51' 12.8''$  and longitude  $76^{\circ} 29' 53.8''$ , situated on Curtis Point; thence following the mean low-water line along the shore of the bay to a point defined by latitude  $38^{\circ} 48' 02.8''$  and longitude  $76^{\circ} 30' 36.6''$ , situated on a point about three-quarters of a mile north of Broadwater Creek; thence in a straight line across the mouth of Broadwater Creek to a point defined by latitude  $38^{\circ} 47' 21.3''$  and longitude  $76^{\circ} 31' 26.3''$ , situated on a point at the southern entrance to Broadwater Creek; thence following the mean low-water line along the shore of the bay to a point defined by latitude  $38^{\circ} 46' 22.2''$ , and longitude  $76^{\circ} 32' 23.5''$ , situated on Parker Island; thence in a straight line across the mouth of Herring Bay to a point defined by latitude  $38^{\circ} 43' 40.6''$  and longitude  $76^{\circ} 31' 37.8''$ , situated on Holland Point; thence following the mean low-water line along the shore of the bay to the southern boundary line of Anne Arundel County in the vicinity of Hog Point.

#### WATERS CONTIGUOUS TO THE COUNTY.

The oyster-culture laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the United States Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners in the city of Annapolis;" and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law, and for the purpose of establishing the limits of the oyster-culture area to be opened up for the leasing with Anne Arundel County, a boundary line between the waters contiguous to, but not within the territorial limits of Anne Arundel County and the waters contiguous to, but not within the territorial limits of adjacent counties, has been established by the Shell Fish Commission. This boundary line<sup>a</sup> has been delineated on the charts of the natural oyster bars published by the Coast and Geodetic Survey and is technically described and defined as follows:

Commencing at a point defined by the intersection of the center line of Brewerton Channel and a straight line between North Point (Old Tower) and a point defined by latitude  $39^{\circ} 09' 59.3''$  and longitude  $76^{\circ} 28' 39.7''$ , situated on Rock Point; thence along the center line of Brewerton Channel and a continuation of the same line to a point defined by latitude  $39^{\circ} 09' 10.6''$  and longitude  $76^{\circ} 21' 00.0''$ , situated about  $3\frac{1}{8}$  miles<sup>b</sup> east<sup>c</sup> of Seven Foot Knoll Light and  $3\frac{1}{8}$  miles southeast of Craighill Channel Light (Front Range); thence due south in a straight line to a point defined by latitude  $39^{\circ} 03' 30.0''$  and longitude  $76^{\circ} 21' 00.0''$ , situated about  $2\frac{5}{8}$  miles from Baltimore Light, nearly on a straight line between Baltimore Light and Love Point Light; thence in a straight line to a point defined by latitude  $39^{\circ} 00' 57.2''$  and longitude  $76^{\circ} 21' 34.0''$ , situated about  $1\frac{1}{8}$  miles east of Sandy Point Light; thence in a straight line to a point defined by latitude  $38^{\circ} 53' 56.2''$  and longitude  $76^{\circ} 24' 32.0''$ , situated about  $1\frac{1}{16}$  miles east of Thomas Point Light; thence in a straight line to a point defined by latitude  $38^{\circ} 50' 01.1''$  and longitude  $76^{\circ} 26' 15.0''$ , situated about  $2\frac{1}{2}$  miles west of Bloody Point Bar Light; thence in a straight line to a point defined by latitude  $38^{\circ} 42' 33.4''$  and longitude  $76^{\circ} 27' 40.0''$ , situated about  $3\frac{3}{8}$  miles east of Hog Point; thence in a straight line to a point defined by the intersection of the mean low-water line of the shore of the bay and the southern boundary line of Anne Arundel County, in the vicinity of Hog Point.

#### LIMITS OF DREDGING AREA ADJACENT TO CRAIGHILL CHANNEL.

The oyster laws of the State of Maryland define the limits of the area adjacent to Craighill Channel in which dredging for oysters is prohibited, and the boundaries of the natural oyster bars established by the Maryland Shell Fish Commission in that

<sup>a</sup> See progress map at the end of this publication.

<sup>b</sup> Statute miles.

<sup>c</sup> True bearings.

vicinity have been delineated accordingly. The law defining the boundaries of the prohibited area is as follows:

[Code of Maryland, article 72, section 50.]

Any person dragging, raking, or dredging for oysters within five hundred yards of either edge of the channel at the mouth of the Patapsco River, known as the Craighill Channel, extending from Seven Foot Knoll to the mouth of Magothy River, or within five hundred yards of either edge of the cut-off connecting the Brewerton and Craighill channels, shall forfeit his boat or vessel; and it shall be lawful for any justice of the peace of the county or city in which such person shall be arrested to try such person, and on conviction to condemn said boat or vessel and sell the same on five days' notice, and fine the said offender a sum of not less than five dollars, nor more than twenty-five dollars, for each and every offense; and said justice of the peace shall pay over one-half of said fines and forfeitures to the informer, and the other half to the school board of said county or city.

LIST OF NATURAL OYSTER BARS WITHIN DREDGING AREA OF COUNTY.

The natural oyster bars open under the existing laws of Maryland for tonging or dredging, as the case may be, are not so classed and shown on the published charts, as it is a matter more or less subject to change by legislation independent of the oyster-culture laws of Maryland.

However, the Commission in establishing the legal boundaries of the oyster bars have so fixed the limits of certain bars that in every case their boundaries are within or coincident with the boundary line between the tonging and dredging areas. In establishing these boundaries, the Commission have adopted the tonging-dredging limits furnished to them through the courtesy of the Commander of the State Fishery Force.

Most of the natural oyster bars open for dredging are of large area but few in number, and a complete list of the dredging bars in "Anne Arundel County and Adjacent Waters," is given below to facilitate the search of anyone desiring to locate them on the published charts:

Chart No. 1:

Lumps East of Craighill Channel.  
Bodkin Point North.  
Bodkin Point South.  
Mountain Point.

Chart No. 2:

Outer Magothy.

Chart No. 3:

(No dredging area on this chart.)

Chart No. 4:

Bay Shore.

BOUNDARIES OF NATURAL OYSTER BARS.

EXPLANATION OF DESCRIPTIONS OF BOUNDARIES.

The natural oyster bars of Anne Arundel County are 91 in number, and their total area as marked out by buoys placed by the hydrographic engineer of the commission is 33,666 acres. As provided by law, the limits of the oyster bars are all straight lines, but they inclose areas of all shapes from triangles to complicated nine-sided figures, and of all sizes from 4 acres in the rivers to 7,548 acres in the bay.

The sides vary in length from 93 to 7,529 yards, and in some cases the corners of the boundaries are practically at the triangulation stations from which they are located, while in other instances they are over 10,000 yards from the landmarks most available for the purposes of fixing their positions.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been executed, and the magnitude of the work with the consequent need of fixed and uniform methods, has made the problem of describing the boundaries, one of considerable difficulty and importance.

The boundaries of the natural oyster bars of Anne Arundel County, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey, and that they can be continued, with slight modifications to the end of the work.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in the county.

At the top of each tabular form is given the legal name of the natural oyster bar to be described, its general locality, and the number of the chart on which its legal boundaries are shown.

The first column under the heading of "Corner of bar" gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clock-wise direction around the bar; but where a corner of one bar is identical with the corner of one or more other bars, only the number of the corner of the oyster bar being described in the table is given in this column.

The second and third columns under the headings of "Latitude" and "Longitude" give the geographic positions of the corners. These positions have been adopted by the commission as the primary technical definition of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations of the Survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural causes or by the acts of vandals desiring to defeat the purposes of the oyster-culture law.

The fourth and fifth columns, under the general heading of "True bearings"<sup>a</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north and south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The

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<sup>a</sup> The mean magnetic declination in Anne Arundel County in 1907 was 5° 45' west of north and the annual increase 3'.

difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

The sixth column under the heading of "Distance" gives the three computed distances in yards from the corner of the bar noted in the first column to the triangulation stations named on the corresponding lines in the last column, and vice versa.

The seventh and last column, under the heading of "U. S. C. & G. S. Triangulation Station,"<sup>a</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication, under the heading of "Descriptions of landmarks."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars. One, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants, and partly on his training and experience.

(1) *Triangulation.*—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic.*—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the Commission in locating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the off-shore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

<sup>a</sup>Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington.

In the case where there is only one engineer having a single sextant, the three-point method can be used, but not until the two angles determining the position of any buoy have been calculated from the "Forward bearing" given in the tabular forms describing the boundaries of the oyster bars. For example, take "Traces Hollow" bar, described on page —, and assume that "Corner No. 3" is to be examined as to its position. The angle between the two landmarks "Cool" and "Weems," as determined from the forward bearings from this corner, is  $101^{\circ} 02'$  and the angle between "Weems" and "Field" is  $68^{\circ} 52'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree, the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor ("position finder"), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative positions that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edges of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true positions of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant then the other, until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor this problem is far easier of solution, as the two angles can be placed on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic locations of points are attained; in fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the Commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass, and will be of special use to the State Fishery Force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer takes compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>a</sup> and if the results agree with the published bearings, the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks for which the bearings are published have been destroyed or washed away, any landmark whose position is indicated on the charts can be used by getting their bearings directly from the chart by parallel rulers or a protractor and then applying them in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination), given in the fourth column of the tables opposite the "corner" in question and on line with the name of the "station" being occupied. The direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Description of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner," from the landmark being occupied, is taken out. The angle calculated from the "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Description of landmarks" is then laid off on the transit and a range line established, on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

<sup>a</sup>The mean magnetic declination for Anne Arundel County (in 1907) is  $5^{\circ}$  and  $45'$  west of north, and the annual increase is  $3'$ .

## Survey of Oyster Bars, Anne Arundel County, Md.

## LUMPS EAST OF CRAIGHILL CHANNEL.

(Chesapeake Bay east of Craighill and Cutoff dredged channels—Charts Nos. 1 and 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	39 03 58.04	76 23 18.98	N 67 29 W S 30 18 W S 3 20 E	S 67 31 E N 30 17 E N 3 20 W	3683 4132 6109	Peach Hill. Magothy. Sandy Point Light.
2	39 07 41.00	76 23 18.60	N 30 34 W N 76 32 W S 53 25 W	S 30 35 E S 76 34 E N 53 23 E	3855 3507 4957	Seven Foot Knoll Light. Bodkin Point (Old Tower). Locust.
3	39 10 02.00	76 24 13.95	N 18 31 E N 47 43 W S 26 25 W	S 18 31 W S 47 45 E N 26 24 E	2738 4875 4398	Craighill Channel Light. North Point (Old Tower). Bodkin Point (Old Tower).
4	39 09 06.91	76 21 47.76	N 33 40 W N 84 27 W S 70 16 W	S 33 42 E S 84 28 E N 70 14 E	5352 4366 6159	Craighill Channel Light. Seven Foot Knoll Light. Bodkin Point (Old Tower).
5	38 08 06.00	76 21 00.00	N 32 58 W N 66 08 W S 89 48 W	S 32 59 E S 66 10 E N 89 46 E	7758 6123 7056	Craighill Channel Light. Seven Foot Knoll Light. Bodkin Point (Old Tower).
6	39 05 42.40	76 21 00.00	N 55 39 W N 82 11 W S 73 22 W	S 55 42 E S 82 14 E N 73 20 E	8540 7695 7364	Bodkin Point (Old Tower). Locust. Peach Hill.
7	39 03 58.04	76 22 40.60	N 72 16 W S 40 56 W S 6 08 W	S 72 18 E N 40 55 E N 6 08 E	4631 4721 6136	Peach Hill. Magothy. Sandy Point Light.

## BODKIN POINT NORTH.

(Chesapeake Bay off Bodkin Creek—Chart No. 1.)

	° ' "	° ' "	° ' "	° ' "	Yards.	
1	39 08 09.93	76 24 48.59	N 9 45 E S 81 19 W S 22 20 W	S 9 45 W N 81 19 E N 22 20 E	2377 1060 4251	Seven Foot Knoll Light. Bodkin Point (Old Tower). Locust.
2	39 08 12.00	76 25 34.63	S 35 13 E N 35 20 E N 12 02 W	N 35 12 W S 35 21 W S 12 03 E	281 2786 7144	Bodkin Point (Old Tower). Seven Foot Knoll Light. North Point (Old Tower).
3	39 09 17.05	76 25 55.94	S 16 35 E N 87 54 E N 10 59 W	N 16 35 W S 87 54 W S 10 59 E	2528 2173 4884	Bodkin Point (Old Tower). Seven Foot Knoll Light. North Point (Old Tower).
4	39 09 34.25	76 25 38.55	S 5 03 E S 16 16 E N 18 13 W	N 5 02 W N 16 15 W S 18 13 E	3015 1786 4437	Bodkin Point (Old Tower). Seven Foot Knoll Light. North Point (Old Tower).
5	38 08 49.70	76 25 04.52	N 39 20 E N 21 44 W S 22 44 W	S 39 20 W S 21 45 E N 22 43 E	1296 6155 1627	Seven Foot Knoll Light. North Point (Old Tower). Bodkin Point (Old Tower).



BODKIN POINT SOUTH.

(Chesapeake Bay—South of Bodkin Point—Chart No. 1.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	39 06 58.17	76 24 04.20	N 9 06 W N 44 24 W S 61 29 W	S 9 06 E S 44 23 E N 61 28 E	4824 3164 3166	Seven Foot Knoll Light. Bodkin Point (Old Tower). Locust.
2	39 07 03.24	76 24 40.66	N 2 26 E N 31 00 W S 47 19 W	S 2 26 W S 31 01 E N 47 18 E	4596 2438 2481	Seven Foot Knoll Light. Bodkin Point (Old Tower). Locust.
3	39 07 34.80	76 25 12.85	N 16 25 E N 21 48 W S 19 36 W	S 16 26 W S 21 48 E N 19 36 E	3678 1103 2917	Seven Foot Knoll Light. Bodkin Point (Old Tower). Locust.
4	39 08 02.58	76 24 28.22	N 2 55 W N 86 49 W S 30 14 W	S 2 55 E S 86 50 E N 30 13 E	2594 1585 4273	Seven Foot Knoll Light. Bodkin Point (Old Tower). Locust.

MOUNTAIN POINT.

(Chesapeake Bay between Magolhy River and Bodkin Point—Charts No. 1 and 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	39 03 30.57	76 25 38.60	N 6 32 E N 34 27 W S 42 34 W	S 6 32 W S 34 28 E N 42 34 E	2351 1382 1446	Peach Hill. Welch. Purse.
2	39 03 59.33	76 25 27.19	N 1 22 W N 81 04 W S 32 08 W	S 1 22 E S 81 04 E N 32 08 E	1367 1096 2403	Peach Hill. Welch. Purse.
3	39 04 28.57	76 24 55.63	N 66 13 W S 66 54 W S 34 55 W	S 66 13 E N 66 54 E N 34 54 E	943 2079 3683	Peach Hill. Welch. Purse.
4	39 06 01.40	76 25 25.60	N 1 02 W N 57 57 W S 1 33 W	S 1 02 E S 57 58 E N 1 33 E	4175 759 2751	Bodkin Point (Old Tower). Locust. Peach Hill.
5	39 06 00.00	76 24 04.22	N 27 39 W N 80 48 W S 39 18 W	S 27 40 E S 80 49 E N 39 18 E	4767 2817 3494	Bodkin Point (Old Tower). Locust. Peach Hill.
6	39 04 07.45	76 24 04.16	S 56 19 W S 88 12 W N 63 45 W	N 56 17 E N 88 11 E S 63 46 E	4160 3267 2470	Purse. Welch. Peach Hill.

## Survey of Oyster Bars, Anne Arundel County, Md.

## SILLERY BAY.

(Magothy River—Chart No. 1.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	39 05 23.54	76 26 37.39	S 87 05 W S 21 21 W N 22 38 W	N 87 04 E N 21 21 E S 22 38 E	1261 478 767	Hickory. Sillery. Bay.
2	39 05 26.75	76 27 06.72	S 70 36 W S 47 10 E N 38 22 E	N 70 36 E N 47 10 W S 38 22 W	519 814 876	Hickory. Sillery. Bay.
3	39 05 39.98	76 27 08.26	S 74 19 E N 73 27 E S 36 01 W	N 74 19 W S 73 27 W N 36 01 E	1397 538 766	Phil. Bay. Hickory.

## PEACH HILL.

(Magothy River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	39 04 48.75	76 27 07.25	N 40 00 E N 23 16 W S 74 26 W	S 40 00 W S 23 16 E N 74 26 E	949 1206 677	Sillery. Hickory. Dobbins.
2	39 05 02.48	76 27 03.85	N 63 00 E N 41 13 W S 49 05 W	S 63 00 W S 41 14 E N 49 05 E	585 858 984	Sillery. Hickory. Dobbins.
3	39 04 51.06	76 26 49.96	N 1 09 E N 41 59 W S 76 50 W	S 1 09 W S 42 00 E N 76 50 E	1803 1392 1138	Bay. Hickory. Dobbins.

## WELCH.

(Magothy River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	39 04 10.13	76 26 38.98	N 51 16 W S 56 29 W S 14 16 E	S 51 16 E N 56 28 E N 14 15 W	1791 1972 2475	Dobbins. Revell. Purse.
2	39 04 13.90	76 26 45.96	N 48 04 E N 50 41 W S 50 13 W	S 48 04 W S 50 42 E N 50 12 E	453 1569 1901	Bluff. Dobbins. Revell.
3	39 04 41.27	76 27 03.46	N 22 57 W N 84 38 W S 25 04 W	S 22 57 E S 84 38 E N 25 03 E	1479 757 2361	Hickory. Dobbins. Revell.
4	39 04 43.49	76 26 51.33	N 34 50 W S 89 47 W S 30 47 W	S 34 50 E N 89 47 E N 30 47 E	1567 1073 2578	Hickory. Dobbins. Revell.

PARK.

(Magothy River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	39 04 24.25	76 28 47.64	N 27 06 E S 85 32 W S 9 01 W	S 27 06 W N 85 31 E N 9 01 E	825 2137 796	Iron. Ferry. Huddle.
2	39 04 39.77	76 29 05.54	S 67 25 W S 14 47 E S 46 37 E	N 67 24 E N 14 43 W N 46 36 W	1798 1355 3040	Ferry. Huddle. Revell.
3	39 04 43.82	76 28 59.65	S 65 31 W S 7 31 E S 42 44 E	N 65 30 E N 7 31 W N 42 43 W	1994 1459 3028	Ferry. Huddle. Revell.
4	39 04 27.92	76 28 39.59	N 15 02 E S 82 56 W S 20 17 W	S 15 02 W N 82 55 E N 20 17 E	632 2360 971	Iron. Ferry. Huddle.

UMPHASIS.

(Magothy River—Chart No. 2.)

I	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
2	39 04 11.64	76 29 02.84	N 81 30 W S 37 14 E N 33 46 E	S 81 30 E N 37 14 W S 33 46 W	1750 454 1394	Ferry. Huddle. Iron.
3	39 04 10.87	76 28 45.31	N 82 36 W S 29 01 W S 56 25 E	S 82 37 E N 29 01 E N 56 25 W	2210 384 2014	Ferry. Huddle. Revell.

BLACK.

(Magothy River—Chart No. 2.)

I	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
2	39 03 48.38	76 28 29.45	N 69 10 E N 3 01 W N 54 58 W	S 69 11 W S 3 01 E S 54 58 E	3271 1947 737	Bluff. Iron. Huddle.
3	39 03 54.30	76 28 31.69	N 72 49 E N 1 26 W N 67 42 W	S 72 50 W S 1 26 E S 67 42 E	3262 1744 588	Bluff. Iron. Huddle.
4	39 03 59.98	76 28 13.76	N 73 44 E N 18 21 W N 88 13 W	S 73 45 W S 18 21 E S 88 13 E	2755 1636 1016	Bluff. Iron. Huddle.

## Survey of Oyster Bars, Anne Arundel County, Md.

PERSIMMON.

(Magothy River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	39 03 16.00	76 26 46.33	S 54 28 E N 31 28 E N 22 14 W	N 54 28 W S 31 28 W S 22 14 E	986 1913 3183	Purse. Welch. Dobbins.
2	39 03 28.52	76 26 24.15	S 12 11 E N 18 57 E N 35 18 W	N 12 11 W S 18 57 W S 35 18 E	1018 1278 3093	Purse. Welch. Dobbins.
3	39 03 22.07	76 26 06.65	N 1 48 W N 39 20 W S 17 22 W	S 1 48 E S 39 21 E N 17 22 E	1427 3545 815	Welch. Dobbins. Purse.

## OUTER MAGOTHY.

(Chesapeake Bay between Sandy Point and Magothy River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	39 02 06.32	76 24 06.90	N 76 20 W S 13 38 E S 34 43 E	S 76 20 E N 13 38 W N 34 43 W	848 1320 2837	Magothy. Corn. Sandy Point Light.
2	39 03 14.62	76 26 08.00	S 21 17 W S 48 19 E N 0 19 W	N 21 16 E N 48 18 W S 0 19 E	565 3163 1679	Purse. Magothy. Welch.
3	39 03 23.58	76 25 53.64	S 35 06 W S 39 31 E N 15 42 W	N 35 06 E N 39 31 W S 15 42 E	1014 3118 1433	Purse. Magothy. Welch.
4	39 03 12.25	76 24 06.11	S 82 33 W S 22 39 W S 19 18 E	N 82 32 E N 22 39 E N 19 17 W	3439 2193 4826	Purse. Magothy. Sandy Point Light.
5	39 02 21.04	76 23 17.27	N 74 44 W S 82 05 W S 6 15 E	S 74 46 E N 82 05 E N 6 15 W	4867 2149 2844	Purse. Magothy. Sandy Point Light.

SANDY POINT NORTH.

(Chesapeake Bay—North of Sandy Point—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	39 01 00.00	76 23 26.00	S 80 01 E	N 80 01 W	547	Sandy Point Light. Corn. Bay Side.
			N 38 41 W	S 38 41 E	1222	
			S 39 01 W	N 39 01 E	752	
2	39 01 33.96	76 23 31.39	N 53 41 W	S 53 42 E	2182	Magothy. Corn. Sandy Point Light.
			S 72 53 W	N 72 53 E	652	
			S 28 47 E	N 28 47 W	1415	
3	39 02 06.32	76 24 06.90	N 76 20 W	S 76 20 E	848	Magothy. Corn. Sandy Point Light.
			S 13 38 E	N 13 38 W	1320	
			S 34 43 E	N 34 43 W	2837	
4	39 02 21.04	76 23 17.27	N 74 44 W	S 74 46 E	4867	Purse. Magothy. Sandy Point Light.
			S 82 05 W	N 82 05 E	2149	
			S 6 15 E	N 6 15 W	2844	
5	39 01 09.03	76 22 54.49	N 67 51 W	S 67 52 E	1721	Corn. Bay Side. Sandy Point Light.
			S 55 42 W	N 55 41 E	1577	
			S 35 56 W	N 35 56 E	493	

SANDY POINT SOUTH.

(Chesapeake Bay between Sandy Point and Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing	True bearing	Distance	U. S. C. & G. S. triangulation station.
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 59 25.24	76 24 12.60	N 29 39 E	S 29 40 W	3568	Sandy Point Light. Clump. Hackett.
			N 54 24 W	S 54 25 E	1135	
			S 76 41 W	N 76 40 E	1889	
2	38 59 31.59	76 24 22.86	N 35 11 E	S 35 12 W	3532	Sandy Point Light. Clump. Hackett.
			N 55 38 W	S 55 38 E	792	
			S 67 30 W	N 67 29 E	1697	
3	39 00 09.70	76 24 09.40	N 46 24 E	S 46 24 W	2322	Sandy Point Light. Bay Side. Clump.
			N 31 01 E	S 31 01 W	1298	
			S 50 14 W	N 50 14 E	1311	
4	39 00 40.02	76 23 19.79	N 33 01 E	S 33 01 W	690	Sandy Point Light. Bay Side. Clump.
			N 81 59 W	S 81 59 E	643	
			S 51 12 W	N 51 11 E	2969	
5	39 00 39.60	76 23 10.25	N 11 55 E	S 11 55 W	608	Sandy Point Light. Bay Side. Clump.
			N 83 20 W	S 83 20 E	893	
			S 54 15 W	N 54 14 E	3161	
6	39 00 09.44	76 23 25.80	N 18 21 E	S 18 22 W	1696	Sandy Point Light. Bay Side. Clump.
			N 23 07 W	S 23 07 E	1222	
			S 68 57 W	N 68 56 E	2310	
7	38 59 30.91	76 24 00.00	N 26 14 E	S 26 15 W	3244	Sandy Point Light. Clump. Hackett.
			N 69 29 W	S 69 29 E	1340	
			S 73 54 W	N 73 53 E	2258	

## Survey of Oyster Bars, Anne Arundel County, Md.

## HACKETT POINT.

(Annapolis Roads—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 57' 49.56"	76° 25' 51.90"	N 15 32 E	S 15 32 W	Yards. 2897 2281 3260	Hackett. Greenbury Point Light. Tolly.
			N 76 41 W	S 76 42 E		
			S 35 05 W	N 35 04 E		
2	38° 58' 13.82"	76° 26' 05.14"	N 29 40 E	S 29 41 W	2271 1894 3806	Hackett. Greenbury Point Light. Tolly.
			S 81 08 W	N 81 07 E		
			S 23 38 W	N 23 37 E		
3	38° 58' 49.60"	76° 25' 50.84"	N 44 17 E	S 44 17 W	1073 1960 2702	Hackett. Chase. Greenbury Point Light.
			N 17 06 W	S 17 06 E		
			S 56 19 W	N 56 18 E		
4	38° 58' 52.60"	76° 25' 22.77"	N 27 39 E	S 27 40 W	1989 665 3388	Clump. Hackett. Greenbury Point Light.
			N 0 46 E	S 0 46 W		
			S 61 50 W	N 61 48 E		
5	38° 59' 31.59"	76° 24' 22.86"	N 35 11 E	S 35 12 W	3532 792 1697	Sandy Point Light. Clump. Hackett.
			N 55 38 W	S 55 38 E		
			S 67 30 W	N 67 29 E		
6	38° 59' 25.24"	76° 24' 12.60"	N 29 39 E	S 29 40 W	3568 1135 1889	Sandy Point Light. Clump. Hackett.
			N 54 24 W	S 54 25 E		
			S 76 41 W	N 76 40 E		
7	38° 59' 02.50"	76° 24' 18.26"	N 28 29 W	S 28 29 E	1625 1721 5068	Clump. Hackett. Greenbury Point Light.
			N 78 54 W	S 78 54 E		
			S 67 35 W	N 67 33 E		
8	38° 57' 54.38"	76° 24' 54.95"	N 15 23 W	S 15 23 E	2726 3737 4404	Hackett. Greenbury Point Light. Tolly.
			N 84 25 W	S 84 26 E		
			S 50 00 W	N 49 59 E		

## WHITEHALL CREEK.

(Whitehall Bay—Chart No. 2.)

1	38° 59' 30.41"	76° 25' 55.80"	N 41 54 W	S 41 55 E	Yards. 667 3571 479	Chase. Greenbury Point Light. Spit.
			S 36 22 W	N 36 21 E		
			S 60 41 E	N 60 41 W		
2	38° 59' 36.98"	76° 26' 27.62"	S 22 27 W	N 22 27 E	3351 1335 479	Greenbury Point Light. Spit. Chase.
			S 70 02 E	N 70 02 W		
			N 54 54 E	S 54 54 W		
3	38° 59' 39.61"	76° 26' 27.17"	S 22 04 W	N 22 04 E	3437 1357 423	Greenbury Point Light. Spit. Chase.
			S 66 20 E	N 66 20 W		
			N 63 51 E	S 63 51 W		
4	38° 59' 39.62"	76° 26' 06.79"	N 40 04 W	S 40 04 E	243 3672 892	Chase. Greenbury Point Light. Spit.
			S 29 51 W	N 29 50 E		
			S 52 22 E	N 52 21 W		
5	38° 59' 48.92"	76° 25' 53.42"	S 75 56 W	N 75 55 E	524 930 1736	Chase. Spit. Clump.
			S 22 27 E	N 22 27 W		
			S 85 27 E	N 85 26 W		

SAND SPIT.

(Whitehall Bay—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 59 28.58	76 25 40.10	N 56 58 W	S 56 59 E	1025	Chase. Spit. Clump.
			S 1 24 E	N 1 24 W	173	
			N 68 19 E	S 68 20 W	1484	
2	38 59 32.55	76 25 43.61	S 17 29 E	N 17 29 W	322	Spit. Clump. Chase.
			N 74 16 E	S 74 17 W	1529	
			N 61 01 W	S 61 02 E	876	
3	38 59 36.64	76 25 31.06	N 75 21 W	S 75 22 E	1131	Chase. Spit. Clump.
			S 27 44 W	N 27 44 E	502	
			N 76 23 E	S 76 23 W	1175	

WHITEHALL.

(Annapolis Roads—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 57 34.40	76 26 50.62	N 23 37 W	S 23 38 E	1912	Greenbury. Gram. Tolly.
			S 63 14 W	N 63 13 E	2154	
			S 8 38 W	N 8 38 E	2183	
2	38 57 58.45	76 27 23.80	S 10 26 W	N 10 26 E	3018	Tolly. Greenbury Point Light. Horn.
			N 41 27 E	S 41 27 W	302	
			N 66 13 W	S 66 13 E	1801	
3	38 58 31.52	76 26 46.72	N 19 48 E	S 19 49 W	2645	Chase. Greenbury. Greenbury Point Light.
			S 78 35 W	N 78 35 E	886	
			S 41 08 W	N 41 08 E	1183	
4	38 58 57.50	76 26 47.47	S 23 12 W	N 23 12 E	1920	Greenbury Point Light. Spit. Chase.
			N 63 46 E	S 63 47 W	1982	
			N 29 38 E	S 29 38 W	1848	
5	38 59 20.75	76 26 27.40	S 26 45 W	N 26 45 E	2855	Greenbury Point Light. Spit. Chase.
			N 85 49 E	S 85 49 W	1252	
			N 25 08 E	S 25 08 W	911	
6	38 59 09.60	76 26 21.62	N 66 55 E	S 66 56 W	1192	Spit. Chase. Greenbury.
			N 11 02 E	S 11 02 W	1222	
			S 46 20 W	N 46 20 E	2114	
7	38 58 45.22	76 26 28.90	N 44 59 E	S 44 59 W	1823	Spit. Chase. Greenbury.
			N 11 53 E	S 11 53 W	2065	
			S 64 31 W	N 64 31 E	1482	
8	38 58 06.96	76 26 17.16	N 33 10 E	S 33 10 W	2633	Hackett. Greenbury Point Light. Tolly.
			S 87 45 W	N 87 45 E	1556	
			S 20 22 W	N 20 22 E	3473	

## Survey of Oyster Bars, Anne Arundel County, Md.

## WRECK BUOY.

(Annapolis Roads—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 57 45.00	76 26 08.80	N 1 28 W N 69 03 W S 29 36 W	S 1 28 E S 69 03 E N 29 36 E	4053 1901 2893	Chase. Greenbury Point Light. Tolly.
2	38 57.45.74	76 26 24.60	N 4 26 E N 64 17 W S 21 45 W	S 4 26 W S 64 17 E N 21 44 E	4039 1508 2735	Chase. Greenbury Point Light. Tolly.
3	38 57 56.16	76 26 26.80	N 5 45 E N 76 53 W S 18 17 W	S 5 45 W S 76 54 E N 18 16 E	3694 1336 3045	Chase. Greenbury Point Light. Tolly.
4	38 57 57.21	76 25 57.41	N 6 20 W N 82 38 W S 30 34 W	S 6 20 E S 82 39 E N 30 34 E	3662 2092 3400	Chase. Greenbury Point Light. Tolly.

## TOLLY POINT.

(Annapolis Roads—Charts Nos. 2 and 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 55 51.02	76 25 58.66	N 24 18 W N 51 56 W S 4 31 W	S 24 17 E S 51 56 E N 4 31 E	4963 2154 3883	Greenbury Point Light. Tolly. Thomas Point Light.
2	38 56 45.52	76 27 13.00	S 27 13 E N 30 27 E N 40 08 W	N 27 12 W S 30 28 W S 40 09 E	573 5744 2884	Tolly. Hackett. Start.
3	38 57 28.74	76 27 32.60	N 60 54 W S 46 22 W S 21 35 E	S 60 54 E N 46 22 E N 21 35 W	1537 1130 2115	Start. Gram. Tolly.
4	38 57 42.02	76 27 10.60	N 10 44 W S 48 42 W S 4 42 E	S 10 45 E N 48 42 E N 4 42 W	794 1859 2422	Greenbury Point Light. Gram. Tolly.
5	38 57 13.35	76 26 51.19	N 20 40 W S 82 14 W S 12 11 W	S 20 40 E N 82 14 E N 12 11 E	1867 1926 1481	Greenbury Point Light. Gram. Tolly.
6	38 57 03.78	76 26 25.24	N 20 52 E N 33 02 W S 41 31 W	S 20 53 W S 33 02 E N 41 31 E	4640 2463 1503	Hackett. Greenbury Point Light. Tolly.
7	38 56 13.81	76 25 32.62	N 2 33 E N 36 00 W N 76 46 W	S 2 33 W S 36 01 E S 76 46 E	6027 4641 2447	Hackett. Greenbury Point Light. Tolly.



Survey of Oyster Bars, Anne Arundel County, Md.

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CHINKS POINT.

(Annapolis Roads—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 57 17.56	76 28 00.09	N 35 45 E	S 35 44 W	Yards. 1977 1284 413	Greenbury Point Light. Start. Gram.
			N 28 51 W	S 28 51 E		
			S 13 07 W	N 13 07 E		
2	38 57 53.74	76 28 09.53	S 75 31 W	N 75 31 E	383 1629 1456	Start. Gram. Greenbury Point Light.
			S 5 27 E	N 5 27 W		
			N 74 40 E	S 74 41 W		
3	38 57 59.42	76 27 47.38	S 73 14 W	N 73 14 E	996 1863 843	Start. Gram. Greenbury Point Light.
			S 13 17 W	N 13 17 E		
			N 76 45 E	S 76 45 W		
4	38 57 42.02	76 27 10.60	N 10 44 W	S 10 45 E	794 1859 2422	Greenbury Point Light. Gram. Tolly.
			S 48 42 W	N 48 42 E		
			S 4 42 E	N 4 42 W		
5	38 57 28.74	76 27 32.60	N 60 54 W	S 60 54 E	1537 1130 2115	Start. Gram. Tolly.
			S 46 22 W	N 46 22 E		
			S 21 35 E	N 21 35 W		

INSIDE GREENBURY POINT.

(Lower Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 58 13.37	76 27 29.65	S 61 56 W	N 61 55 E	Yards. 1610 449 510	Start. Greenbury Point Light. Greenbury.
			S 51 54 E	N 51 54 W		
			N 30 56 E	S 30 56 W		
2	38 58 14.06	76 27 36.89	S 57 35 W	N 57 35 E	1457 622 612	Start. Greenbury Point Light. Greenbury.
			S 61 06 E	N 61 06 W		
			N 47 34 E	S 47 34 W		
3	38 58 55.75	76 27 29.30	S 82 28 W	N 82 28 E	3156 1927 1741	State House Dome. Horn. Greenbury Point Light.
			S 51 15 W	N 51 15 E		
			S 11 25 E	N 11 24 W		
4	38 58 54.50	76 27 18.35	S 83 48 W	N 83 48 E	3438 2137 1666	State House Dome. Horn. Greenbury Point Light.
			S 56 59 W	N 56 58 E		
			S 1 56 E	N 1 56 W		

## HORN POINT.

(Mouth of Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 57 59.58	76 28 13.62	N 82 55 E	S 82 55 W	1523	Greenbury Point Light. Horn. Start.
			N 26 02 W	S 26 02 E	766	
			S 41 57 W	N 41 56 E	395	
2	38 58 25.61	76 28 14.43	N 72 44 W	S 72 45 E	2028	State House Dome. Horn. Greenbury Point Light.
			S 58 57 W	N 58 57 E	367	
			S 65 46 E	N 65 46 W	1681	
3	38 58 34.38	76 28 46.21	S 67 25 E	N 67 26 W	2566	Greenbury Point Light. Bluff. State House Dome.
			N 20 20 E	S 20 20 W	1339	
			N 74 27 W	S 74 28 E	1146	
4	38 58 49.44	76 28 17.05	N 22 03 W	S 22 03 E	806	Bluff. State House Dome. Greenbury Point Light.
			S 83 54 W	N 83 53 E	1883	
			S 47 00 E	N 46 59 W	2190	
5	38 58 40.06	76 28 06.03	N 29 08 W	S 29 08 E	1217	Bluff. State House Dome. Greenbury Point Light.
			N 86 56 W	S 86 57 E	2165	
			S 48 05 E	N 48 05 W	1763	
6	38 58 07.42	76 27 49.50	S 85 00 E	N 85 00 W	879	Greenbury Point Light. Fort. Start.
			N 1 08 E	S 1 08 W	1695	
			S 58 11 W	N 58 11 E	1056	

## OLD FORT.

(Lower Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 58 41.78	76 27 42.38	N 15 57 W	S 15 57 E	561	Fort. Horn. Greenbury.
			S 57 38 W	N 57 37 E	1375	
			S 48 52 E	N 48 51 W	793	
2	38 58 49.56	76 28 09.64	N 64 08 E	S 64 09 W	627	Fort. Bluff. Horn.
			N 33 48 W	S 33 48 E	895	
			S 23 51 W	N 23 51 E	1090	
3	38 58 56.77	76 27 57.56	S 79 22 W	N 79 22 E	2427	State House Dome. Horn. Greenbury.
			S 31 28 W	N 31 28 E	1453	
			S 44 08 E	N 44 08 W	1430	
4	38 58 49.85	76 27 37.41	S 85 48 W	N 85 47 E	2923	State House Dome. Horn. Greenbury.
			S 52 01 W	N 52 00 E	1636	
			S 30 26 E	N 30 26 W	921	

LITTLE SANDY.

(Lower Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 58 49.56	76 28 09.64	N 64 08 E	S 64 09 W	Yards. 627 895 1090	Fort. Bluff. Horn.
			S 33 48 W	S 33 48 E		
			S 23 51 W	N 23 51 E		
2	38 58 59.72	76 28 16.91	N 37 24 W	S 37 24 E	504 1954 2438	Bluff. State House Dome. Greenbury Light.
			S 73 45 W	N 73 44 E		
			S 40 58 E	N 40 57 W		
3	38 58 56.77	76 27 57.56	S 79 22 W	N 79 22 E	2427 1453 1430	State House Dome. Horn. Greenbury.
			S 31 28 W	N 31 28 E		
			S 44 08 E	N 44 08 W		

CRECES COVE.

(Lower Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	Forward	Back	Yards.	Triangulation station.
1	38 59 13.44	76 28 38.63	N 39 18 W	S 39 19 E	1194 1646 272	Brice. State House Dome. Bluff.
			S 52 15 W	N 52 14 E		
			S 76 47 E	N 76 47 W		
2	38 59 23.31	76 28 39.65	N 50 59 W	S 51 00 E	938 1854 2164	Brice. State House Dome. Horn
			S 43 34 W	N 43 33 E		
			S 9 17 E	N 9 17 W		
3	38 59 23.65	76 28 33.55	S 85 24 W	N 85 24 E	1498 1975 2155	Hospital Cupola. State House Dome. Horn.
			S 46 43 W	N 46 42 E		
			S 5 01 E	N 5 01 W		
4	38 59 13.78	76 28 33.22	N 44 34 W	S 44 34 E	1281 1771 143	Brice. State House Dome. Bluff.
			S 54 46 W	N 54 46 E		
			S 59 03 E	N 59 03 W		

FERRY POINT.

(Lower Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	Forward	Back	Yards.	Triangulation station.
1	38 59 23.08	76 28 49.50	N 38 05 W	S 38 05 E	760 1078 1679	Brice. Hospital Cupola. State House Dome.
			S 84 37 W	N 84 37 E		
			S 37 19 W	N 37 19 E		
2	38 59 34.03	76 28 58.13	N 46 39 W	S 46 39 E	334 999 1879	Brice. Hospital Cupola. State House Dome.
			S 60 57 W	N 60 56 E		
			S 24 53 W	N 24 53 E		
3	38 59 36.13	76 28 54.03	N 65 41 W	S 65 41 E	385 1098 1989	Brice. Hospital Cupola. State House Dome.
			S 60 27 W	N 60 26 E		
			S 26 51 W	N 26 51 E		
4	38 59 24.91	76 28 45.70	N 46 43 W	S 46 43 E	783 1185 1789	Brice. Hospital Cupola. State House Dome.
			S 82 06 W	N 82 06 E		
			S 38 40 W	N 38 40 E		

## Survey of Oyster Bars, Anne Arundel County, Md.

## PEACH ORCHARD.

(Middle Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 59 36.22	76 29 17.07	N 58 41 E N 59 42 W S 32 37 W	S 58 41 W S 59 42 E N 32 36 E	300 644 646	Brice. Field. Hospital Cupola.
2	38 59 46.01	76 29 13.91	N 31 34 W S 89 33 W S 44 37 E	S 31 34 E N 89 33 E N 44 37 W	1318 640 245	Knob. Field. Brice.
3	39 00 06.98	76 29 25.53	N 42 43 W S 25 06 W S 28 25 E	S 42 43 E N 25 06 E N 28 25 W	566 786 1005	Knob. Field. Brice.
4	39 00 09.77	76 29 35.76	N 51 13 W S 4 34 W S 37 27 E	S 51 13 E N 4 34 E N 37 27 W	1219 809 1229	Spring. Field. Brice.
5	39 00 15.30	76 29 29.75	N 63 36 W S 12 38 W S 26 54 E	S 63 36 E N 12 38 E N 26 53 W	305 1017 1304	Knob. Field. Brice.
6	39 00 12.79	76 29 23.64	N 63 06 W S 22 53 W S 21 41 E	S 63 06 E N 22 53 E N 21 41 W	487 985 1159	Knob. Field. Brice.
7	38 59 58.56	76 29 12.85	N 45 43 W S 57 19 W S 13 35 E	S 45 43 E N 57 18 E N 13 35 W	1003 793 615	Knob. Field. Brice.
8	38 59 39.41	76 29 10.39	N 59 01 E N 73 27 W S 38 48 W	S 59 01 W S 73 28 E N 38 48 E	93 763 837	Brice. Field. Hospital Cupola.

## WEEMS LOWER.

(Middle Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 59 38.30	76 29 26.54	N 80 24 E N 50 18 W S 9 09 W	S 80 25 W S 50 18 E N 9 09 E	512 399 623	Brice. Field. Hospital Cupola.
2	38 59 39.00	76 29 33.72	S 8 02 E N 84 55 E N 27 03 W	N 8 02 W S 84 55 W S 27 03 E	644 697 260	Hospital Cupola. Brice. Field.
3	38 59 45.23	76 29 32.87	N 81 24 W S 4 34 E S 77 32 E	S 81 24 E N 4 34 W N 77 32 W	142 851 688	Field. Hospital Cupola. Brice.
4	38 59 44.58	76 29 25.80	N 82 28 W S 8 09 W S 75 24 E	S 82 28 E N 8 09 E N 75 24 W	329 834 502	Field. Hospital Cupola. Brice.

Survey of Oyster Bars, Anne Arundel County, Md.

WEEMS UPPER.

(Middle Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 59 50.39	76 29 41.68	S 70 21 E	N 70 21 W	Yards. 959 977 1543	Brice. Knob. Weems.
			N 2 24 E	S 2 24 W		
			N 49 34 W	S 49 35 E		
2	38 59 57.50	76 30 00.96	N 68 16 E	S 68 16 W	1518 918 1012	Brice. Knob. Weems.
			N 36 41 E	S 36 41 W		
			N 41 15 W	S 41 15 E		
3	38 59 59.38	76 29 37.93	S 52 08 E	N 52 08 W	1019 675 1451	Brice. Knob. Weems.
			N 4 55 W	S 4 55 E		
			N 61 17 W	S 61 18 E		

WADE.

(Middle Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	39 00 02.43	76 29 54.00	S 59 18 E	N 59 18 W	1427 677 1115	Brice. Knob. Spring.
			N 32 39 E	S 32 39 W		
			N 24 57 W	S 24 57 E		
2	39 00 15.01	76 30 28.50	S 61 39 E	N 61 38 W	2427 1282 732	Brice. Knob. Spring.
			N 83 29 E	S 83 30 W		
			N 36 41 E	S 36 41 W		
3	39 00 11.88	76 30 06.26	S 55 58 E	N 55 57 W	1871 732 709	Brice. Knob. Spring.
			N 69 57 E	S 69 57 W		
			N 12 03 W	S 12 03 E		

## TRACES HOLLOW.

(Middle Severn River—Chart No. 2.)

Corner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station.
	°	'	"	°	'	"	Forward	Back		
1	39	00	12.22	76	29	44.45	N 76 30 W	S 76 31 E	1133	Weems.
							S 10 28 E	N 10 28 W	904	Field.
							S 42 41 E	N 42 40 W	1440	Brice.
2	39	00	20.81	76	29	53.66	N 52 01 W	S 52 02 E	1801	Cool.
							S 88 19 W	N 88 19 E	860	Weems.
							S 19 02 E	N 19 03 W	1247	Field.
3	39	00	30.13	76	30	17.58	N 44 52 W	S 44 52 E	1121	Cool.
							S 34 06 W	N 34 06 E	410	Weems.
							S 34 46 E	N 34 45 W	1271	Field.
4	39	00	40.05	76	30	24.06	N 53 27 W	S 53 27 E	772	Cool.
							S 5 01 W	N 5 01 E	677	Weems.
							S 33 26 E	N 33 26 W	2189	Field.
5	39	00	29.69	76	30	11.27	N 49 47 W	S 49 47 E	1253	Cool.
							S 50 38 W	N 50 38 E	512	Weems.
							S 30 29 E	N 30 29 W	1715	Field.
6	39	00	27.30	76	29	54.97	S 73 30 W	N 73 30 E	851	Weems.
							S 17 31 E	N 17 31 W	1465	Field.
							S 38 39 E	N 38 38 W	2007	Brice.
7	39	00	15.52	76	29	37.44	N 83 13 W	S 83 13 E	1295	Weems.
							S 1 10 W	N 1 10 E	1001	Field.
							S 34 05 E	N 34 05 W	1413	Brice.

## SHARP POINT.

(Middle Severn River—Chart No. 2.)

Corner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station.
	°	'	"	°	'	"	Forward	Back		
1	39	00	21.87	76	30	22.03	S 85 32 E	N 85 32 W	1106	Knob.
							N 36 54 E	S 36 54 W	445	Spring.
							N 65 00 W	S 65 01 E	1145	Luce.
2	39	00	28.40	76	30	54.04	N 83 05 E	S 83 05 W	1118	Spring.
							N 11 11 E	S 11 11 W	869	Cool.
							N 36 35 W	S 36 35 E	328	Luce.
3	39	00	40.02	76	30	51.60	N 62 07 W	S 62 07 E	1237	Salt.
							S 63 46 W	N 63 45 E	290	Luce.
							S 44 40 E	N 44 40 W	947	Weems.

SALTWORK.

(Upper Severn River—Chart No. 2.)

Corner of bar	Latitude.	Longitude	True bearing		Distance	U. S. C & G. S. triangulation station.
			Forward	Back		
			° / ' "	° / ' "		
1	39 00 38.76	76 30 58.06	N 56 04 W	S 56 05 E	1112	Salt. Luce. Weems.
			S 46 25 W	N 46 25 E	125	
			S 52 57 E	N 52 58 W	1047	
2	39 00 45.40	76 31 17.03	S 52 53 E	N 52 53 W	513	Luce. Chase. Salt.
			N 10 59 E	S 10 59 W	852	
			N 46 53 W	S 46 53 E	581	
3	39 00 48.27	76 31 15.62	S 42 28 E	N 42 28 W	551	Luce. Chase. Salt.
			N 9 36 E	S 9 36 W	750	
			N 56 56 W	S 56 56 E	550	
4	39 00 41.62	76 30 56.55	N 61 25 W	S 61 26 E	1096	Salt. Luce. Weems.
			S 35 28 W	N 35 28 E	223	
			S 47 35 E	N 47 35 W	1078	

ROCK POINT LOWER.

(Upper Severn River—Chart No. 2.)

Corner of bar	Latitude.	Longitude	True bearing		Yards.	U. S. C & G. S. triangulation station.
			Forward	Back		
1	39 00 48.77	76 30 47.67	N 40 10 W	S 40 10 E	946	Chase. Luce. Spring.
			S 40 39 W	N 40 39 E	558	
			S 59 39 E	N 59 39 W	1091	
2	39 00 53.50	76 30 55.06	N 36 25 W	S 36 25 E	700	Chase. Luce. Spring.
			S 16 10 W	N 16 10 E	607	
			S 57 58 E	N 57 58 W	1341	
3	39 01 07.97	76 30 56.36	N 78 48 W	S 78 48 E	389	Chase. Luce. Weems.
			S 7 10 W	N 7 10 E	1079	
			S 26 05 E	N 26 05 W	1799	

CHASE.

(Upper Severn River—Chart No. 2.)

Corner of bar	Latitude.	Longitude	True bearing		Yards.	U. S. C & G. S. triangulation station.
			Forward	Back		
1	39 01 06.64	76 31 16.52	S 60 06 E	N 60 06 W	877	Cool. Chase. Clem.
			N 51 03 E	S 51 03 W	191	
			N 62 12 W	S 62 12 E	681	
2	39 01 21.97	76 31 17.74	N 27 51 W	S 27 51 E	355	Point. Clem. Salt.
			S 70 47 W	N 70 47 E	605	
			S 25 51 W	N 25 51 E	930	
3	39 01 08.33	76 31 11.62	S 51 57 E	N 51 57 W	802	Cool. Chase. Clem.
			N 17 30 E	S 17 30 W	67	
			N 70 22 W	S 70 23 E	778	

## Survey of Oyster Bars, Anne Arundel County, Md.

## CLEM POINT.

(Upper Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
			° / ' "	° / ' "		
1	39 01 16.96	76 31 34.33	S 69 46 E	N 69 46 W	658	Chase. Point. Bight.
			N 29 11 E	S 29 12 W	553	
			N 2 06 E	S 2 06 W	1312	
2	39 01 28.05	76 31 53.55	S 61 49 E	N 61 49 W	1274	Chase. Point. Bight.
			N 81 58 E	S 81 58 W	783	
			N 30 35 E	S 30 35 W	1088	
3	39 01 25.75	76 31 36.87	S 52 33 E	N 52 33 W	862	Chase. Point. Bight.
			N 60 57 E	S 60 57 W	385	
			N 6 28 E	S 6 28 W	1021	

## POINT.

(Upper Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	
			Forward	Back		
			° / ' "	° / ' "		
1	39 01 31.79	76 31 36.54	S 8 11 W	N 8 11 E	536	Clem. Point. Bight.
			S 87 07 E	N 87 07 W	329	
			N 7 28 E	S 7 28 W	818	
2	39 01 46.21	76 31 33.43	N 4 18 E	S 4 18 W	326	Bight. Brewer. Clem.
			S 78 43 W	N 78 42 E	701	
			S 8 51 W	N 8 50 E	1029	
3	39 01 44.38	76 31 27.74	N 17 57 W	S 17 57 E	406	Bight. Brewer. Clem.
			S 84 51 W	N 84 51 E	841	
			S 17 52 W	N 17 52 E	1003	

## AISQUITH CREEK.

(Upper Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	
			Forward	Back		
			° / ' "	° / ' "		
1	39 01 48.26	76 31 34.61	N 12 15 E	S 12 15 W	261	Bight. Brewer. Clem.
			S 72 33 W	N 72 33 E	688	
			S 6 41 W	N 6 41 E	1093	
2	39 01 56.26	76 31 43.25	N 48 07 W	S 48 07 E	639	Arnold. Brewer. Bight.
			S 42 02 W	N 42 02 E	641	
			S 87 08 E	N 87 08 W	283	
3	39 01 59.26	76 31 38.16	N 60 49 W	S 60 49 E	769	Arnold. Brewer. Bight.
			S 44 17 W	N 44 17 E	807	
			S 52 14 E	N 52 14 W	188	



Survey of Oyster Bars, Anne Arundel County, Md.

BREWER (SEVERN RIVER).

(Upper Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	39 01 52.03	76 32 38.08	N 85 43 E	S 85 44 W	Yards.	Bight. Arnold. Bay.
			N 55 39 E	S 55 40 W	1726	
			N 68 35 W	S 68 36 E	1097	
2	39 01 59.72	76 32 26.03	S 49 35 E	N 49 34 W	914	Brewer. Arnold. Long.
			N 58 39 E	S 58 39 W	687	
			N 47 53 W	S 47 54 E	2149	
3	39 01 56.58	76 32 01.65	S 88 08 E	N 88 08 W	768	Bight. Arnold. Bay.
			N 6 31 W	S 6 31 E	468	
			N 84 37 W	S 84 38 E	1783	

POPPIN POINT.

(Upper Severn River—Chart No. 2.)

1	39 01 59.21	76 32 43.64	N 70 18 E	S 70 19 W	Yards.	Arnold. Long. Bay.
			N 37 47 W	S 37 48 E	1117	
			N 83 21 W	S 83 21 E	1845	
2	39 02 10.37	76 33 21.98	S 48 34 E	N 48 34 W	451	Bay. Long. Island.
			N 6 26 W	S 6 26 E	1088	
			N 55 52 W	S 55 52 E	838	
3	39 02 17.67	76 33 07.79	N 78 09 W	S 78 10 E	1089	Island. Bay. Arnold.
			S 3 44 W	N 3 44 E	548	
			S 81 42 E	N 81 41 W	1704	
4	39 02 06.17	76 32 46.63	N 82 51 E	S 82 52 W	1138	Arnold. Long. Bay.
			N 40 41 W	S 40 42 E	1613	
			S 75 12 W	N 75 12 E	612	

## Survey of Oyster Bars, Anne Arundel County, Md.

## ARNOLD POINT.

(Upper Severn River—Chart No. 2.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
			° / ' / "	° / ' / "		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	39 02 06.40	76 32 12.40	S 22 53 E N 59 45 E N 3 52 W	N 22 53 W S 59 45 W S 3 52 E	888 266 1757	Brewer. Arnold. Swan.
2	39 02 17.75	76 32 29.85	S 33 33 E S 70 08 E N 13 57 E	N 33 33 W N 70 07 W S 13 57 W	1440 733 1413	Brewer. Arnold. Swan.
3	39 02 47.48	76 32 22.95	S 33 06 W S 15 36 E N 23 20 E	N 38 05 E N 15 35 W S 23 20 W	1970 2288 401	Bay. Brewer. Swan.
4	39 02 42.43	76 32 16.43	N 1 19 W S 45 09 W S 12 18 E	S 1 19 E N 45 08 E N 12 18 W	539 1955 2081	Swan. Bay. Brewer.
5	39 02 22.39	76 32 19.14	N 2 47 E S 61 52 W S 20 46 E	S 2 47 W N 61 51 E N 20 46 W	1216 1492 1452	Swan. Bay. Brewer.

## BIG ISLAND.

(Upper Severn River—Chart No. 2.)

1	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.							
							39 02 28.99	76 34 00.56	S 55 36 E N 63 04 E N 20 15 E	N 55 36 W S 63 04 W S 20 15 W	1639 1002 1613	Bay. Long. Sharp.
							2	39 02 33.62	76 34 04.88	S 53 34 E N 73 32 E N 26 20 E	N 53 34 W S 73 32 W S 26 20 W	1822 1050 1515
3	39 02 38.13	76 33 56.80	S 45 27 E N 79 37 E N 20 52 E	N 45 26 W S 79 38 W S 20 52 W	1760 807 1290	Bay. Long. Sharp.						

## ROUND BAY.

(Upper Severn River—Chart No. 2.)

1	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.							
							39 02 58.56	76 33 31.65	S 13 42 E N 44 38 E N 21 22 W	N 13 42 W S 44 38 W S 21 22 E	558 1676 554	Long. High. Sharp.
							2	39 03 06.69	76 33 34.04	S 13 26 E N 53 28 E N 29 53 W	N 13 26 W S 53 28 W S 29 53 E	840 1544 279
3	39 03 04.34	76 33 18.90	N 40 10 E N 59 07 W S 15 22 W	S 40 10 W S 59 07 E N 15 22 E	1307 626 766	High. Sharp. Long.						

ROCK POINT UPPER.

(Upper Severn River—Chart No. 2.)

Corner of bar	Latitude			Longitude			True bearing		Distance - U. S. C. & G. S. triangulation station.	Yards.	
	°	'	"	°	'	"	Forward	Back			
1	39	03	17.91	76	33	01.49	S 60 44 E	N 60 43 W	1344	1746	Swan.
							N 35 26 E	S 35 26 W			High.
							N 56 01 W	S 56 02 E			Cedar.
2	39	03	36.56	76	32	59.58	N 76 58 W	S 76 58 E	1538	1296	Cedar.
							S 53 48 W	N 53 47 E			Sharp.
							S 75 16 E	N 75 16 W			High.
3	39	03	37.36	76	32	54.13	N 78 58 W	S 78 59 E	1672	1428	Cedar.
							S 56 20 W	N 56 19 E			Sharp.
							S 59 00 E	N 59 00 W			High.
4	39	03	20.36	76	32	48.52	S 48 20 E	N 48 20 W	1113	2005	Swan.
							N 5 28 E	S 5 28 W			High.
							N 63 28 W	S 63 29 E			Cedar.

UNDER THE GUMS.

(Chesapeake Bay between Annapolis Roads and Thomas Point—Chart No. 3.)

Corner of bar	Latitude			Longitude			True bearing		Distance - U. S. C. & G. S. triangulation station.	Yards.	
	°	'	"	°	'	"	Forward	Back			
1	38	54	43.58	76	27	13.97	N 31 36 W	S 31 35 E	1262	1441	Cottage.
							S 88 06 W	N 88 05 E			Arundel.
							S 3 09 E	N 3 09 W			488
2	38	55	53.62	76	27	32.82	S 7 14 W	N 7 14 E	1298	2891	Cottage.
							S 10 25 E	N 10 25 W			Thomas.
							N 25 29 E	S 25 29 W			934
3	38	56	17.11	76	26	59.76	N 10 58 W	S 10 58 E	457	471	Tolly.
							N 83 43 W	S 83 43 E			Bay Ridge Stack.
							S 26 30 W	N 26 29 E			2324
4	38	56	09.06	76	26	48.87	N 66 51 W	S 66 51 E	821	2242	Bay Ridge Stack.
							S 36 13 W	N 36 12 E			Cottage.
							S 12 48 E	N 12 48 W			4594
5	38	55	25.41	76	26	56.64	N 17 03 W	S 17 04 E	1878	1169	Bay Ridge Stack.
							S 73 17 W	N 73 17 E			Cottage.
							S 22 07 E	N 22 07 W			3248
6	38	54	50.14	76	26	49.48	N 56 53 W	S 56 53 E	1563	937	Cottage.
							S 41 12 W	N 41 12 E			Thomas.
							S 29 38 E	N 29 37 W			2091

## Survey of Oyster Bars, Anne Arundel County, Md.

## THOMAS POINT NORTH.

(North of Thomas Point Light—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	38 53 44.24	76 25 52.57	N 42 18 W N 54 26 W S 79 25 W	S 42 19 E S 54 27 E N 79 23 E	4167 2604 5612	Cottage. Thomas. Gowan.
2	38 53 55.73	76 26 23.01	N 87 08 E N 36 45 W S 73 13 W	S 87 08 W S 36 46 E N 73 11 E	337 3357 4924	Thomas Point Light. Cottage. Gowan.
3	38 54 09.43	76 26 21.37	N 63 57 W S 68 26 W S 33 23 E	S 63 57 E N 68 24 E N 33 23 W	1512 5116 533	Thomas. Gowan. Thomas Point Light.
4	38 54 41.78	76 26 54.87	N 45 41 W S 47 34 W S 37 26 E	S 45 41 E N 47 34 E N 37 26 W	1628 644 1932	Cottage. Thomas. Thomas Point Light.
5	38 54 50.14	76 26 49.48	N 56 53 W S 41 12 W S 29 38 E	S 56 53 E N 41 12 E N 29 37 W	1563 937 2091	Cottage. Thomas. Thomas Point Light.
6	38 55 00.30	76 26 22.75	N 75 45 W S 51 32 W S 8 40 E	S 75 46 E N 51 31 E N 8 40 W	2073 1690 2185	Cottage. Thomas. Thomas Point Light.
7	38 54 48.81	76 25 55.02	N 71 53 W S 72 06 W S 12 45 W	S 71 54 E N 72 05 E N 12 45 E	2887 2159 1819	Cottage. Thomas. Thomas Point Light.
8	38 54 23.04	76 26 02.85	N 55 09 W N 83 39 W S 12 10 W	S 55 09 E S 83 39 E N 12 10 E	3094 1859 925	Cottage. Thomas. Thomas Point Light.

THOMAS POINT SOUTH.

(Off entrance to South River—Chart No. 3.)

Cor- ner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 53' 11.92"	76° 27' 15.19"	N 48° 49' E	S 48° 49' W	2275	Thomas Point Light. Thomas. Gowan.
			N 1° 18' E	S 1° 18' W	2604	
			N 89° 02' W	S 89° 03' E	3340	
2	38° 54' 15.00"	76° 27' 24.91"	S 72° 09' E	N 72° 09' W	2067	Thomas Point Light. Thomas. Selby.
			N 33° 29' E	S 33° 29' W	572	
			N 81° 10' W	S 81° 12' E	3606	
3	38° 53' 55.73"	76° 26' 23.01"	N 87° 08' E	S 87° 08' W	337	Thomas Point Light. Cottage. Gowan.
			N 36° 45' W	S 36° 46' E	3357	
			S 73° 13' W	N 73° 11' E	4924	
4	38° 53' 44.24"	76° 25' 52.57"	N 42° 18' W	S 42° 19' E	4167	Cottage. Thomas. Gowan.
			N 54° 26' W	S 54° 27' E	2604	
			S 79° 25' W	N 79° 23' E	5612	
5	38° 53' 17.66"	76° 26' 06.79"	N 4° 02' W	S 4° 02' E	1304	Thomas Point Light. Thomas. Gowan.
			N 35° 59' W	S 35° 59' E	2975	
			S 88° 30' W	N 88° 28' E	5143	
6	38° 53' 31.79"	76° 26' 16.39"	N 11° 06' E	S 11° 06' W	840	Thomas Point Light. Thomas. Gowan.
			N 37° 37' W	S 37° 38' E	2442	
			S 82° 52' W	N 82° 50' E	4928	
7	38° 53' 30.53"	76° 27' 07.21"	N 57° 10' E	S 57° 10' W	1599	Thomas Point Light. Thomas. Gowan.
			N 8° 54' W	S 8° 54' E	2000	
			S 81° 14' W	N 81° 13' E	3745	

OLD WOMAN.

(Chesapeake Bay—Entrance to South River—Chart No. 3.)

1	38° 53' 11.92"	76° 27' 15.19"	N 48° 49' E	S 48° 49' W	2275	Thomas Point Light. Thomas. Gowan.
			N 1° 18' E	S 1° 18' W	2604	
			N 89° 02' W	S 89° 03' E	3340	
2	38° 53' 20.61"	76° 28' 06.36"	N 68° 35' E	S 68° 36' W	3287	Thomas Point Light. Thomas. Gowan.
			N 31° 21' E	S 31° 21' W	2706	
			S 83° 14' W	N 83° 13' E	2006	
3	38° 54' 11.00"	76° 28' 25.29"	S 82° 01' E	N 82° 03' W	3594	Thomas Point Light. Arundel. Selby.
			N 22° 41' E	S 22° 41' W	1138	
			N 70° 44' W	S 70° 45' E	2089	
4	38° 54' 15.00"	76° 27' 24.91"	S 72° 09' E	N 72° 09' W	2067	Thomas Point Light. Thomas. Selby.
			N 33° 29' E	S 33° 29' W	572	
			N 81° 10' W	S 81° 12' E	3606	

## Survey of Oyster Bars, Anne Arundel County, Md.

## MARSHY POINT.

(Mouth of South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 53 20.61	76 28 06.36	N 68 35 E N 31 21 E S 83 14 W	S 68 36 W S 31 21 W N 83 13 E	3287 2706 2006	Thomas Point Light. Thomas. Gowan.
2	38 53 49.82	76 29 24.70	N 87 36 E N 48 38 E N 16 08 W	S 87 38 W S 48 39 W S 16 08 E	5129 2671 1461	Thomas Point Light. Arundel. Selby.
3	38 54 15.82	76 29 31.20	S 82 53 E N 67 48 E N 24 02 W	N 82 55 W S 67 49 W S 24 02 E	5337 2349 576	Thomas Point Light. Arundel. Selby.
4	38 54 29.17	76 28 38.13	N 87 20 W S 24 22 W N 60 36 E	S 87 20 E N 24 21 E S 60 37 W	1635 2797 892	Selby. Gowan. Arundel.
5	38 54 35.04	76 28 19.55	N 50 11 E S 86 43 W S 30 50 W	S 50 11 W N 86 42 E N 30 50 E	375 2126 3199	Arundel. Selby. Gowan.
6	38 54 11.00	76 28 25.29	S 82 01 E N 22 41 E N 70 44 W	N 82 03 W S 22 41 W S 70 45 E	3594 1138 2089	Thomas Point Light. Arundel. Selby.

## TURKEY POINT.

(Lower South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 54 28.45	76 30 08.02	N 82 13 E N 4 19 E N 23 53 W	S 82 13 W S 4 20 W S 23 54 E	743 1974 3203	Selby. Hill. Switch.
2	38 54 33.04	76 30 11.84	S 86 17 E N 7 51 E N 23 29 W	N 86 17 W S 7 51 W S 23 29 E	838 1827 1438	Selby. Hill. Mayo.
3	38 54 40.91	76 29 49.08	N 89 05 E N 12 46 W N 48 04 W	S 89 04 W S 12 46 E S 48 04 E	2648 1584 1577	Arundel. Hill. Mayo.
4	38 54 41.46	76 29 25.41	N 60 03 W S 48 42 W N 89 20 E	S 60 04 E N 48 42 E S 89 21 W	2073 514 2023	Mayo. Selby. Arundel.
5	38 54 34.11	76 29 21.18	N 31 27 W S 79 44 W S 0 24 W	S 31 27 E N 79 44 E N 0 24 E	2080 507 2715	Hill. Selby. Gowan.
6	38 54 30.04	76 29 32.30	N 22 31 W N 77 10 W S 6 04 E	S 22 31 E S 77 10 E N 6 04 W	2069 211 2592	Hill. Selby. Gowan.
7	38 54 36.91	76 29 36.78	N 51 33 W S 25 24 W N 85 39 E	S 51 33 E N 25 24 E S 85 40 W	1912 205 2329	Mayo. Selby. Arundel.

RULER FLATS.

(Lower South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 54 29.17	76 28 35.13	N 87 20 W	S 87 20 E	1635	Selby. Gowan. Arundel.
			S 24 22 W	N 24 21 E	2797	
			N 60 36 E	S 60 37 W	892	
2	38 54 39.77	76 29 04.97	N 43 41 W	S 43 42 E	2189	Hill. Selby. Gowan.
			S 73 06 W	N 73 06 E	968	
			S 8 44 W	N 8 44 E	2940	
3	38 54 56.37	76 28 44.25	N 63 34 W	S 63 35 E	2299	Hill. Selby. Gowan.
			S 60 15 W	N 60 15 E	1695	
			S 15 59 W	N 15 58 E	3605	
4	38 54 35.04	76 28 19.55	N 50 11 E	S 50 11 W	375	Arundel. Selby. Gowan.
			S 86 43 W	N 86 42 E	2126	
			S 30 50 W	N 30 50 E	3199	

SWAN REEF.

(Lower South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 54 39.77	76 29 04.97	N 43 41 W	S 43 42 E	2189	Hill. Selby. Gowan.
			S 73 06 W	N 73 06 E	968	
			S 8 44 W	N 8 44 E	2940	
2	38 54 55.47	76 29 45.06	N 23 21 W	S 23 21 E	1148	Hill. Mayo. Selby.
			N 66 15 W	S 66 15 E	1398	
			S 9 05 E	N 9 08 W	821	
3	38 55 20.53	76 29 21.14	N 79 07 W	S 79 08 E	1106	Hill. Selby. Gowan.
			S 16 48 W	N 16 48 E	1730	
			S 0 16 W	N 0 16 E	4281	
4	38 55 17.03	76 29 06.64	N 77 27 W	S 77 28 E	1504	Hill. Selby. Gowan.
			S 29 50 W	N 29 50 E	1773	
			S 5 31 W	N 5 31 E	4181	
5	38 54 56.37	76 28 44.25	N 63 34 W	S 63 35 E	2299	Hill. Selby. Gowan.
			S 60 15 W	N 60 15 E	1695	
			S 15 59 W	N 15 58 E	3605	

## Survey of Oyster Bars, Anne Arundel County, Md.

## OUTER ROUND POINT.

(Lower South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 54' 39.32"	76° 30' 07.50"	S 69 46 E	N 69 45 W	769	Selby.
			N 4 51 E	S 4 51 W	1604	Hill.
			N 31 50 W	S 31 51 E	1304	Mayo.
2	38° 55' 02.57"	76° 30' 27.19"	S 49 45 E	N 49 45 W	1625	Selby.
			N 38 46 E	S 38 46 W	1044	Hill.
			N 27 34 W	S 27 34 E	365	Mayo.
3	38° 55' 05.83"	76° 30' 21.40"	S 43 15 E	N 43 14 W	1588	Selby.
			N 35 30 E	S 35 30 W	866	Hill.
			N 56 25 W	S 56 25 E	386	Mayo.
4	38° 54' 50.26"	76° 29' 53.36"	S 84 21 E	N 84 20 W	2773	Arundel.
			N 10 57 W	S 10 57 E	1252	Hill.
			N 55 09 W	S 55 10 E	1293	Mayo.

## INNER ROUND POINT.

(Lower South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 55' 10.96"	76° 30' 47.42"	N 65 53 E	S 65 53 W	1300	Hill.
			N 9 51 W	S 9 51 E	1518	Switch.
			N 29 29 W	S 29 29 E	3759	Waggaman.
2	38° 55' 18.09"	76° 30' 48.10"	N 76 25 E	S 76 26 W	1239	Hill.
			N 10 54 W	S 10 54 E	1277	Switch.
			N 46 14 W	S 46 15 E	1813	Cedar.
3	38° 55' 15.56"	76° 30' 27.68"	N 30 11 W	S 30 11 E	1550	Switch.
			S 53 40 W	N 53 40 E	194	Mayo.
			S 40 02 E	N 40 02 W	1944	Selby.

## HILL POINT EAST.

(Lower South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 55' 20.97"	76° 29' 52.13"	N 54 17 W	S 54 18 E	332	Hill.
			S 10 44 E	N 10 44 W	1701	Selby.
			S 64 22 E	N 64 21 W	3025	Arundel.
2	38° 55' 25.06"	76° 29' 54.63"	S 67 02 W	N 67 02 E	1115	Mayo.
			S 11 57 E	N 11 57 W	1848	Selby.
			S 62 37 E	N 62 38 W	3145	Arundel.
3	38° 55' 30.57"	76° 29' 29.42"	S 81 28 W	N 81 28 E	878	Hill.
			S 69 50 W	N 69 50 E	1801	Mayo.
			S 8 02 W	N 8 02 E	2014	Selby.
4	38° 55' 25.50"	76° 29' 28.36"	N 87 22 W	S 87 23 E	897	Hill.
			S 75 21 W	N 75 20 E	1777	Mayo.
			S 9 38 W	N 9 38 E	1849	Selby.



HILL POINT.

(Lower South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 55 04.97	76 30 00.19	N 4 29 W	S 4 29 E	736	Hill.
			N 74 36 W	S 74 36 E	913	Mayo.
			S 25 04 E	N 25 04 W	1249	Selby.
2	38 55 22.80	76 30 18.57	S 30 20 E	N 30 19 W	2007	Selby.
			N 73 10 E	S 73 10 W	456	Hill.
			N 42 56 W	S 42 56 E	1497	Switch.
3	38 55 39.26	76 30 07.76	N 77 10 W	S 77 11 E	2432	Cedar.
			S 36 41 W	N 36 41 E	1140	Mayo.
			S 18 34 E	N 18 34 W	446	Hill.

ROCK POINT.

(Lower South River—Chart No. 3.)

1	38 55 20.49	76 30 47.71	N 80 01 E	S 80 02 W	1213	Hill.
			N 12 06 W	S 12 07 E	1201	Switch.
			N 48 22 W	S 48 22 E	1765	Cedar.
2	38 55 28.28	76 30 56.01	S 87 52 E	N 87 52 W	1414	Hill.
			N 2 05 W	S 2 05 E	912	Switch.
			N 50 24 W	S 50 24 E	1427	Cedar.
3	38 55 29.48	76 30 40.51	S 17 21 E	N 17 21 W	612	Mayo.
			S 84 42 E	N 84 42 W	1009	Hill.
			N 26 52 W	S 26 52 E	977	Switch.

FOX POINT.

(Lower South River—Chart No. 3.)

1	38 55 38.68	76 30 24.43	N 57 04 W	S 57 04 E	1031	Switch.
			S 15 13 W	N 15 13 E	926	Mayo.
			S 55 24 E	N 55 23 W	708	Hill.
2	38 55 42.79	76 30 42.66	N 42 22 W	S 42 22 E	571	Switch.
			S 13 01 E	N 13 01 W	1060	Mayo.
			S 62 57 E	N 62 57 W	1192	Hill.
3	38 55 48.04	76 30 40.60	N 60 51 W	S 60 52 E	503	Switch.
			S 8 40 E	N 8 40 W	1224	Mayo.
			S 54 21 E	N 54 21 W	1239	Hill.

## Survey of Oyster Bars, Anne Arundel County, Md.

## PURDY FLATS.

(Middle South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 55 32.97	76 30 58.82	S 43 26 E N 3 06 E N 53 47 W	N 43 26 W S 3 06 W S 53 47 E	967 755 1273	Mayo. Switch. Cedar.
2	38 55 40.32	76 31 31.70	S 78 59 E N 60 53 E N 16 40 W	N 78 58 W S 60 53 W S 16 41 E	2397 1038 2382	Hill. Switch. Waggaman.
3	38 55 47.20	76 31 09.44	S 38 38 E N 49 34 E N 69 59 W	N 38 37 W S 49 34 W S 69 59 E	1512 421 795	Mayo. Switch. Cedar.

## THUNDER AND LIGHTNING.

(Middle South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 55 57.18	76 31 08.83	N 36 54 W S 85 11 W S 31 26 E	S 36 53 E N 85 10 E N 31 26 W	2142 766 1779	Waggaman. Cedar. Mayo.
2	38 56 30.58	76 31 20.96	S 86 39 W S 20 26 W S 27 41 E	N 86 39 E N 20 26 E N 27 40 W	1480 1271 1344	Almshouse. Cedar. Switch.
3	38 56 18.78	76 31 04.72	N 80 43 W S 47 42 W S 13 55 E	S 80 43 E N 47 42 E N 13 55 W	1930 1179 816	Almshouse. Cedar. Switch.
4	38 55 58.24	76 31 02.95	N 40 38 W S 83 46 W S 26 27 E	S 40 38 E N 83 46 E N 26 27 W	2212 923 1736	Waggaman. Cedar. Mayo.

## BREWER.

(Middle South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 55 57.59	76 31 56.18	S 87 09 E N 1 18 W N 34 43 W	N 87 08 W S 1 18 E S 34 43 E	1554 1699 1288	Switch. Waggaman. Almshouse L. R.
2	38 55 59.02	76 32 01.60	S 85 46 E N 3 36 E N 30 20 W	N 85 45 W S 3 36 W S 30 20 E	1699 1655 1171	Switch. Waggaman. Almshouse L. R.
3	38 56 10.23	76 31 30.15	N 64 05 W S 21 46 W S 59 50 E	S 64 06 E N 21 46 E N 59 49 W	1374 544 1002	Almshouse. Cedar. Switch.
4	38 56 00.93	76 31 19.50	N 58 55 W S 68 24 W S 72 02 E	S 58 56 E N 68 24 E N 72 02 W	1769 518 616	Almshouse. Cedar. Switch.

ALMSHOUSE.

(Upper South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 56 07.31	76 32 02.38	S 66 35 E	N 66 35 W	3445	Hill. Switch. Waggaman.
			S 76 43 E	N 76 42 W	1762	
			N 5 11 E	S 5 11 W	1377	
2	38 56 15.42	76 32 03.30	S 44 40 E	N 44 40 W	956	Cedar. Waggaman. Ginger.
			N 7 43 E	S 7 43 W	1108	
			N 35 07 W	S 35 07 E	1985	
3	38 56 16.64	76 31 47.30	N 63 54 W	S 63 54 E	872	Almshouse. Cedar. Switch.
			S 19 09 E	N 19 09 W	763	
			S 61 22 E	N 61 21 W	1502	
4	38 56 09.78	76 31 44.88	N 54 01 W	S 54 01 E	1047	Almshouse. Cedar. Switch.
			S 20 52 E	N 20 52 W	524	
			S 68 44 E	N 68 43 W	1345	

DUVALL.

(Upper South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	
			Forward	Back		
1	38 56 21.44	76 31 42.87	N 23 30 W	S 23 30 E	975	Waggaman. Almshouse. Cedar.
			N 76 11 W	S 76 11 E	930	
			S 8 36 E	N 8 36 W	892	
2	38 56 40.84	76 31 47.23	N 48 44 W	S 48 44 E	365	Waggaman. Almshouse. Cedar.
			S 61 10 W	N 61 10 E	897	
			S 9 11 E	N 9 11 W	1556	
3	38 56 43.58	76 31 41.43	N 65 31 W	S 65 31 E	358	Waggaman Windmill. Almshouse. Cedar.
			S 60 46 W	N 60 46 E	1075	
			S 3 22 E	N 3 22 W	1632	
4	38 56 26.64	76 31 35.78	N 38 40 W	S 38 41 E	922	Waggaman. Almshouse. Cedar.
			N 87 33 W	S 87 33 E	1088	
			S 2 53 W	N 2 53 E	1059	
5	38 56 23.24	76 31 25.42	N 83 14 W	S 83 15 E	1369	Almshouse. Cedar. Mayo.
			S 19 04 W	N 19 04 E	998	
			S 29 40 E	N 29 39 W	2758	

## Survey of Oyster Bars, Anne Arundel County, Md.

## ABERDEEN.

(Upper South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
			° / ' "	° / ' "		
1	38 56 37.57	76 31 59.68	N 54 41 W	S 54 41 E	1516	Ginger. Almshouse. Cedar.
			S 54 50 W	N 54 50 E	559	
			S 22 03 E	N 22 03 W	1539	
2	38 56 48.89	76 32 15.18	S 63 41 W	N 63 41 E	588	Brewer. Almshouse. Waggaman.
			S 3 59 W	N 3 59 E	705	
			S 86 12 E	N 86 12 W	463	
3	38 57 06.13	76 32 01.08	S 85 53 W	N 85 53 E	1203	Ginger. Brewer. Almshouse.
			S 46 46 W	N 46 45 E	1229	
			S 18 07 W	N 18 07 E	1363	

## BEARD POINT.

(Upper South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 56 57.25	76 32 19.42	N 73 27 W	S 73 27 E	748	Ginger. Brewer. Waggaman.
			S 37 14 W	N 37 14 E	681	
			S 61 24 E	N 61 24 W	653	
2	38 57 01.39	76 32 33.99	N 77 34 W	S 77 35 E	341	Ginger. Brewer. Waggaman.
			S 2 23 W	N 2 23 E	682	
			S 64 42 E	N 64 42 W	1059	
3	38 57 05.07	76 32 32.31	S 82 23 W	N 82 22 E	382	Ginger. Brewer. Waggaman.
			S 5 09 W	N 5 09 E	809	
			S 57 44 E	N 57 44 W	1077	
4	38 57 03.80	76 32 22.19	S 89 19 W	N 89 18 E	644	Ginger. Brewer. Waggaman.
			S 23 58 W	N 23 58 E	836	
			S 50 28 E	N 50 28 W	838	

## ROUGH POINT.

(Upper South River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 56 47.29	76 33 10.30	N 89 18 E	S 89 18 W	1914	Waggaman. Ginger. Ximo.
			N 48 35 E	S 48 35 W	830	
			N 0 14 E	S 0 14 W	751	
2	38 56 52.59	76 33 12.34	S 85 29 E	N 85 29 W	1973	Waggaman. Ginger. Ximo.
			N 61 18 E	S 61 18 W	771	
			N 5 41 E	S 5 41 W	575	
3	38 56 54.98	76 32 49.81	S 39 49 E	N 39 49 W	606	Brewer. Ginger. Ximo.
			N 15 49 E	S 15 49 W	302	
			N 47 29 W	S 47 29 E	727	
4	38 56 48.32	76 32 49.14	S 56 57 E	N 56 57 W	442	Brewer. Ginger. Ximo.
			N 7 14 E	S 7 14 W	518	
			N 37 43 W	S 37 44 E	906	

SAUNDERS.

(Chesapeake Bay off entrance to South River—Chart No. 3.)

Corner of bar	Latitude		Longitude		True bearing		Distance	U. S. C. & G. S. triangulation station.		
	°	'	°	'	Forward	Back				
1	38	52	30.94	76	28	47.83	N 31 58 W	S 31 58 E	1696	Gowan. Dutchman. Curtis.
							S 76 16 W	N 76 15 E	2925	
							S 33 27 W	N 33 26 E	3156	
2	38	52	50.36	76	29	22.01	N 0 13 E	S 00 13 W	785	Gowan. Dutchman. Curtis.
							S 55 12 W	N 55 11 E	2362	
							S 14 18 W	N 14 18 E	3392	
3	38	53	12.32	76	29	02.90	N 71 59 E	S 72 01 W	4785	Thomas Point Light. Arundel. Gowan.
							N 25 16 E	S 25 17 W	3350	
							N 85 09 W	S 85 09 E	593	
4	38	53	49.82	76	29	24.70	N 87 36 E	S 87 38 W	5129	Thomas Point Light. Arundel. Selby.
							N 48 38 E	S 48 39 W	2671	
							N 16 08 W	S 16 08 E	1461	
5	38	53	20.61	76	28	06.36	N 68 35 E	S 68 36 W	3287	Thomas Point Light. Thomas. Gowan.
							N 31 21 E	S 31 21 W	2706	
							S 83 14 W	N 83 13 E	2006	

LULU.

(Chesapeake Bay, between South and West rivers—(Chart No. 3.)

Corner of bar	Latitude		Longitude		True bearing		Distance	U. S. C. & G. S. triangulation station.		
	°	'	°	'	Forward	Back				
1	38	51	15.58	76	26	30.52	S 62 03 E	N 62 01 W	5359	Bloody Point Light. Thomas Point Light. Horseshoe.
							N 5 38 E	S 5 38 W	5444	
							S 64 56 W	N 64 54 E	5075	
2	38	52	30.94	76	28	47.83	N 31 58 W	S 31 58 E	1696	Gowan. Dutchman. Curtis.
							S 76 16 W	N 76 15 E	2925	
							S 33 27 W	N 33 26 E	3156	
3	38	53	20.61	76	28	06.36	N 68 35 E	S 68 36 W	3287	Thomas Point Light. Thomas. Gowan.
							N 31 21 E	S 31 21 W	2706	
							S 83 14 W	N 83 13 E	2006	
4	38	53	11.92	76	27	15.19	N 48 49 E	S 48 49 W	2275	Thomas Point Light. Thomas. Gowan.
							N 1 18 E	S 1 18 W	2604	
							N 89 02 W	S 89 03 E	3340	
5	38	53	01.40	76	26	45.98	N 26 59 E	S 27 00 W	2075	Thomas Point Light. Thomas. Gowan.
							N 13 31 W	S 13 31 E	3042	
							N 84 18 W	S 84 19 E	4131	

## DUTCHMAN.

(Chesapeake Bay off entrance to West River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 51 52.42	76 29 11.14	N 5 55 W	S 5 55 E	Yards. 2753 2307 1743	Gowan. Dutchman. Curtis.
			N 74 48 W	S 74 49 E		
			S 40 13 W	N 40 12 E		
2	38 51 54.62	76 30 41.05	S 72 00 W	N 72 00 E	831 1880 550	Ches. Curtis. Dutchman.
			S 41 30 E	N 41 30 W		
			N 15 11 E	S 15 11 W		
3	38 52 50.36	76 29 22.01	N 0 13 E	S 0 13 W	785 2362 3392	Gowan. Dutchman. Curtis.
			S 55 12 W	N 55 11 E		
			S 14 18 W	N 14 18 E		
4	38 52 30.94	76 28 47.83	N 31 58 W	S 31 58 E	1696 2925 3156	Gowan. Dutchman. Curtis.
			S 76 16 W	N 76 15 E		
			S 33 27 W	N 33 26 E		

## THREE SISTERS.

(Chesapeake Bay off West River—Chart No. 3.)

1	38 49 35.36	76 29 11.96	N 28 33 E	S 28 35 W	Yards. 10015 1276 1681	Thomas Point Light. Horseshoe. Franklin.
			N 15 25 W	S 15 25 E		
			S 38 04 W	N 38 04 E		
2	38 51 38.65	76 29 11.74	N 4 47 W	S 4 47 E	3213 2455 1410	Gowan. Dutchman. Curtis.
			N 64 11 W	S 64 11 E		
			S 51 55 W	N 51 54 E		
3	38 51 52.42	76 29 11.14	N 5 55 W	S 5 55 E	2753 2307 1743	Gowan. Dutchman. Curtis.
			N 74 48 W	S 74 49 E		
			S 40 13 W	N 40 12 E		
4	38 52 30.94	76 28 47.83	N 31 58 W	S 31 58 E	1696 2925 3156	Gowan. Dutchman. Curtis.
			S 76 16 W	N 76 15 E		
			S 33 27 W	N 33 26 E		
5	38 51 15.58	76 26 30.52	S 62 03 E	N 62 01 W	5359 5444 5075	Bloody Point Light. Thomas Point Light. Horseshoe.
			N 5 38 E	S 5 38 W		
			S 64 56 W	N 64 54 E		
6	38 49 42.70	76 27 33.13	N 14 20 E	S 14 21 W	8824 3106 3968	Thomas Point Light. Horseshoe. Franklin.
			N 71 32 W	S 71 34 E		
			S 66 41 W	N 66 40 E		

Survey of Oyster Bars, Anne Arundel County, Md.

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CURTIS.

(Chesapeake Bay off entrance to West River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
			° / ' "	° / ' "		
1	38 51 18.20	76 29 35.30	N 5 11 E	S 5 11 W	3907	Gowan, Dutchman, Ches.
			N 42 06 W	S 42 06 E	2371	
			N 68 57 W	S 68 58 E	2261	
2	38 51 23.17	76 30 07.54	N 17 54 E	S 17 54 W	3914	Gowan, Dutchman, Ches.
			N 24 55 W	S 24 55 E	1755	
			N 64 22 W	S 64 22 E	1857	
3	38 51 42.84	76 29 56.82	N 16 44 E	S 16 44 W	3195	Gowan, Dutchman, Curtis.
			N 47 45 W	S 47 45 E	1380	
			S 4 30 E	N 4 30 W	1014	
4	38 51 38.65	76 29 11.74	N 4 47 W	S 4 47 E	3213	Gowan, Dutchman, Curtis.
			N 64 11 W	S 64 11 E	2455	
			S 51 55 W	N 51 54 E	1410	

COLLINS FLATS.

(West River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	
			° / ' "	° / ' "		
1	38 51 11.28	76 30 30.98	N 86 52 E	S 86 53 W	982	Curtis, Ches. Shell.
			N 41 15 W	S 41 15 E	1598	
			S 83 33 W	N 83 32 E	2701	
2	38 51 11.73	76 30 39.78	N 88 11 E	S 88 11 W	1213	Curtis, Ches. Shell.
			N 34 43 W	S 34 44 E	1447	
			S 82 36 W	N 82 35 E	2473	
3	38 51 23.75	76 30 49.60	S 76 00 E	N 75 59 W	1517	Curtis, Ches. Shell.
			N 35 47 W	S 35 48 E	965	
			S 71 44 W	N 71 43 E	2310	
4	38 51 25.60	76 30 40.24	S 70 41 E	N 70 42 W	1298	Curtis, Dutchman, Ches.
			N 4 39 E	S 4 39 W	1515	
			N 48 23 W	S 48 23 E	1086	

POTATO HILL.

(West River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	
			° / ' "	° / ' "		
1	38 51 26.21	76 31 04.62	S 76 27 E	N 76 26 W	1921	Curtis, Ches. Shell.
			N 13 34 W	S 13 35 E	722	
			S 65 49 W	N 65 48 E	1970	
2	38 51 35.87	76 31 03.32	S 67 05 E	N 67 04 W	1990	Curtis, Ches. Shell.
			N 28 28 W	S 28 28 E	427	
			S 58 16 W	N 58 15 E	2153	
3	38 51 32.76	76 30 59.63	S 68 53 E	N 68 52 W	1861	Curtis, Ches. Shell.
			N 32 04 W	S 32 04 E	566	
			S 61 57 W	N 61 57 E	2185	

## Survey of Oyster Bars, Anne Arundel County, Md.

## CEDAR POINT.

(West River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 51' 08.18"	76° 31' 39.88"	S 77° 03' W	N 77° 03' E	890	Shell. Cove. Curtis.
			S 30° 47' W	N 30° 46' E	260	
			N 86° 46' E	S 86° 47' W	2802	
2	38° 51' 22.62"	76° 31' 23.40"	S 82° 04' E	N 82° 03' W	2385	Curtis. Ches. Shell.
			N 21° 37' W	S 21° 37' E	885	
			S 62° 12' W	N 62° 12' E	1472	
3	38° 51' 21.18"	76° 31' 11.42"	S 82° 12' E	N 82° 11' W	2066	Curtis. Ches. Shell.
			N 0° 40' E	S 0° 40' W	871	
			S 68° 29' W	N 68° 28' E	1739	
4	38° 51' 10.12"	76° 31' 18.50"	N 87° 38' E	S 87° 39' W	2235	Curtis. Ches. Shell.
			N 8° 59' E	S 8° 59' W	1259	
			S 79° 31' W	N 79° 31' E	1456	

## BARREN NECK.

(West River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 51' 02.80"	76° 32' 06.43"	S 83° 53' W	N 83° 53' E	168	Shell. Counallor. Cove.
			S 18° 08' W	N 18° 08' E	865	
			S 85° 43' E	N 85° 43' W	569	
2	38° 51' 33.52"	76° 32' 10.19"	S 3° 41' W	N 3° 41' E	1056	Shell. Cove. Ches.
			S 31° 42' E	N 31° 41' W	1267	
			N 73° 45' E	S 73° 46' W	1624	
3	38° 51' 29.88"	76° 31' 58.24"	S 22° 21' W	N 22° 21' E	1007	Shell. Cove. Ches.
			S 20° 09' E	N 20° 09' W	1018	
			N 65° 10' E	S 65° 10' W	1371	
4	38° 51' 12.92"	76° 31' 54.40"	S 53° 26' W	N 53° 26' E	603	Shell. Cove. Ches.
			S 33° 00' E	N 33° 00' W	458	
			N 44° 51' E	S 44° 51' W	1621	



TUCKER.

(West River—Chart No 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
			° / '	° / '		
1	38° 50' 47.58"	76° 31' 55.85"	N 31 26 E	S 31 26 W	551	Cove. Shell. Counallor.
			N 42 00 W	S 42 00 E	666	
			S 60 39 W	N 60 39 E	629	
2	38° 50' 48.71"	76° 32' 05.10"	N 50 52 E	S 50 52 W	686	Cove. Shell. Counallor.
			N 23 47 W	S 23 47 E	501	
			S 41 17 W	N 41 17 E	461	
3	38° 50' 53.60"	76° 32' 03.13"	N 60 50 E	S 60 50 W	549	Cove. Shell. Counallor.
			N 40 59 W	S 40 59 E	387	
			S 34 51 W	N 34 51 E	623	
4	38° 50' 54.70"	76° 31' 54.07"	N 46 16 E	S 46 16 W	334	Cove. Shell. Counallor.
			N 62 37 W	S 62 37 E	556	
			S 47 20 W	N 47 20 E	809	

CHESTON POINT.

(Rhode River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	Station
			Forward	Back		
1	38° 51' 40.62"	76° 31' 05.16"	N 37 52 E	S 37 52 W	1271	Dutchman. Ches. Cove.
			N 35 47 W	S 35 47 E	265	
			S 38 31 W	N 38 31 E	1684	
2	38° 52' 18.00"	76° 31' 06.88"	N 21 31 E	S 21 31 W	645	Delta. Rhode. Ches.
			N 77 20 W	S 77 20 E	60	
			S 5 59 W	N 5 59 E	1051	
3	38° 52' 13.74"	76° 31' 00.99"	S 16 23 W	N 16 22 E	939	Ches. Cato. Delta.
			S 74 48 E	N 74 47 W	401	
			N 6 15 E	S 6 15 W	748	
4	38° 51' 46.58"	76° 30' 57.55"	N 35 50 E	S 35 50 W	990	Dutchman. Ches. Cove.
			N 87 43 W	S 87 43 E	355	
			S 39 27 W	N 39 26 E	1967	

DUTCHMAN HOLLOW.

(Rhode River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	Station
			Forward	Back		
1	38° 52' 17.54"	76° 30' 48.48"	N 22 25 W	S 22 26 E	666	Delta. Rhode. Cato.
			N 86 59 W	S 86 59 E	544	
			S 13 46 E	N 13 46 W	241	
2	38° 52' 21.98"	76° 30' 54.43"	N 11 06 W	S 11 06 E	475	Delta. Rhode. Cato.
			S 72 37 W	N 72 37 E	405	
			S 29 12 E	N 29 12 W	439	
3	38° 52' 28.12"	76° 30' 50.55"	N 47 39 W	S 47 40 E	1159	Turf. Rhode. Cato.
			S 56 08 W	N 56 08 E	588	
			S 10 42 E	N 10 42 W	607	

## Survey of Oyster Bars, Anne Arundel County, Md.

## BRICE FENCE.

(Rhode River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 52 19.38	76 31 11.05	S 57 00 E N 32 03 E N 16 29 W	N 57 00 W S 32 03 W S 16 29 E	61 653 1122	Rhode. Delta. Turf.
2	38 52 23.90	76 31 24.86	S 65 54 E N 60 33 E N 2 51 E	N 65 54 W S 60 33 W S 2 51 W	455 816 924	Rhode. Delta. Turf.
3	38 52 24.29	76 31 14.78	S 36 58 E N 48 50 E N 13 35 W	N 36 58 W S 48 50 W S 13 35 E	249 589 936	Rhode. Delta. Turf.

## STONY HOLLOW.

(Rhode River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 52 32.42	76 31 33.04	S 53 09 E S 79 36 W N 22 21 E	N 53 08 W N 79 36 E S 22 21 W	788 528 688	Rhode. Cupola. Turf.
2	38 52 42.50	76 31 31.75	S 36 18 E S 52 03 W N 37 34 E	N 36 18 W N 52 03 E S 37 34 W	1007 702 373	Rhode. Cupola. Turf.
3	38 52 52.04	76 31 19.40	S 13 27 E N 35 29 W S 75 10 W	N 13 27 W S 35 29 E N 75 10 E	1167 1052 102	Rhode. Calf. Turf.
4	38 52 48.00	76 31 17.48	S 12 29 E N 53 26 W N 47 04 E	N 12 28 W S 53 26 E S 47 04 W	1023 185 407	Rhode. Turf. Etna.

## CHERRY.

(Rhode River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 52 38.61	76 31 04.35	S 60 52 E N 4 34 W N 49 13 W	N 60 52 W S 4 34 E S 49 13 E	195 596 654	Delta. Etna. Turf.
2	38 52 43.34	76 31 04.58	N 5 26 W N 61 19 W S 34 42 E	S 5 26 E S 61 19 E N 34 42 W	437 557 309	Etna. Turf. Delta.
3	38 52 45.74	76 30 56.00	N 37 04 W N 75 23 W S 70 07 W	S 37 05 E S 75 23 E N 70 06 E	444 739 1591	Etna. Turf. Cupola.

JACKASS.

(Rhode River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 52 53.40	76 31 33.24	S 32 46 W	N 32 46 E	951	Cupola.
			S 74 56 E	N 74 56 W	277	Turf.
			N 16 54 W	S 16 54 E	849	Calf.
2	38 52 57.82	76 31 32.74	S 48 57 E	N 48 56 W	337	Turf.
			S 85 39 E	N 85 39 W	703	Etna.
			N 21 24 W	S 21 24 E	712	Calf.
3	38 53 02.82	76 31 23.90	N 44 55 W	S 44 55 E	698	Calf.
			S 3 01 E	N 3 01 W	390	Turf.
			S 64 38 E	N 64 37 W	518	Etna.
4	38 52 59.03	76 31 20.53	N 43 04 W	S 43 05 E	852	Calf.
			S 14 37 W	N 14 37 E	270	Turf.
			S 76 04 E	N 76 03 W	390	Etna.

BOLSTON BANK.

(Rhode River—Chart No. 3.)

	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 52 48.23	76 31 52.57	S 0 28 W	N 0 28 E	626	Cupola.
			N 82 29 E	S 82 29 W	783	Turf.
			N 14 55 E	S 14 55 W	1021	Calf.
2	38 52 56.81	76 31 49.73	S 4 59 W	N 4 59 E	919	Cupola.
			S 75 05 E	N 75 05 W	726	Turf.
			N 15 05 E	S 15 05 W	722	Calf.
3	38 52 54.68	76 31 43.02	S 16 57 W	N 16 57 E	881	Cupola.
			S 77 38 E	N 77 38 W	537	Turf.
			N 0 49 E	S 0 49 W	769	Calf.

HIGH ISLAND.

(Rhode River—Chart No. 3.)

	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 53 02.19	76 31 57.23	S 6 08 E	N 6 08 W	1102	Cupola.
			S 67 44 E	N 67 43 W	971	Turf.
			N 36 47 E	S 36 48 W	644	Calf.
2	38 53 10.24	76 31 53.18	S 0 28 E	N 0 28 W	1367	Cupola.
			S 51 05 E	N 51 05 W	1018	Turf.
			N 58 48 E	S 58 48 W	371	Calf.
3	38 53 07.64	76 31 49.00	S 4 26 W	N 4 26 E	1284	Cupola.
			S 51 02 E	N 51 02 W	877	Turf.
			N 26 57 E	S 26 57 W	372	Calf.

## Survey of Oyster Bars, Anne Arundel County, Md.

## FLAT ISLAND.

(Rhode River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 53' 09.28"	76° 32' 00.82"	S 9° 03' E	N 9° 02' W	1352	Cupola.
			S 58° 31' E	N 58° 30' W	1162	Turf.
			N 60° 04' E	S 60° 04' W	554	Calf.
2	38° 53' 15.03"	76° 32' 08.82"	S 15° 29' E	N 15° 29' W	1587	Cupola.
			S 56° 22' E	N 56° 22' W	1447	Turf.
			N 83° 11' E	S 83° 11' W	696	Calf.
3	38° 53' 24.18"	76° 32' 03.19"	S 8° 31' E	N 8° 30' W	1858	Cupola.
			S 43° 35' E	N 43° 35' W	1532	Turf.
			S 67° 24' E	N 67° 24' W	588	Calf.

## BUCE.

(Rhode River—Chart No. 3.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 53' 27.22"	76° 31' 54.57"	S 1° 25' E	N 1° 25' W	1940	Cupola.
			S 34° 22' E	N 34° 22' W	1469	Turf.
			S 43° 51' E	N 43° 51' W	455	Calf.
2	38° 53' 30.38"	76° 32' 05.82"	S 9° 33' E	N 9° 33' W	2075	Cupola.
			S 40° 29' E	N 40° 28' W	1733	Turf.
			S 54° 36' E	N 54° 35' W	751	Calf.
3	38° 53' 35.18"	76° 32' 03.90"	S 7° 34' E	N 7° 34' W	2228	Cupola.
			S 35° 59' E	N 35° 59' W	1830	Turf.
			S 43° 15' E	N 43° 15' W	819	Calf.

BAY SHORE.

(Chesapeake Bay between West River and Herring Bay—Chart No. 4.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38 46 21.04	76 31 55.90	N 21 03 E	S 21 03 W	Yards. 2175 728 3819	Broad. Parker. Fairhaven.
			N 86 52 W	S 86 52 E		
			S 55 04 W	N 55 03 E		
2	38 47 45.64	76 30 33.40	N 25 05 E	S 25 06 W	2624 584 1621	Franklin. Nut. Broad.
			N 8 22 W	S 8 22 E		
			S 59 30 W	N 59 29 E		
3	38 48 51.50	76 28 52.60	N 17 25 W	S 17 25 E	2840 1555 3199	Horseshoe. Franklin. Nut.
			N 84 16 W	S 84 16 E		
			S 59 07 W	N 59 06 E		
4	38 49 35.36	76 29 11.96	N 28 33 E	S 28 35 W	10015 1276 1681	Thomas Point Light. Horseshoe. Franklin.
			N 15 25 W	S 15 25 E		
			S 38 04 W	N 38 04 E		
5	38 49 42.70	76 27 33.13	N 14 20 E	S 14 21 W	8824 3106 3968	Thomas Point Light. Horseshoe. Franklin.
			N 71 32 W	S 71 34 E		
			S 66 41 W	N 66 40 E		
6	38 48 54.54	76 27 58.99	N 40 58 W	S 40 59 E	3452 2955 4510	Horseshoe. Franklin. Nut.
			N 88 59 W	S 89 00 E		
			S 67 15 W	N 67 14 E		
7	38 48 42.60	76 28 31.60	N 25 00 W	S 24 59 E	3321 2150 3562	Horseshoe. Franklin. Nut.
			N 77 45 W	S 77 46 E		
			S 67 52 W	N 67 51 E		
8	38 46 30.66	76 29 45.60	N 23 26 W	S 23 25 E	3386 3158 4178	Nut. Broad. Parker.
			N 57 18 W	S 57 19 E		
			S 86 06 W	N 86 04 E		
9	38 46 21.72	76 30 20.82	N 6 58 W	S 6 59 E	3434 2649 3238	Nut. Broad. Parker.
			N 40 43 W	S 40 44 E		
			N 89 41 W	S 89 43 E		

## Survey of Oyster Bars, Anne Arundel County, Md.

LONG.

(Chesapeake Bay off entrance to Herring Bay—Chart No. 4.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 44' 23.03"	76° 32' 15.40"	S 34 48 E	N 34 48 W	1740	Holland.
			N 12 10 E	S 12 10 W	6148	Broad.
			N 55 33 W	S 55 34 E	3170	Fairhaven.
2	38° 44' 22.57"	76° 32' 37.02"	S 48 54 E	N 47 53 W	2108	Holland.
			N 5 04 E	S 5 04 W	4051	Parker.
			N 48 29 W	S 48 30 E	2729	Fairhaven.
3	38° 46' 21.04"	76° 31' 55.90"	N 21 03 E	S 21 03 W	2175	Broad.
			N 86 52 W	S 86 52 E	728	Parker.
			S 55 04 W	N 55 03 E	3819	Fairhaven.
4	38° 46' 21.72"	76° 30' 20.82"	N 6 58 W	S 6 59 E	3434	Nut.
			N 40 43 W	S 40 44 E	2649	Broad.
			N 89 41 W	S 89 43 E	3238	Parker.
5	38° 45' 17.50"	76° 31' 28.94"	N 0 58 E	S 0 58 W	4173	Broad.
			N 33 24 W	S 33 25 E	2615	Parker.
			S 89 21 W	N 89 20 E	3842	Fairhaven.
6	38° 44' 46.50"	76° 31' 39.63"	N 3 52 E	S 3 52 W	5231	Broad.
			N 19 43 W	S 19 44 E	3430	Parker.
			N 74 16 W	S 74 18 E	3696	Fairhaven.

## FAIRHAVEN.

(Herring Bay off Fairhaven—Chart No. 4.)

1	38° 44' 33.63"	76° 32' 47.46"	S 45 51 E	N 45 50 W	2566	Holland.
			N 9 49 E	S 9 49 W	3716	Parker.
			N 50 55 W	S 50 56 E	2277	Fairhaven.
2	38° 44' 39.19"	76° 33' 11.47"	S 51 25 E	N 51 26 W	3165	Holland.
			N 20 03 E	S 20 03 W	3699	Parker.
			N 42 16 W	S 42 16 E	1686	Fairhaven.
3	38° 45' 04.65"	76° 32' 56.40"	N 18 23 E	S 18 24 W	2757	Parker.
			N 14 04 W	S 14 04 E	2321	Hopkins.
			N 75 44 W	S 75 45 E	1581	Fairhaven.
4	38° 45' 47.06"	76° 33' 27.00"	S 34 50 W	N 34 49 E	1267	Fairhaven.
			S 34 05 E	N 34 04 W	5148	Holland.
			N 54 45 E	S 54 45 W	2054	Parker.
5	38° 45' 27.79"	76° 32' 27.80"	N 3 34 E	S 3 34 W	1839	Parker.
			N 41 54 W	S 41 54 E	1975	Hopkins.
			S 80 19 W	N 80 17 E	2321	Fairhaven.

HOLLAND POINT.

(Chesapeake Bay, northeast of Holland Point—Chart No. 4.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
1	38° 43' 30.91"	76° 29' 59.52"	N 6° 06' W	S 6° 06' E	Yards. 9221 6914 2617	Nut. Parker. Holland.
			N 33° 20' W	S 33° 21' E		
			N 82° 47' W	S 82° 48' E		
2	38° 43' 34.30"	76° 30' 59.24"	N 3° 46' E	S 3° 47' W	9074 6084 5762	Nut. Parker. Fairhaven.
			N 21° 26' W	S 21° 27' E		
			N 53° 24' W	S 53° 25' E		
3	38° 44' 04.64"	76° 32' 28.49"	S 58° 52' W	N 58° 52' E	1564 4641 3313	Holland. Parker. Fairhaven.
			N 1° 38' E	S 1° 38' W		
			N 43° 15' W	S 43° 16' E		
4	38° 45' 33.13"	76° 30' 30.77"	N 1° 45' W	S 1° 45' E	5049 3404 4179	Nut. Parker. Holland.
			N 60° 54' W	S 60° 55' E		
			S 25° 02' W	N 25° 01' E		
5	38° 45' 43.72"	76° 29' 41.78"	N 17° 09' W	S 17° 10' E	4908 4462 5151	Nut. Parker. Holland.
			N 73° 04' W	S 73° 06' E		
			S 36° 31' W	N 36° 30' E		
6	38° 44' 36.67"	76° 29' 21.57"	N 15° 54' W	S 15° 55' E	7228 5977 4064	Nut. Parker. Holland.
			N 53° 26' W	S 53° 28' E		
			S 62° 18' W	N 62° 17' E		

LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

EXPLANATION OF DESCRIPTION OF LANDMARKS.

The oyster-culture laws of Maryland authorizing the survey of natural oyster bars provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said Board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view considerable effort has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the description of stations in a uniform and logical manner. The descriptions start with the assumption that the individual seeking the station has only an indefinite idea of its location. They then gradually proceed from general descriptions of the surroundings of a landmark to the specific details of the character of the center and reference markings. An examination of the descriptions themselves will best indicate the method followed.

The heading of each description is the name by which the landmark is known and designated in all work and records executed by the commission. Where the same name is used for two or more stations, as is the case in several instances in Anne Arundel County, the general locality of the station being described is given in parentheses alongside its name.

In the first paragraph, under the heading of "Locality," is given a description of the general locality of the landmark and the serial number of the published chart of the oyster bars of Anne Arundel County which best shows its location. The second paragraph, under this same heading, furnishes the description of the immediate locality of the landmark and refers to the bearing and distance of the cement monument marking the reference station, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached.

Under the heading of "Marks" a description is given of the markings of the "observed station" and the "reference station." It will be noted that although the "observed station" is the one "occupied" and "observed on" for horizontal angles, it is not marked as well as the reference station, and in many instances has only a pine stub to indicate its position. This is the case, for the reason that the necessity of inter-visibility of triangulation stations usually made it compulsory to locate these stations on edges of banks and ends of points of land, which in Chesapeake Bay and tributaries generally means that they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region showed the necessity of reference marks, if the reestablishment of a new framework of triangulation was to be avoided in the near future.

The marks designated in the descriptions as "the center point of triangle on standard cement monument" are all exactly alike. They are made out of cement, sand, and gravel and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. All of these monuments have been planted in the same manner, with their tops projecting 3 or 4 inches above the surface of the ground. As the above facts in reference to the "standard cement monuments" are a constant element in all the descriptions, their needless repetition is avoided by this one statement.

It is the expectation that the "reference stations," the character of which is explained above, will be used in the near future in the place of the original stations. This has been made possible by the careful measurements of direction and distance of these stations from the "observed station" which are recorded under the heading of "References." "

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<sup>a</sup>To obtain the geographic positions of any of the "observed stations" or of the "reference stations," application should be made to the Superintendent of the Coast and Geodetic Survey at Washington.



Under the heading of "References" are given the directions and distances of all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography or location of boundaries of oyster bars, these references will be sufficient in many cases, to relocate the "observed station" or "reference station" when both of them have been destroyed but the reference objects remain.

The first reference object given in the descriptions is always a triangulation station visible from the station being described. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>a</sup> of the initial object is always given, in parentheses alongside the name. This furnishes means for the calculation of the bearings of any of the reference objects for the purposes of locating a station by compass bearings, or the relocation of corner buoys of oyster-bar boundaries by the method of horizontal angles described under the heading of "Boundaries of natural oyster bars."

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters," however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape.

NORTH POINT (OLD TOWER).

*Locality.*—South of North Point about 150 yards offshore. (See Chart No. 1.)

*Marks.*—Observed station is center point of lantern on old stone tower formerly used as a light-house.

*References.*—

"Craighill Channel Light (Front Range)"..... S 81 20 E ..... 2½ miles.

CRAIGHILL CHANNEL LIGHT (FRONT RANGE).

*Locality.*—Offshore about 2½ miles east by south of North Point and about 4 miles north-north-east of Bodkin Point. (See Chart No. 1.)

*Marks.*—Observed station is center point of black lantern on brown structure known as Craighill Channel Front Range Light-house.

*References.*—

"North Point (Old Tower)"..... N 81 19 W ..... 2½ miles.

ROCK POINT.

*Locality.*—South side of entrance to Rock Creek on Rock Point. (See Chart No. 1.)

Observed station is near the extreme end of point about 70 yards southeast from a small tower and 12 yards from the sea wall.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

"Seven Foot Knoll Light" (S 78° 17' E)..... 0 00 00 ..... 3¾ miles.

Bodkin Point (Old Tower)..... 25 43 .. ..... 3¾ miles.

Tower on east corner..... 194 00 .. ..... 70 yards.

Outer "White Rocks"..... 211 07 .. ..... ¾ mile.

Water tower (opposite shore)..... 291 27 .. ..... 2½ miles.

<sup>a</sup>The mean magnetic declination for Anne Arundel County (in 1907) is  $5^{\circ} 45'$  west of north, and it is increasing at the rate of  $3'$  yearly.

## SEVEN FOOT KNOLL, LIGHT.

*Locality.*—Offshore about  $1\frac{1}{2}$  miles north-northeast of Bodkin Point and  $3\frac{1}{4}$  miles southeast by south of North Point. (See Chart No. 1.)

*Marks.*—Observed station is center of lantern on brown screw pile structure known as Seven Foot Knoll Light-house.

*References.*—

“Bodkin Point (Old Tower)”..... S 30 03 W .....  $1\frac{1}{2}$  miles.

## BODKIN POINT (OLD TOWER).

*Locality.*—South side of entrance to Bodkin Creek, on Bodkin Point, about 15 yards east of old stone house. (See Chart No. 1.)

Observed station is on top and at center of old tower formerly used as a light-house.

*Marks.*—Observed station is center point of a drill hole about 2 inches in diameter and 3 inches deep.

*References.*—

“Seven Foot Knoll Light”..... N 30 04 E .....  $1\frac{1}{2}$  miles.

## LOCUST.

*Locality.*—On shore of bay, midway between Bodkin Point Tower and the mouth of Magothy River. Counting down the bay from Bodkin Tower the station is located on the fifth bluff and near the center of it. (See Chart No. 1.)

Observed station is on the top of a bluff 20 feet high. It is 25 feet back from the edge of the bluff and just outside of a large orchard. Cement monument marking reference station is 6.77 meters west of observed station.

*Marks.*—Observed station is a nail in a wooden stub set flush with ground. Reference station is the center point of triangle on standard cement monument.

*References.*—

“Seven Foot Knoll Light” (N 17° 49' E)....	0	00	00	.....	4 miles.
Farm-house (through trees).....	165	56	..	.....	$\frac{1}{4}$ mile.
REFERENCE STATION.....	242	22	20	.....	6.77 meters.
Nail in blaze on tree.....	249	43	..	.....	6.59 meters.
Nail in blaze on tree (6 inches diameter).....	333	12	..	.....	15.57 meters.
Bodkin Point (Old Tower).....	350	43	..	.....	$2\frac{1}{4}$ miles.

## BAY (MAGOTHY RIVER).

*Locality.*—Magothy River, on north shore of Sillery Bay, about  $\frac{1}{2}$  mile west of Long Point and  $1\frac{1}{2}$  miles northeast of Dobbins Island. (See Chart No. 1.)

Observed station is on edge of woods, about 2 feet above and 20 feet back from high-water mark. Cement monument marking reference station is 4.55 meters north of observed station.

*Marks.*—Observed station is a nail in a stub surrounded by a pine box projecting 6 inches above the ground. Reference station is the center point of triangle on standard cement monument.

*References.*—

“Dobbins” (S 29° 01' W).....	0	00	00	.....	$1\frac{1}{4}$ miles.
Right tangent Dobbins Island.....	9	15	..	.....	$1\frac{1}{2}$ miles.
Right tangent small island.....	19	11	..	.....	$1\frac{1}{4}$ miles.
Nail in blaze on tree (12 inches diameter).....	112	15	..	.....	6.98 meters.
REFERENCE STATION.....	149	19	10	.....	4.55 meters.
Nail in blaze on tree (12 inches diameter).....	232	53	..	.....	9.41 meters.
Right tangent Gibson Island.....	326	53	..	.....	$1\frac{1}{2}$ miles.

PHIL.

*Locality.*—North end of Gibson Island on point on south side of entrance to the cove making out from Sillery Bay. This cove nearly separates the island from the mainland. (See Chart No. 1.)

Observed station is on the northwestern side of a low sand spit at about high-water mark. Cement monument marking reference station is 0.95 meters northeast of observed station.

*Marks.*—Observed station is a broad pole signal with bottom of pole set in a wooden box projecting 6 inches above the ground. Reference station is the center point of a triangle on standard cement monument.

<i>References.</i> —	°	'	''	
"Bay" (N 57° 20' W) .....	0	00	00	..... ½ mile.
Small white shanty.....	23	18	..	..... ¼ mile.
Brown dwelling.....	129	28	..	..... ½ mile.
REFERENCE STATION.....	135	51	00	..... 0.95 meter.
White dwelling (left end) .....	192	10	..	..... ¾ mile.

HICKORY.

*Locality.*—Northwest shore of Sillery Bay on Hickory Bar Point, about ¾ mile north by east of Dobbins Island and ¾ mile west by south of entrance to cove separating Gibson Island from mainland. (See Chart No. 1.)

Observed station is 1 foot above and 30 feet back from high-water mark and a short distance from the extreme point. Cement monument marking reference station is 2.38 meters northwest of observed station.

*Marks.*—Observed station is a nail in a stub set in a box projecting 6 inches above the ground. Reference station is the center point of a triangle on standard cement monument.

<i>References.</i> —	°	'	''	
"Dobbins" (S 7° 51' W).....	0	00	00	..... ¾ mile.
Right tangent Dobbins Island.....	20	09	..	..... ¾ mile.
REFERENCE STATION .....	131	24	00	..... 2.38 meters.
Nail in blaze on old tree .....	135	38	..	..... 7.36 meters.
Left tangent point at entrance to cove .....	254	29	..	..... 1 mile.
Lone tree near "Purse," triangulation station. ....	332	33	..	..... 3 miles.

SILLERY.

*Locality.*—West shore of Sillery on the northwest point of Gibson Island about 1 mile northeast of Dobbins Island. (See Chart No. 1.)

Observed station is on top of a bluff 6 feet high and 15 feet back from the edge. It is about 50 feet south of the break of the bluff where a low marsh commences. A small stump stands about 1 foot distant with blaze facing station. Cement monument marking reference station is 5.99 meters southeast of observed station.

*Marks.*—Observed station is a nail in a wooden stub set flush with the ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	''	
"Hickory" (N 70° 41' W).....	0	00	00	..... ½ mile.
Nail in blaze on hickory tree (6 inches diameter).....	129	10	..	..... 9.39 meters.
Nail in blaze on locust tree (4 inches diameter) .	174	45	..	..... 10.12 meters.
REFERENCE STATION .....	197	49	50	..... 5.99 meters.
Unpainted building (seen through trees).....	208	44	..	..... ¼ mile.
Left tangent Dobbins Island .....	303	13	..	..... 1 mile.
Chimney on house (opposite shore) .....	350	47	..	..... 1 mile.

## PEACH HILL.

*Locality.*—Summit of a prominent hill on Gibson Island about  $\frac{1}{4}$  mile back from shore of bay and  $1\frac{1}{4}$  miles north of entrance to Magothy River. (See Chart No. 1.)

Observed station is on the second hill south of the sand beach connecting Gibson Island with the mainland and  $\frac{1}{4}$  mile south of a white dwelling house. Cement monument marking reference station is 10.75 meters southeast of observed station.

*Marks.*—Observed station is the intersection of two cross lines on the top of a granite monument projecting 4 inches above the ground. Reference station is the center point of a triangle on standard cement monument.

*References.*—

	°	'	"	
"Welch" (S 41° 14' W).....	0	00	00	$\frac{3}{4}$ mile.
Chimney of house (near Welch) .....	1	00	..	$\frac{3}{4}$ mile.
Cupola of barn.....	96	51	..	$\frac{1}{4}$ mile.
Right tangent of dwelling .....	134	21	..	$\frac{1}{4}$ mile.
Nail in stump (5 inches diameter).....	177	21	..	4.13 meters.
REFERENCE STATION .....	263	48	10	10.75 meters.

## WELCH.

*Locality.*—Southern end of Gibson Island on top of prominent hill about  $\frac{1}{2}$  mile north by west of Mountain Point and  $1\frac{1}{2}$  miles southeast of Dobbins Island. (See Chart No. 2.)

Observed station is in the side yard of house belonging to James Ellison and is 29.60 meters south of the northeast corner of house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Revell" (S 69° 56' W).....	0	00	00	$1\frac{1}{2}$ miles.
Nail in blaze on stump (15 inches diameter) ..	71	13	..	23.60 meters.
Northeast corner of porch of house .....	116	12	..	29.60 meters.
Nail in blaze on tree (6 inches diameter).....	170	31	..	30.83 meters.
Left tangent of Sandy Point.....	256	00	..	3 miles.

## BLUFF (MAGOTHY RIVER).

*Locality.*—West side of Gibson Island and northwest shore of Magothy River, about 1 mile northwest of Mountain Point. It is near the center of the third prominent bluff from Mountain Point. (See Chart No. 2.)

Observed station is on the top of a bluff 20 feet high. It is in a thick woods about 15 feet from the edge of the bluff. Cement monument marking reference station is 5 meters northeast by east of observed station.

*Marks.*—Observed station is a nail in a wooden stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Revell" (S 49° 48' W).....	0	00	00	$1\frac{1}{2}$ miles.
Left tangent Dobbins Island .....	55	06	..	1 mile.
Chimney of white house on Dobbins Island ...	61	18	..	1 mile.
Right tangent Dobbins Island .....	64	30	..	1 mile.
Nail in blaze on tree (15 inches diameter).....	131	59	..	7.94 meters.
REFERENCE STATION .....	189	43	20	5 meters.
Nail in blaze on tree (12 inches diameter).....	216	58	..	6.35 meters.
Lone tree (near "Purse" triangulation station). 302	50	..	..	2 miles.

## DOBBINS.

*Locality.*—North side of Magothy River on extreme east end of Dobbins Island. (See Chart No. 2.)

Observed station is on top of a bluff 25 feet high and about 30 feet back from the edge. Cement monument marking reference station is 3.37 meters west of station.

*Marks.*—Observed station is a nail in a stub projecting 3 inches above-ground. Reference station is center point of a triangle on standard cement monument.

*References.*—

	o	/	''	
"Bay" (N 29° 01' E).....	0	00	00	1½ miles.
Yellow house.....	46	31		1 mile.
Sandy Point Light.....	108	22		6 miles.
Lone tree near "Purse" triangulation station.....	123	00		2¼ miles.
Chimney of house on island.....	201	51		150 yards.
REFERENCE STATION.....	220	24	50	3.37 meters.
Tangent to Hickory Bar Point.....	338	52		¾ mile.

## IRON.

*Locality.*—North shore Magothy River on extreme southeast end of Park Point and between entrances to Park and Broad creeks. (See Chart No. 2.)

Observed station is on the top of a bluff about 15 feet high and is 15 feet back from the edge. Cement monument marking reference station is 5.01 meters northwest by west of station.

*Marks.*—Observed station is a nail in a wooden stub projecting 3 inches above the ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	/	''	
"Huddle" (S 18° 13' W).....	0	00	00	1 mile.
Nail in blaze on tree (12 inches diameter)....	95	47		8.96 meters.
REFERENCE STATION.....	122	18	20	5.01 meters.
Nail in blaze on tree.....	128	19		10.46 meters.
Nail in blaze on forked tree.....	190	57		4.37 meters.
House on Dobbins Island.....	258	11		¾ mile.
Lone tree near "Purse" triangulation station .	298	13		3 miles.

## HAM.

*Locality.*—North shore of upper end of Magothy River opposite Ferry Point on first point west of mouth of Blackhole Creek. (See Chart No. 2.)

Observed station is on a low flat sandy point making out from a bluff 15 feet high. It is 3 feet above and 10 feet back from high-water mark. Cement monument marking reference station is 7.34 meters north of observed station.

*Marks.*—Observed station is a nail in a wooden stub projecting 3 inches above the ground. Reference station is the center point of triangle on standard cement monument.

*References.*—

	o	/	''	
"Ferry" (S 14° 17' E).....	0	00	00	½ mile.
REFERENCE STATION.....	201	20	00	7.34 meters.
Nail in blaze on tree (12 inches diameter)....	260	55		7.54 meters.
House on Dobbins Island.....	283	58		2¼ miles.
Old Station.....	317	03		6.04 meters.

## BANK.

*Locality.*—North shore of upper end of Magothy River about ¾ mile northwest from mouth of Blackhole Creek and nearly abreast of Cypress Creek. (See Chart No. 2.)

Observed station is at the base of a bluff about 20 feet high. It is 2 feet above and 2 feet back from high-water mark. Several large brown boulders are scattered in front of the station. Cement monument marking reference station is 11.86 meters northeast by north of the observed station on the top of bluff. It can not be seen from the observed station.

## Survey of Oyster Bars, Anne Arundel County, Md.

*Marks.*—Observed station is a pole signal with the lower end of the pole sunk in a box projecting 1 foot above the ground. Reference station is the center point of a triangle on standard cement monument.

*References.*—

"Horn" .....	0	1			
REFERENCE STATION.....	(S 65° 33' W)			½ mile.	
	S by W			11.86 meters.	

## HORN (MAGOTHY RIVER).

*Locality.*—South shore of upper end of Magothy River about ½ mile southeast from mouth of Cattail Creek and ½ mile north of Cypress Creek. (See Chart No. 2.)

Observed station is on a point about 2 feet above and 10 feet back from high-water mark. Slope of bank begins at station and rises to an elevation of 20 feet and is covered with woods. A pile of stone surrounds station. Cement monument marking reference station is 4.51 meters south by east of station.

*Marks.*—Observed station is a nail in a wooden stub 3 inches below the surface of the ground. Reference station is the center point of triangle on standard cement monument.

*References.*—

"Huddle" (S 63° 06' E) .....	0	00	00	.....	2¼ miles.
White house near mouth of Dividing Creek ...	38	08			¾ mile.
REFERENCE STATION.....	42	02	40	.....	4.51 meters.
Nail in blaze on tree (4 inches diameter).....	49	13			7.82 meters.
Nail in blaze on forked tree.....	78	22			5.21 meters.
Chimney of white house across river.....	254	59			½ mile.

## TAIL.

*Locality.*—South shore of upper end of Magothy River on Stony Point at eastern side of entrance to Dividing Creek. (See Chart No. 2.)

Observed station is on the upper edge of a bluff 15 feet high. Cement monument marking reference station is 6.94 meters south-southeast of station.

*Marks.*—Observed station is a pole signal with base stuck in a vertical box. Reference station is center point of triangle on standard cement monument.

*References.*—

"Horn" (N 24° 24' W) .....	0	00	00	.....	¾ mile.
White house .....	17	24			1¼ miles.
Nail in blaze on tree (8 inches diameter).....	129	18			11.22 meters.
REFERENCE STATION.....	171	13	00	.....	6.94 meters.
Nail in blaze on tree (6 inches diameter).....	192	47			3.14 meters.
Small hill on point on mouth of Dividing Creek .....	242	50			¼ mile.
Chimney on house on west shore of Dividing Creek .....	267	08			¾ mile.

## FERRY.

*Locality.*—South shore of Magothy River on Ferry Point about ½ mile east of mouth of Dividing Creek. (See Chart No. 2.)

Observed station is 15 feet from and 3 feet above high-water mark. There are five cedar trees in close proximity to the station. Cement monument marking reference station is 5.08 meters southwest by south from observed station.

*Marks.*—Observed station is a nail in cement in a tile pipe buried 1 foot below the surface. Reference station is center point of triangle on standard cement monument.

*References.*—

"Huddle" (S 72° 50' E) .....	0	00	00	.....	1¼ miles.
Nail in blaze on forked tree (4 inches diameter) 28	34				9.74 meters.
Nail in blaze on tree (6 inches diameter).....	57	46			22.70 meters.

	°	'	"	
REFERENCE STATION .....	97	05	10	5.08 meters.
Top of white house .....	114	22		½ mile.
Nail in blaze on tree (8 inches diameter) .....				6.43 meters.
House on Dobbins Island .....	332	30		2¼ miles.
House on hill back of Mountain Point .....	347	04		3½ miles.

HUDDLE.

*Locality.*—South shore of Magothy River on Huddles Point about ¼ mile northeast of inner entrance to Forked Creek. (See Chart No. 2.)

Observed station is about 10 feet from the edge of a sandy bank 8 feet high. Cement monument marking reference station is 4.99 meters south-southwest from observed station.

*Marks.*—Observed station is a nail set in cement in a tile pipe projecting 1 inch above the sand. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Iron" (N 19° 13' E) .....	0	00	00	1 mile.
House on Dobbins Island .....	37	52		1¼ miles.
House on hill back of Mountain Point .....	69	48		2½ miles.
Nail in blaze on tree (3 inches diameter) .....	176	38		15.86 meters.
REFERENCE STATION .....	186	32	50	4.99 meters.
Nail in blaze on tree (14 inches diameter) .....	255	33		5.86 meters.

REVELL.

*Locality.*—South shore of Magothy River, about 1¼ miles west-northwest of Persimmon Point and 1¼ miles south of east end of Dobbins Island. (See Chart No. 2.)

Observed station is on a bluff 6 feet high and 22 feet from the edge. It is in a large cleared space about 100 yards west of woods. Cement monument marking reference station is 5.54 meters south southwest of observed station.

*Marks.*—Observed station is a nail in a wooden stub projecting 4 inches above the ground. Reference station is the center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Huddle" (N 67° 20' W) .....	0	00	00	1¼ miles.
House on Dobbins Island .....	71	18		1¼ miles.
House on hill back of Mountain Point .....	136	35		1½ miles.
Right tangent Mountain Point .....	161	18		1½ miles.
REFERENCE STATION .....	261	20	00	5.54 meters.

PURSE.

*Locality.*—South of entrance to Magothy River on a prominent hill about ¼ mile south south-east of Persimmon Point. (See Chart No. 2.)

Observed station is on the nearer of two summits, the other one being occupied by a lone cedar tree. The observed station is almost on line between this cedar tree and Mountain Point. Cement monument marking reference station is 8.93 meters south of observed station.

*Marks.*—Observed station is a nail in a wooden stub projecting 4 inches above the ground. Reference station is the center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Bluff" (N 9° 10' W) .....	0	00	00	1¾ miles.
Tangent to shore toward Sandy Point .....	31	26		¾ mile.
Right tangent to Gibson Island .....	34	36		2 miles
Left chimney of farmhouse with red roof .....	133	52		½ mile.
REFERENCE STATION .....	185	05	50	8.93 meter
Lone cedar tree .....		SSW		185 paces
Left of two prominent trees .....	288	27		¼ mile
Right of two prominent trees .....	295	07		¼ mile.

## MAGOTHY.

*Locality.*—West shore of bay, about halfway between Persimmon Point and Sandy Point. It is about 2 miles northwest of Sandy Point Light and about 2 miles south-southeast of Mountain Point. (See Chart No. 2.)

Observed station is about 20 feet back from the edge of a bluff 20 feet high. It is just outside an orchard about midway between a group of farm buildings and a grove of trees to the westward. Cement monument marking reference station is 11.63 meters west of observed station.

*Marks.*—Observed station is a nail in a wooden stub projecting 3 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Welch" (N 32° 08' W) .....	0	00	00	2½ miles.
Right tangent Gibson Island .....	21	02	..	3 miles.
West peak of farmhouse .....	184	49	..	¼ mile.
Nail in blaze on tree .....	158	52	..	62.3 meters.
REFERENCE STATION .....	287	44	10	11.63 meters.
Nail in blaze on tree .....	356	14	..	32.92 meters.

## CORN.

*Locality.*—West shore of bay, about 1 mile northwest of Sandy Point Light. (See Chart No. 2.)

Observed station is in a cultivated field about 18 feet back from edge of a bluff 15 feet high. Cement monument marking reference station is 9.42 meters west of observed station.

*Marks.*—Observed station is a nail in a stub set flush with ground. Reference station is center point of triangle of standard cement monument.

*References.*—

	°	'	''	
"Peach Hill" (N 20° 48' W) .....	0	00	00	4 miles.
Baltimore Light .....	19	47	..	2¼ miles.
Extreme north tangent of Kent Island .....	98	47	..	5 miles.
Sandy Point Light .....	149	34	..	1 mile.
Lone oak tree (2 inches diameter) .....	229	14	..	¼ mile.
East peak of red roof of barn or house .....	243	08	..	¾ mile.
REFERENCE STATION .....	258	51	30	9.425 meters.

## SANDY POINT LIGHT.

*Locality.*—East of Sandy Point about ½ mile offshore. (See Chart No. 2.)

*Marks.*—Center point of black lantern on brown caisson structure known as Sandy Point Light-house.

*References.*—

"Bay Side" .....	S 64	14 W	.....	½ mile.
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## RING.

*Locality.*—Shore of bay on west side of Kent Island about 2 miles south-southwest of Love Point and 3 miles east of Sandy Point Light. (See Progress map.)

Observed station is about 20 feet above and 35 feet back from high-water mark. It is in a cultivated field on top of bank and about 6 feet back from edge. Cement monument marking reference station is 9.36 meters east of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe with its top 3 inches below the surface. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Sandy Point Light" (N 84° 56' W) .....	0	00	00	3 miles.
Cupola on barn .....	117	51	..	1 mile.
South chimney on white house .....	141	00	..	¼ mile.
REFERENCE STATION .....	164	17	10	9.36 meters.
Lone tree (2 inches diameter) .....	224	10	..	300 yards.
South chimney on white house .....	238	56	..	300 yards.



## BAY SIDE.

*Locality.*—West shore of bay on Sandy Point about  $\frac{1}{2}$  mile west-southwest of Sandy Point Light and about  $\frac{1}{4}$  mile southeast of Bay Side Farm dwellings. (See Chart No. 2.)

Observed station is on low sandy point about 2 feet above and 75 yards back from high-water mark and 14 paces east of road to Bay Side house. A number of small locust trees stand in the immediate vicinity.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sandy Point Light" (N 64° 13' E) .....	0	00	00	$\frac{1}{2}$ mile.
Nail in locust tree (8 inches diameter) .....	128	45	..	19.69 meters.
Nail in locust tree (6 inches diameter) .....	173	46	..	17.02 meters.
West chimney of Bay Side Farm house .....	245	56	..	350 yards.
West cupola on Bay Side barn .....	249	45	..	400 yards.
West peak of small house (red roof) .....	275	40	..	300 yards.

## CLUMP.

*Locality.*—West shore of bay about one-third way from Hackett Point to Sandy Point on the narrow neck of land east of Goose Pond. (See Chart No. 2.)

Observed station is 3 feet above and 15 feet back from high-water mark. A group of pine trees stand west of station. Cement monument marking reference station is 6.24 meters west of observed station.

*Marks.*—Observed station is a nail in a stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sandy Point Light" (N 47° 47' E) .....	0	00	00	2 miles.
West chimney of white house on Kent Island abreast of station .....	62	12	..	4 miles.
Nail in blaze on pine tree (10 inches diameter) ..	185	58	..	8.00 meters.
St. Anne's Church spire in Annapolis .....	202	44	..	4 miles.
Statehouse Dome .....	206	35	..	4 miles.
REFERENCE STATION .....	218	01	40	6.42 meters.
Nail in blaze on pine tree (10 inches diameter) ..	247	17	..	8.68 meters.
West chimney of white house .....	313	09	..	1 mile.

## WASH.

*Locality.*—East shore of bay, on west side of Kent Island, about  $\frac{1}{2}$  mile south of entrance to Broad Creek. (See Progress map.)

Observed station is in a cultivated field about 30 feet back from edge of bluff 15 feet high and about 15 feet south of a small gully making in from bay. Cement monument marking reference station is 12.90 meters east of observed station.

*Marks.*—Observed station is a nail in a stub flush with ground. Reference station is center of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sandy Point Light" (N 36° 19' W) .....	0	00	00	$3\frac{1}{2}$ miles.
West chimney of house .....	116	24	..	$\frac{1}{2}$ mile.
East chimney of white house .....	149	38	..	400 yards.
REFERENCE STATION .....	156	11	10	12.90 meters.
Cupola on barn .....	164	09	..	400 yards.
Lone tree ( $2\frac{1}{2}$ feet diameter) .....	195	32	..	150 yards.
Tree (15 inches diameter) .....	208	34	..	175 yards.
East chimney on white house .....	234	38	..	$\frac{1}{2}$ mile.
Thomas Point Light .....	260	32	..	7 miles.

## HACKETT.

*Locality.*—North side of Annapolis Roads, on the east side of Hackett Point, about 2 miles northeast of Greenbury Light and 3 miles southwest of Sandy Point Light. (See Chart No. 2.)

Observed station is in a cultivated field about 21 feet back from edge of a bluff 15 feet high. It is about 90 feet north of the extreme southeast end of point. A number of large sandstone boulders are at the foot of the bluff near the station and a group of several stumps stand on edge of bank opposite station. Cement monument marking reference station is 8.68 meters northwest of observed station.

*Marks.*—Observed station is a nail in a pine stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Greenbury Light" (S 52° 55' W).....	0	00	00	2 miles.
St. Anne's Church spire .....	24	12	..	3¼ miles.
Statehouse Dome.....	28	34	..	3¼ miles.
Chapel Dome (Naval Academy).....	31	08	..	3 miles.
REFERENCE STATION.....	57	05	00	8.68 meters.
North chimney of red roof house.....	120	15	..	¼ mile.
Sandy Point Light.....	172	37	..	3 miles.

## SPIT.

*Locality.*—East shore of Whitehall Bay on west side Hackett Point about ½ mile south of Whitehall wharf and 2 miles northeast of Greenbury Point. (See Chart No. 2.)

Observed station is on low sand point about 4 feet above and 50 yards back from end of point at high water mark and is on round sand knoll about 2 feet high.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Greenbury Light" (S 43° 50' W).....	0	00	00	2 miles.
North chimney of house on opposite shore.....	23	17	..	½ mile.
North chimney of Whitehall house.....	131	25	..	½ mile.
North chimney of white house.....	139	28	..	½ mile.
Peak of small house on Whitehall wharf.....	155	37	..	½ mile.
Northwest corner of small shanty.....	186	40	..	100 yards.
Nail in locust tree (4 inches diameter).....	231	30	..	35 yards.
Chimney on small house.....	250	15	..	150 yards.

## CHASE (WHITEHALL BAY).

*Locality.*—West shore of Whitehall Bay on point between Mill and Whitehall creeks about ¾ mile northwest of Hackett Point and ½ mile west by south of Whitehall wharf. (See Chart No. 2.)

Observed station is in young peach orchard about 30 feet back from edge of a bank 18 feet high. Cement monument marking reference station is 8.87 meters northeast of observed station.

*Marks.*—Observed station is a nail in stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Greenbury Light" (S 26° 22' W).....	0	00	00	2 miles.
Lone tree (2 feet diameter).....	150	49	..	300 yards.
REFERENCE STATION.....	191	27	00	8.87 meters.
Center of Whitehall wharf house.....	230	49	..	¾ mile.
West chimney on red roof house (opposite shore).....	265	50	..	¾ mile.
West edge of small shanty on beach (opposite shore).....	278	18	..	½ mile.

GREENBURY.

*Locality.*—North side of entrance to Severn River, on Greenbury Point, about  $\frac{1}{4}$  mile north of Greenbury Light-house. (See Chart No. 2.)

Observed station is 60 feet back from end of point and 15 feet above high-water mark.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

"Greenbury Light" (S $7^{\circ} 20'$ E).....	0	00	00	.....	250 yards.
Nail in dead cherry tree (12 inches diameter) ..	6	37	..	.....	11.55 meters.
Statehouse Dome.....	107	03	..	.....	1 $\frac{1}{2}$ miles.
Chapel Dome (Naval Academy).....	114	37	..	.....	1 $\frac{1}{2}$ miles.
Center of water tower opposite Naval Academy.	144	32	..	.....	1 $\frac{1}{4}$ miles.

GREENBURY POINT LIGHT.

*Locality.*—North side of entrance to Annapolis Harbor, about 250 yards off shore south of Greenbury Point. (See Chart No. 2.)

*Marks.*—Center of black lantern on screw pile structure known as Greenbury Point Light-house.

*References.*—

"Greenbury" .....	N	7	20	W	.....	250 yards.
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FORT.

*Locality.*—Northeast side of entrance to Severn River, about 1 mile northwest of Greenbury Point and 1 mile northeast of Naval Academy sea wall. (See Chart No. 2.)

Observed station is 6 feet back from top of bank protected by a masonry wall that has fallen down in places, 10 feet above high-water mark, and 2 feet north of a brick gutter on top of bank. Cement monument marking reference station is 9.12 meters north of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe, with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

"Horn" (S $38^{\circ} 20'$ W).....	0	00	00	.....	$\frac{3}{4}$ mile.
Saint Anne's Church spire .....	30	11	..	.....	1 $\frac{1}{4}$ miles.
Statehouse Dome.....	41	23	..	.....	1 $\frac{1}{4}$ miles.
Chapel Dome (Naval Academy) .....	48	06	..	.....	1 mile.
South chimney of yellow house (red roof) ....	88	37	..	.....	80 yards.
REFERENCE STATION.....	150	00	40	.....	9.12 meters.
Greenbury Light.....	296	12	..	.....	1 $\frac{1}{4}$ mile.

BLUFF (SEVERN RIVER).

*Locality.*—East side of Severn River, on high bluff, opposite Santee Wharf of Naval Academy. (See Chart No. 2.)

Observed station is 6 feet back from edge of bank 25 feet high. Cement monument marking reference station is 11.84 meters northeast of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe, with top 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

"Hospital" (N $80^{\circ} 00'$ W) .....	0	00	00	.....	$\frac{3}{4}$ mile.
West chimney of yellow house .....	51	13	..	.....	$\frac{1}{4}$ mile.
Nail in blaze on locust tree (18 inches diameter).....	106	09	..	.....	25.93 meters.
REFERENCE STATION.....	126	56	20	.....	11.84 meters.
Nail in blaze on locust tree (8 inches diameter). ..	163	46	..	.....	26.27 meters.
Statehouse Dome.....	318	54	..	.....	$\frac{3}{4}$ mile.
Chapel Dome (Naval Academy).....	322	01	..	.....	$\frac{3}{4}$ mile.
Saint John's College.....	329	25	..	.....	$\frac{3}{4}$ mile.

## BRICE.

*Locality.*—Northeast shore of Severn River on Brice Point near northeast end of County Bridge. (See Chart No. 2.)

Observed station is 15.40 meters northeast of end of rail of County Bridge about 9 yards north of center of County road and 25 yards west of small pond. It is 3 feet above and 75 feet back from high-water mark.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Bluff" (S 46° 01' E).....	0	00	00	¾ mile.
Chapel Dome (Naval Academy).....	50	23	..	½ mile.
Statehouse Dome.....	61	51	..	¾ mile.
Lowest bolt head in end post of ground rail on County Bridge.....	65	24	..	15.40 meters.
Chimney on bridge-tender's house.....	101	18	..	¼ mile.
South chimney of yellow house.....	157	50	..	¾ mile.
Chimney on slate-covered house.....	190	18	..	½ mile.
North chimney of yellow house.....	199	26	..	½ mile.
Nail in blaze on locust tree (4 inches diameter)	208	15	..	10.89 meters.
West chimney of house.....	267	17	..	¼ mile.
Nail in blaze on locust stump (4 inches diam- eter).....	339	23	..	4.29 meters.

## KNOB.

*Locality.*—North shore of Severn River about 150 yards northwest by north of north end Maryland Electric Railway Bridge. (See Chart No. 2.)

Observed station is on round knob-hill about 15 feet above and 30 feet back from high-water mark. Cement monument marking reference station is 11.28 meters northeast of observed station.

*Marks.*—Observed station is a nail in pine stub projecting 4 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Weems" (N 88° 48' W).....	0	00	00	¾ mile.
South peak of yellow house.....	27	08	..	2 miles.
North chimney of yellow house.....	110	41	..	250 yards.
REFERENCE STATION.....	124	49	40	11.28 meters.
Chimney on small shanty on railroad bridge..	203	44	..	150 yards.
Chapel Dome (Naval Academy).....	254	25	..	1½ miles.
Hospital (covered chimney or cupola).....	261	25	..	1¼ miles.
Statehouse Dome.....	263	14	..	1¾ miles.

## SPRING.

*Locality.*—Northeast shore of Severn River about ¾ mile above the Maryland Electric Railway Bridge and on first point southeast of mouth of Cool Creek. (See Chart No. 2.)

Observed station is on low sand point about 2 feet above and 45 feet back from high-water mark. It is about 15 yards west of small pond and 100 yards west of a bluff 25 feet high.

*Marks.*—Observed station is center point of triangle on standard cement monument. (NOTE.—This monument replaces a 4-inch tile pipe marking old station.)

*References.*—

	°	'	"	
"Field" (S 29° 24' E).....	0	00	00	1 mile.
Chapel Dome (Naval Academy).....	4	07	..	2 miles.
North chimney on red house (opposite shore)..	74	43	..	¼ mile.
Chimney on white house (opposite shore).....	90	06	..	¼ mile.
North chimney of yellow house.....	207	25	..	200 yards.
Oak stump (5 inches diameter).....	228	39	..	2.35 meters.
Nail in blaze on locust tree (8 inches diameter)	291	03	..	7.25 meters.
Water tower (opposite Naval Academy).....	340	07	..	2 miles.

COOL.

*Locality.*—Northeast shore of Severn River on point between Chase and Cool Spring creeks and about 1¼ miles above the Maryland Electric Railway Bridge. (See Chart No. 2.)

Observed station is on low point of land about 2 feet above and 20 feet back from high-water mark and is 7 feet south of small drain ditch 2 feet wide. Cement monument marking reference station is 7.25 meters north-northeast of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	/	''	
"Weems" (S 26° 14' E) .....	o	oo	oo	¾ mile.
Chimney on white house (opposite shore)....	13	23	..	½ mile.
Chimney on small white shanty (opposite shore).....	53	39	..	½ mile.
Chimney on yellow house (opposite shore)....	139	15	..	1 mile.
West chimney of house.....	180	42	..	½ mile.
Nail in blaze on persimmon tree (4 inches diameter) .....	184	21	..	16.50 meters.
REFERENCE STATION .....	221	29	10	7.25 meters.
Nail in blaze on oak tree (12 inches diameter) .	311	04	..	14.82 meters.
Water tower (opposite Naval Academy) .....	336	13	..	2½ miles.

CHASE (SEVERN RIVER).

*Locality.*—Northeast shore of Severn River on point on northwest side of entrance to Chase Creek. (See Chart No. 2.)

Observed station is on low marshy point about 2 feet above and 18 feet back from high-water mark and 25 yards southwest of foot of a bluff 50 feet high. Cement monument marking reference station is 7.05 meters north of observed station.

*Marks.*—Observed station is center of 4-inch tile-drain flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	/	''	
"Cool" (S 47° 38' E).....	o	oo	oo	½ mile.
Chimney on yellow house (opposite shore)....	30	44	..	½ mile.
Chimney on small shanty (opposite shore)....	38	01	..	½ mile.
Middle window of yellow house (abreast of station).....	77	02	..	¼ mile.
North chimney of red roof house (opposite shore)	102	04	..	¼ mile.
Chimney on yellow house (opposite shore)....	146	26	..	½ mile.
REFERENCE STATION .....	241	31	30	7.05 meters.
North chimney of white house .....	306	34	..	1 mile.

POINT.

*Locality.*—Northeast shore of Severn River about ½ mile east-southeast of Brewer Point and on second point northwest of mouth of Chase Creek. (See Chart No. 2.)

Observed station is back of a long, low marsh point and about 25 feet up side of slope. Two lone cedar trees stand on prominent hill about 150 yards to the northeast of station. Several old apple trees stand in the immediate vicinity of station.

*Marks.*—Observed station is center point of triangle on standard cement monument. (NOTE.—This monument replaces a 4-inch drain tile marking old station.)

*References.*—

	o	/	''	
"Salt" (S 1° 44' W).....	o	oo	oo	¾ mile.
Chimney on yellow house (opposite shore)....	43	24	..	½ mile.
Southwest corner of house .....	139	43	..	¾ mile.
Nail in apple tree (12 inches diameter) .....	233	34	..	12.55 meters.
Windmill.....	255	15	..	250 yards.
Nail in apple tree (15 inches diameter) .....	280	38	..	5.70 meters.

## BIGHT.

*Locality.*—Northeast shore of Severn River about  $\frac{1}{2}$  mile northeast of Brewer Point and  $\frac{1}{2}$  mile southeast of Arnold Point. (See Chart No. 2.)

Observed station is on low, narrow neck of land and about 2 feet above and 15 feet back from high-water mark. It is 15 feet south of foot of slope to a yellow sand bluff 60 feet high. A group of holly trees stand about 10 feet east of station. Cement monument marking reference station is 11.64 meters northeast of observed station.

*Marks.*—Observed station is a nail in a stub set in center of a 4-inch tile pipe. Reference station is center point of triangle on standard cement monument.

*References.*

	°	'	"	
"Clem" (S 7° 45' W) .....	0	00	00	$\frac{3}{4}$ mile.
South chimney of yellow house (opposite shore) .....	36	56	..	$\frac{1}{2}$ mile.
Northwest corner of unpainted house (opposite shore) .....	144	17	..	$\frac{1}{4}$ mile.
Nail in blaze on leaning pine tree (12 inches diameter) .....	175	29	..	3.72 meters.
REFERENCE STATION .....	201	34	20	11.64 meters.
Nail in blaze on holly tree (4 inches diameter) .....	251	05	..	3.79 meters.
East cedar tree of two standing close together (first hill south) .....	353	09	..	$\frac{1}{2}$ mile.

## ARNOLD.

*Locality.*—Northeast shore of Severn River on Arnold Point on northwest side of entrance to Aisquith Creek and about  $\frac{1}{2}$  mile north of Brewer Point. (See Chart No. 2.)

Observed station is at foot of slope meeting a long, narrow, low neck of land extending about 200 yards southeast of station. It is 3 feet above and 12 feet back from high-water mark. A small holly tree stands about 15 feet east of station. Cement monument marking reference station is 3.75 meters north of observed station.

*Marks.*—Observed station is a nail in stub set in a tile pipe with top 3 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*

	°	'	"	
"Brewer" (S 6° 28' E) .....	0	00	00	$\frac{1}{2}$ mile.
Center of cottage on Long Point .....	123	08	..	$1\frac{1}{2}$ miles.
Nail in blaze on cedar tree (10 inches diameter) .....	138	57	..	5.96 meters.
REFERENCE STATION .....	167	16	40	3.75 meters.
Northwest corner of small house up Aisquith Creek .....	255	30	..	$\frac{1}{2}$ mile.
Nail in blaze on locust tree (4 inches diameter) .....	293	33	..	8.31 meters.
Chimney on yellow house (opposite shore) .....	358	09	..	1 mile.

## SWAN.

*Locality.*—Northeast shore of Round Bay in Severn River on north side of entrance to Ringold Cove about  $1\frac{1}{4}$  miles northeast by east of Long Point. (See Chart No. 2.)

Observed station is about 100 yards north of entrance to Ringold Cove; about 2 feet above and 15 feet back from high-water mark and 25 feet west of a bluff 25 feet high. Cement monument marking reference station is 7.78 meters east of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe with top 1 foot below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*

	°	'	"	
"Long" (S 73° 38' W) .....	0	00	00	$1\frac{1}{4}$ miles.
Peak of yellow house (opposite shore) .....	17	04	..	$1\frac{1}{2}$ miles.
West chimney of white house .....	62	54	..	$1\frac{1}{2}$ miles.
North tangent of brown wharf house .....	81	53	..	$\frac{3}{4}$ mile.
Nail in pine tree (15 inches diameter) .....	125	42	..	12.76 meters.
REFERENCE STATION .....	165	39	30	7.78 meters.
Nail in red oak tree (2 feet diameter) .....	178	03	..	12.50 meters.

## HIGH.

*Locality.*—Northeast shore of Round Bay in Severn River on Eaglenest Point and on ground occupied by the Round Bay Resort. (See Chart No. 2.)

Observed station is 15 feet back from the edge of a bank 20 feet high and 25 paces southwest of the southwest corner of the dancing pavilion. Cement monument marking reference station is 8.66 meters northeast of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe with top 1 foot below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Swan" (S 33° 19' E) .....	0	00	00	¾ mile.
Chimney on house (opposite shore) .....	48	35	..	1½ miles.
Chimney on cottage on Long Point .....	65	31	..	1 mile.
Green water tower .....	154	44	..	¾ mile.
Nail in blaze on pine tree (8 inches diameter) .....	193	07	..	7.98 meters.
Southwest corner dancing pavilion .....	221	57	..	25 yards.
REFERENCE STATION .....	235	07	20	8.66 meters.
Nail in blaze on pine tree (7 inches diameter) .....	254	07	..	7.58 meters.

## CEDAR (SEVERN RIVER).

*Locality.*—Upper end of Round Bay in Severn River on Cedar Point. It is on the southeast side of entrance to Yantz Creek. (See Chart No. 2.)

Observed station is 2 feet above and 50 feet back from high-water mark at the extreme west end of Cedar Point. Several cedar trees stand just east of station. Cement monument marking reference station is 7.92 meters east of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe with top 1 foot below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"High" (S 76° 39' E) .....	0	00	00	1 mile.
Chimney on red roof of cottage .....	2	29	..	1¼ miles.
Chapel Dome (Naval Academy) .....	39	31	..	7 miles.
Chimney on old house .....	210	57	..	1 mile.
Chimney on yellow house .....	230	58	..	½ mile.
Nail in blaze on locust tree (3 inches diameter) .....	288	17	..	10.56 meters.
REFERENCE STATION .....	302	20	10	7.92 meters.
Green water tower .....	339	33	..	½ mile.

## SHARP.

*Locality.*—Southwest shore of Round Bay in Severn River about ½ mile northwest of Long Point and ½ mile southeast of Cedar Point. (See Chart No. 2.)

Observed station is on the first low point above Long Point, and is 2 feet above and 25 feet back from high-water mark. A wooded bluff is 100 feet west of station. Cement monument marking reference station is 5.31 meters southwest of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe with top 1 foot below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"High" (N 63° 51' E) .....	0	00	00	1 mile.
Cupola on brown wharf (opposite shore) .....	6	27	..	1 mile.
Chimney on red-roof cottage (opposite shore) .....	14	32	..	1 mile.
Nail in blaze on locust tree (3 inches diameter) .....	132	46	..	8.03 meters.
REFERENCE STATION .....	158	10	30	5.31 meters.
Chimney on yellow house .....	272	31	..	1½ miles.
Green water tower (opposite shore) .....	317	24	..	1 mile.

## LONG.

*Locality.*—North side of entrance to Little Round Bay in Severn River on Long Point, about  $\frac{1}{2}$  mile northeast of St. Helena Island. (See Chart No. 2.)

Observed station is on a low marsh point about 2 feet above and 12 feet back of high-water mark. A small cottage stands about 30 yards north of station. Cement monument marking reference station is 5.05 meters northwest of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe with top 1 foot below surface of ground. Reference station is center point of triangle of standard cement monument.

<i>References.</i> —	°	'	"	
"Bay" (S 18° 26' E) .....	0	00	00	$\frac{3}{4}$ mile.
West chimney on house (opposite shore).....	14	59	..	$\frac{3}{4}$ mile.
Nail in blaze on white oak tree (4 inches diameter).....	93	11	..	10.19 meters.
REFERENCE STATION.....	136	58	20	5.05 meters.
Peak of cottage .....	153	36	..	30 yards.
Nail in blaze on pine tree (8 inches diameter).....	170	52	..	10.97 meters.
Cupola on brown wharf (opposite shore).....	237	32	..	1 mile.
Chimney on red-roof cottage.....	247	09	..	1 mile.

## ISLAND.

*Locality.*—Little Round Bay in Severn River on the southeast point of St. Helena Island. (See Chart No. 2.)

Observed station is on a low marsh point about 2 feet above and 15 feet back from high-water mark and 25 feet south of foot of round hill 15 feet high. Cement monument marking reference station is 7.74 meters northwest of station.

*Marks.*—Observed station is center of a 4-inch tile pipe with top 1 foot below surface of ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Bay" (S 53° 19' E) .....	0	00	00	$\frac{3}{4}$ mile.
South chimney on house.....	95	35	..	1 $\frac{1}{2}$ miles.
REFERENCE STATION .....	198	47	40	7.74 meters.
Nail in blaze on twin tree (6 inches diameter).....	202	04	..	9.01 meters.
Nail in blaze on twin black haw tree (6 inches diameter).....	244	50	..	5.42 meters.
Chimney on red-roof cottage (opposite shore).....	280	29	..	1 $\frac{1}{2}$ miles.
North peak of white barn (opposite shore).....	294	38	..	1 $\frac{1}{2}$ miles.
Chimney on north end small house (opposite shore).....	306	12	..	2 miles.

## BAY (SEVERN RIVER).

*Locality.*—Southwest shore of Severn River on south side of entrance to Round Bay, about  $\frac{3}{4}$  mile southeast of St. Helena Island and  $\frac{3}{4}$  mile south by east of Long Point. (See Chart No. 2.)

Observed station is at high-water mark at foot of a bluff 25 feet high. Cement monument marking reference station is on slope 7.31 meters southwest of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe projecting 10 inches above the surface of ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Arnold" (N 80° 10' E).....	0	00	00	1 mile.
North chimney of white house (opposite shore).....	6	01	..	1 $\frac{1}{2}$ miles.
Nail in blaze on white oak tree (2 feet diameter).....	64	12	..	16.50 meters.
REFERENCE STATION .....	116	57	20	7.31 meters.
Nail in blaze on oak stump (8 inches diameter).....	156	39	..	3.73 meters.
Nail in blaze on chestnut oak (15 inches diameter).....	198	07	..	12.97 meters.
Southeast corner of cottage on Long Point.....	260	28	..	$\frac{3}{4}$ mile.



## BREWER (SEVERN RIVER).

*Locality.*—Southwest shore of Severn River on Brewer Point and north of mouth of Brewer Creek. (See Chart No. 2.)

Observed station is on a low sand point about 2 feet above and 10 feet back from high-water mark and about 30 yards northwest of extreme end of point. A small lone holly tree stands southwest of station and a bluff 30 feet high is 25 feet southwest. Cement monument marking reference station is 8.10 meters south of observed station.

*Marks.*—Observed station is a 4-inch tile pipe with top 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Point" (S 68° 37' E) .....	0	00	00	½ mile.
North chimney of white house (opposite shore) .....	4	32	..	1 mile.
Chimney in center of yellow house .....	30	41	..	1½ miles.
REFERENCE STATION .....	63	56	20	8.10 meters.
Nail in blaze on holly tree (5 inches diameter) .....	103	10	..	3.64 meters.
Nail in blaze on cedar tree (12 inches diameter) .....	165	11	..	35 yards.
North chimney of yellow house (opposite shore) .....	284	24	..	½ mile.
North chimney of green house, windmill in rear (opposite shore) .....	354	38	..	¾ mile.

## CLEM.

*Locality.*—Southwest shore of Severn River on point between Clement Creek and Brewer Creek. (See Chart No. 2.)

Observed station is on a low sand point about 2 feet above and 35 feet back from high-water mark. Cement monument marking reference station is 10.07 meters west of observed station.

*Marks.*—Observed station is a nail in stub flush with ground, set in 4-inch tile pipe with top 4 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Chase" (S 75° 18' E) .....	0	00	00	½ mile.
Water tower (opposite Naval Academy) .....	22	36	..	3 miles.
Chimney in center of yellow house .....	34	30	..	1 mile.
North chimney of house (south side of Clement Creek) .....	68	20	..	½ mile.
REFERENCE STATION .....	134	08	30	10.07 meters.
Chimney on yellow house .....	161	34	..	300 yards.
Small locust tree (2½ inches diameter) .....	222	15	..	30 yards.
Windmill (opposite shore) .....	307	03	..	½ mile.

## SALT.

*Locality.*—Southwest shore Severn River between Clement and Saltwork creeks and abreast of Chase Creek. (See Chart No. 2.)

Observed station is 10 feet back from edge of a bank 10 feet high. A number of small cedar trees stand on edge of bank in front of station. Cement monument marking reference station is 8.07 meters west of observed station.

*Marks.*—Observed station is a nail in stub in a 4-inch tile pipe with top 2 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Cool" (S 84° 23' E) .....	0	00	00	¾ mile.
Water tower (opposite Naval Academy) .....	27	51	..	2½ miles.
Chimney in center of yellow house .....	34	45	..	¾ mile.
REFERENCE STATION .....	142	31	30	8.07 meters.
North chimney of red roof house .....	149	27	..	80 yards.

## Survey of Oyster Bars, Anne Arundel County, Md.

Center of large oak tree (2½ feet diameter)...	206	22	..	50 yards.
Chimney on yellow house .....	223	27	..	½ mile.
Nail in blaze on twin cedar tree (3 inches diameter) .....	254	40	..	5.88 meters.
Nail in blaze on cedar tree (8 inches diameter). 328	44	..	..	7.20 meters.
South chimneystanding alone (opposite shore). 332	35	..	..	1 mile.

## LUCE.

*Locality.*—Southwest shore of Severn River about 200 yards northwest of entrance to Luce Creek and 1¼ miles above Railway Bridge. (See Chart No. 2.)

Observed station is on low island at mouth of Hammond Fish Pond and about 2 feet above and 18 feet back from high-water mark. A number of small trees stand in the immediate vicinity. Cement monument marking reference station is 7.32 meters southwest of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

"Spring" (S 84° 24' E).....	0	00	00	.....	¾ mile.
Chimney on yellow house first hill south.....	56	34	..	.....	¼ mile.
Twin cedar tree (3 inches diameter).....	88	27	..	.....	15.75 meters.
Chimney on small white shanty.....	93	28	..	.....	200 yards.
REFERENCE STATION.....	125	09	40	.....	7.32 meters.
Chimney on yellow house.....	218	26	..	.....	1 mile.
East chimney on white house (opposite shore). 261	38	..	.....	.....	¾ mile.
Chimney on small white house at mouth of Cool Spring Creek (opposite shore).....	342	11	..	.....	½ mile.
Nail in blaze on persimmon tree (5 inches diameter) .....	355	22	..	.....	6.07 meters.

## WEEMS.

*Locality.*—Southwest shore of Severn River on first point south of Luce Creek and about ¾ mile above the Railway Bridge. (See Chart No. 2.)

Observed station is on low sand point covered with myrtle bushes about 2½ feet above and 75 feet back from high-water mark at end of point. The ground rises abruptly about 150 yards west of station.

*Marks.*—Observed station is center point of triangle on standard cement monument. (NOTE.—This monument replaces tile marking old station.)

*References.*—

"Field" (S 47° 40' E).....	0	00	00	.....	1 mile.
South chimney (red house).....	99	08	..	.....	200 yards.
Chimney in center of white house.....	142	11	..	.....	250 yards.
North chimney of white house (opposite shore). 232	47	..	.....	.....	½ mile.
North chimney of yellow house (opposite shore). 255	41	..	.....	.....	½ mile.
Windmill (opposite shore).....	280	56	..	.....	½ mile.
North chimney of yellow house (opposite shore). 308	28	..	.....	.....	¾ mile.
Water tower (opposite Naval Academy).....	350	00	..	.....	2 miles.

## FIELD.

*Locality.*—Southwest shore of Severn River on first point east of Railway Bridge and ¼ mile north of County Bridge. (See Chart No. 2.)

Observed station is on round knob hill about 10 feet above high-water mark and 15 feet west of edge of low sand point extending 50 yards to the west.

*Marks.*—Observed station is center point of triangle on standard cement monument. (NOTE.— This monument replaces tile marking old station.)

<i>References.</i> —	o	/	''	
“Weems” (N 47° 39' W) .....	o	oo	oo	1 mile.
Center chimney of lead-colored house (opposite shore) .....	21	47	..	¾ mile.
North chimney of yellow house (opposite shore) .....	49	30	..	½ mile.
Blaze on pine tree (12 inches diameter) .....	161	26	..	10. 30 meters.
Chapel Dome (Naval Academy) .....	206	15	..	1 mile.
Hospital cupola .....	214	10	..	¾ mile.
Blaze on poplar tree (12 inches diameter) .....	326	46	..	7. 18 meters.

HOSPITAL CUPOLA (NAVAL ACADEMY).

*Locality.*—Southwest shore of Severn River on prominent hill. It is a short distance back from shore and just south of County Bridge. (See Chart No. 2.)

*Marks.*—Center point of cupola on new Naval Hospital.

*References.*—None necessary.

FLAGSTAFF (NAVAL ACADEMY BOATHOUSE).

*Locality.*—Naval Academy grounds near Santee Wharf. (See Chart No. 2.)

*Marks.*—Center of flagstaff on northwest end of boathouse at Naval Academy.

*References.*—None necessary.

STATEHOUSE DOME (ANNAPOLIS).

*Locality.*—City of Annapolis. (See Chart No. 2.)

*Marks.*—Center of Statehouse Dome.

*References.*—None necessary.

ST. ANNE'S CHURCH SPIRE (ANNAPOLIS).

*Locality.*—City of Annapolis. (See Chart No. 2.)

*Marks.*—Center of spire on St. Anne's Church.

*References.*—None necessary.

CATHOLIC CHURCH SPIRE (ANNAPOLIS).

*Locality.*—City of Annapolis. (See Chart No. 2.)

*Marks.*—Center of spire on Catholic Church.

*References.*—None necessary.

ST. JOHN'S COLLEGE CUPOLA (ANNAPOLIS).

*Locality.*—City of Annapolis. (See Chart No. 2.)

*Marks.*—Center of belfry on St. John's College.

*References.*—None necessary.

HORN (SEVERN RIVER).

*Locality.*—Southwest shore of Severn River, on Horn Point, about ¾ mile southeast of wharves in Annapolis Harbor and on south side of entrance to Spa Creek. (See Chart No. 2.)

Observed station is about 30 yards north of wire fence and 200 yards northwest of white house with red tin roof. Cement monument marking reference station is 11.24 meters west of observed station.

*Survey of Oyster Bars, Anne Arundel County, Md.*

*Marks.*—Observed station is center of a 4-inch tile pipe with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Greenbury Light-house" (S 74° 51' E) . . . . .	0	00	00	1 mile.
Chimney on yellow house . . . . .	86	05	..	½ mile.
REFERENCE STATION . . . . .	134	55	50	11.24 meters.
Statehouse Dome . . . . .	190	51	..	1 mile.
St. John's College . . . . .	198	58	..	1 mile.
Chapel Dome (Naval Academy) . . . . .	208	13	..	¾ mile.

START.

*Locality.*—Southwest shore of Annapolis Roads, about ½ mile south of Horn Point and 1 mile west of Greenbury Light-house. (See Chart No. 2.)

Observed station is on wooded shore 15 feet back from edge of a bank 7 feet high. Cement monument marking reference station is 8.45 meters west of observed station.

*Marks.*—Observed station is a nail in a stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Greenbury Light" (N 74° 50' E) . . . . .	0	00	00	1 mile.
Tangent to Tolly Point . . . . .	67	00	..	2 miles.
Extreme west point of roof of Bay Ridge Hotel. . . . .	72	20	..	2 miles.
Nail in blaze on oak tree (12 inches diameter) . . . . .	144	41	..	16.26 meters.
REFERENCE STATION . . . . .	171	22	20	8.45 metres.
Nail in blaze on oak tree (8 inches diameter) . . . . .	236	32	..	11.38 meters.
Water tower (opposite Naval Academy) . . . . .	286	27	..	1¼ miles.

GRAM.

*Locality.*—Southwest shore of Annapolis Roads near northwest entrance to Cat Hole Creek and about 1½ miles south-southwest of Greenbury Light. (See Chart No. 3.)

Observed station is 55 feet back from edge of a bluff 30 feet high. A small round knoll is 60 feet west and 5 feet higher than station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Greenbury Light" (N 31° 53' E) . . . . .	0	00	00	1½ miles.
Nail in blaze on small locust tree (3 inches diameter) . . . . .	97	34	..	26.40 meters.
North tangent of roof of old Bay Ridge Hotel. . . . .	103	18	..	1 mile.
Nail in blaze on locust stump (4 inches diameter) . . . . .	312	43	..	22.95 meters.
Tangent to Horn Point . . . . .	314	15	..	1½ miles.
Water tower (opposite Naval Academy) . . . . .	322	15	..	2 miles.
South chimney of house on Greenbury Point . . . . .	351	46	..	2 miles.

TOLLY.

*Locality.*—South side of entrance to Annapolis Roads about 150 yards northwest of Tolly Point. (See Chart No. 3.)

Observed station is on low point of land. It is about 1 foot above and 12 feet back from high-water mark, and 175 yards northeast of old Bay Ridge Hotel. Cement monument marking reference station is 10.86 meters southwest of observed station.

*Marks.*—Observed station is a nail in stub flush with ground. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Greenbury Light" (N. 6° 12' W).....	0	00	00	1¾ miles.
Peak of Whitehall house.....	21	15	..	4 meters.
Nail in blaze on holly tree (12 inches diameter) .....	205	14	..	9.65 meters.
REFERENCE STATION .....	229	35	30	10.86 meters.
Nail in blaze on swamp-oak tree (18 inches diameter).....	258	12	..	10.97 meters.
Chapel Dome (Naval Academy).....	331	05	..	3½ miles.
Water tower (opposite Naval Academy).....	346	13	..	3½ miles.

BAY RIDGE STACK.

Locality.—Bay Ridge Resort on Tolly Point. (See Chart No. 3.)

Marks.—Center of highest part of brick smokestack.

References.—None necessary.

CRANEY.

Locality.—Eastern shore of bay on west side of Kent Island, about ½ mile north of Craney Creek and 4½ miles east of Tolly Point. (See Chart No. 3.)

Observed station is 3 feet above and 30 feet back from high-water mark, on a low sandy cultivated field. A group of farm buildings stand about ¼ mile away. Cement monument marking reference station is 4.88 meters east-northeast of observed station.

Marks.—Observed station is a nail in a wooden stub projecting 3 inches above the ground. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Thomas Point Light" (S 56° 45' W) .....	0	00	00	4¾ miles.
Greenbury Light .....	57	27	30	5¼ miles.
Sandy Point Light .....	111	26	30	5¾ miles.
REFERENCE STATION .....	208	51	10	4.88 meters.
Cupola on barn .....	258	11	..	¼ mile.
Extreme south tangent to Kent Island.....	310	52	..	6 miles.

COTTAGE.

Locality.—West shore of bay near group of cottages called "Arundel on the Bay" about 2 miles northwest of Thomas Point Light. (See Chart No. 3.)

Observed station is 12 feet back from edge of a bank 18 feet high. It is about 25 yards north of steamboat wharf and 3 yards east of east edge of a foot-board walk 36 paces southeast of Concord Cottage. Cement monument marking reference station is 13.70 meters west of observed station.

Marks.—Observed station is a nail in a stub set flush with ground. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Thomas Point Light" (S 41° 12' E).....	0	00	00	2 miles.
Tangent to Thomas Point.....	15	33	..	1 mile.
Green ball on north end of playhouse .....	26	55	..	80 yards.
Flag pole on pavilion .....	61	10	..	..
REFERENCE STATION .....	114	57	10	13.70 meters.
Nail in blaze on oak tree (12 inches diameter). ..	115	07	..	15.50 meters.
Peak of circular red roof bath house in water. ..	211	01	..	300 yards.
Stack at Bay Ridge.....	236	04	..	1¼ miles.
North flag pole on wharf .....	305	37	..	75 yards.

## THOMAS.

*Locality.*—West shore of bay on a small island known as Thomas Point. It is on the north side of entrance to South River and about  $1\frac{1}{4}$  miles northwest of Thomas Point Light. (See Chart No. 3.)

Observed station is 30 feet back from top of bank and about 100 feet west of extreme east end of point. Cement monument marking reference station is 7.66 meters north of observed station.

*Marks.*—Observed station is a nail in stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Thomas Point Light" (S 56° 08' E).....	0	00	00	1¼ miles.
White house on Curtis Point.....	87	43	..	4½ miles.
Peak of white house .....	182	06	..	¾ mile.
Flag pole on wharf house .....	115	45	..	1½ miles.
REFERENCE STATION.....	218	43	20	7.66 meters.
Nail in blaze on ash tree (15 inches diameter). 284	59	..	..	13.31 meters.
Nail in blaze on locust tree (5 inches diameter). 353	34	..	..	9.64 meters.

## THOMAS POINT LIGHT.

*Locality.*—Off entrance to South River and about  $1\frac{1}{4}$  miles southeast of Thomas Point. (See Chart No. 3.)

*Marks.*—Center of black lantern on white hexagonal screw pile structure known as Thomas Point Light-House.

*References.*—

	°	'	"	
"Thomas".....	(N 56	07	W)	1¼ miles.

## ARUNDEL.

*Locality.*—North side of entrance to South River on narrow neck of land between Fishing Creek and South River. (See Chart No. 3.)

Observed station is about 5 feet above and 75 feet back from high-water mark in Fishing Creek. A sand road is 25 feet west of station. Cement monument marking reference station is 4.07 meters northeast of observed station.

*Marks.*—Observed station is center point of a 4-inch tile pipe with top 1 foot below the surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Selby" (S 81° 28' W).....	0	00	00	1¼ miles.
South peak of white house (opposite shore)....	1	55	..	2½ miles.
Tangent to Point.....	34	50	..	1½ miles.
REFERENCE STATION.....	144	11	40	4.07 meters.
Nail in blaze on twin locust tree (6 inches diameter).....	145	25	..	7.22 meters.
South peak of long barn across Fishing Creek..	154	49	..	½ mile.
Nail in apple tree (15 inches diameter).....	234	30	..	8.77 meters.
Chimney on red roof cottage.....	251	11	..	300 yards.

## HILL.

*Locality.*—Northeast shore of South River on Hills Point and on west side of entrance to Duvalls Creek. (See Chart No. 3.)

Observed station is 50 feet back from the extreme south end of Hills Point and 35 feet above high-water mark. Cement monument marking reference station is 8.07 meters northeast of observed station.

*Marks.*—Observed station is a nail in a pine stub projecting 3 inches above ground. Reference station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Selby" (S 17° 28' E) . . . . .	0	00	00	1 mile.
Chimney on house (opposite shore) . . . . .	63	01	..	1½ miles.
South chimney on almshouse . . . . .	136	51	..	2½ miles.
Nail in blaze on locust tree (4 inches diameter) . . . . .	213	33	..	5.42 meters.
Water tower at South River Club . . . . .	233	28	..	¾ mile.
REFERENCE STATION . . . . .	235	22	50	8.07 meters.
Nail in blaze on locust tree (6 inches diameter) . . . . .	257	59	..	4.67 meters.
North peak of barn . . . . .	249	24	..	½ mile.

SWITCH.

Locality.—Northeast shore of South River on point on southwest side of entrance to Aberdeen Creek. (See Chart No. 3.)

Observed station is on the south side of a low sand point and at high-water mark. A number of cedar trees stand in the immediate vicinity. Cement monument marking reference station is 8.41 meters north of observed station.

Marks.—Observed station is center of a 4-inch tile pipe with top 2 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Hill" (S 56° 19' E) . . . . .	0	00	00	1 mile.
Chimney on house (opposite shore) . . . . .	42	46	..	1 mile.
East chimney of house (opposite shore) . . . . .	161	25	..	1 mile.
South chimney on almshouse . . . . .	172	47	..	1½ miles.
REFERENCE STATION . . . . .	206	02	00	8.41 meters.
Nail in blaze on cedar tree (7 inches diameter) . . . . .	213	36	..	3.58 meters.
Nail in blaze on leaning cedar tree . . . . .	242	07	..	12.76 meters.

WAGGAMAN.

Locality.—Northeast shore of South River on first point to south of entrance to Cross Creek and about 90 meters north of Ferry Point and Waggaman wharf house. (See Chart No. 3.)

Observed station is on top of a bluff 25 feet high and 15 feet back from the edge. Waggaman's dwelling is about 100 yards east of station. Cement monument marking reference station is 2.57 meters east of observed station.

Marks.—Observed station is a nail in a pine stub set flush with ground. Reference station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Almshouse" (S 37° 10' W) . . . . .	0	00	00	½ mile.
North chimney of almshouse . . . . .	10	21	..	½ mile.
Cupola on barn (opposite shore) . . . . .	39	18	..	½ mile.
North peak of Lee wharf house . . . . .	59	10	..	1 mile.
Nail in blaze on pine tree (4 inches diameter) . . . . .	198	56	..	4.70 meters.
REFERENCE STATION . . . . .	223	30	50	2.57 meters.
Waggaman's windmill . . . . .	233	03	..	100 yards.
Nail in blaze on locust tree (8 inches diameter) . . . . .	257	50	..	9.41 meters.
Flag pole on Waggaman's house . . . . .	302	33	..	100 yards.

WAGGAMAN WINDMILL.

Locality.—Northeast shore of South River on Ferry Point.

Marks.—Observed station is center of Waggaman's windmill.

References.—None necessary.

## GINGER.

*Locality.*—Northeast shore of South River, on prominent point on north side of Church Creek, about  $\frac{1}{2}$  mile east of South River Bridge. (See Chart No. 3.)

Observed station is 17 feet back from edge of a bluff 35 feet high. A number of trees stand in the immediate vicinity. Cement monument marking reference station is 7.81 meters north of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe with top 2 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Larramore" (N 86° 25' W) .....	0	00	00	1 mile.
Nail in blaze on oak tree (18 inches diameter) ..	19	36	..	9.05 meters.
Peak of Edgewater post-office .....	21	28	..	$\frac{1}{2}$ mile.
Nail in blaze on mulberry tree (2 inches diameter) ..	45	27	..	12.27 meters.
REFERENCE STATION .....	97	48	10	7.81 meters.
Nail in blaze on locust tree (8 inches diameter) ..	187	46	..	5.92 meters.
Waggaman's windmill .....	197	07	..	$\frac{3}{4}$ mile.
North chimney of almshouse .....	239	05	..	$\frac{3}{4}$ mile.
Cupola on barn .....	272	58	..	$\frac{1}{2}$ mile.
Peak of wharf house .....	335	45	..	$\frac{1}{2}$ mile.

## XIMO.

*Locality.*—Upper end of South River, near north entrance to South River Bridge crossing river at Edgewater. (See Chart No. 3.)

Observed station is about 10 feet from high-water mark on sand beach near east edge of South River Road. It is on line with east guard rail of bridge and 18 feet distant from end of rail.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Larramore" (S 83° 21' W) .....	0	00	00	$\frac{3}{4}$ mile.
East peak of roof of Edgewater post-office .....	119	45	..	75 yards.
North chimney of almshouse .....	234	48	..	1 mile.
North peak of wharf house .....	294	51	..	$\frac{1}{4}$ mile.
East chimney of white house (opposite shore) ..	315	59	..	$\frac{3}{4}$ mile.

## YAZOO.

*Locality.*—North shore of upper South River about  $\frac{1}{4}$  mile above South River Bridge. (See Chart No. 3.)

Observed station is on low marsh point about 1 foot above and 8 feet back from high-water mark. A lone tree stands west of station on opposite shore. Cement monument marking reference station is 9.96 meters northwest of observed station.

*Marks.*—Observed station is a nail in pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Larramore" (S 26° 29' W) .....	0	00	00	$\frac{1}{4}$ mile.
Lone cedar tree on opposite shore .....	5	09	..	$\frac{1}{4}$ mile.
North peak of wharf house .....	47	26	..	1 mile.
REFERENCE STATION .....	109	45	40	9.96 meters.
Nail in blaze on twin oak tree (5 inches diameter) ..	134	51	..	5.27 meters.
Nail in blaze on red-oak tree (5 inches diameter) ..	160	44	..	11.37 meters.
North chimney of almshouse .....	286	16	..	1 $\frac{1}{2}$ miles.
North peak of Lee's wharf house .....	303	32	..	$\frac{3}{4}$ mile.



TAYLOR.

*Locality.*—North shore of upper South River about  $\frac{3}{4}$  mile above County bridge and opposite the entrance to Beards Creek. (See Chart No. 3.)

Observed station is 17 paces back from the extreme south end of a low sand point. It is 1 foot above and 8 feet back from high-water mark. Several small persimmon trees stand near station. Cement monument marking reference station is 4.22 meters west of observed station.

*Marks.*—Observed station is a nail in a pine stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Larramore" (S 57° 15' E).....	0	00	00	..... $\frac{1}{4}$ mile.
West chimney of white house (opposite shore) . . . . .	11	04	..	..... $\frac{1}{2}$ mile.
North chimney of yellow house (opposite shore) 132 09 ..	132	09	..	..... $\frac{1}{4}$ mile.
REFERENCE STATION . . . . .	139	56	50	..... 4.22 meters.
Nail in persimmon tree (4 inches diameter)....	442	15	..	..... 5.11 meters.
Nail in cedar tree (15 inches diameter).....	248	31	..	..... 45 yards.
Red post on porch at Edgewater post-office ....	332	44	..	..... 1 mile.
Lone cedar tree opposite shore.....	352	54	..	..... 300 yards.

LARRAMORE.

*Locality.*—South shore of upper South River near mouth of Beard Creek and about  $\frac{1}{2}$  mile north-east of County Bridge. (See Chart No. 3.)

Observed station is 2 feet above and 18 feet back from high-water mark. A lone cedar tree stands near the shore about 75 yards back from station. Cement monument marking reference station is 7.96 meters southwest of station.

*Marks.*—Observed station is a nail in a wooden stub set in a 4-inch tile pipe with top 3 inches below ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Taylor" (N 57° 14' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Nail in blaze on leaning mulberry tree (18 inches diameter).....	..	..	..	..... 17.85 meters.
Lone cedar tree.....	52	28	..	..... 75 yards.
West chimney of house at Edgewater post-office.....	136	02	..	..... $\frac{1}{2}$ mile.
South peak of Lee's wharf house . . . . .	175	39	..	..... $\frac{1}{2}$ mile.
East chimney of white house (first hill south) . 200 35 ..	200	35	..	..... $\frac{1}{2}$ mile.
REFERENCE STATION . . . . .	271	29	..	..... 7.96 meters.

BREWER (SOUTH RIVER).

*Locality.*—Southwest shore of South River on point on northwest side of mouth of Almshouse Creek about  $\frac{1}{4}$  mile northwest by north of County almshouse and  $\frac{1}{2}$  mile west by south of Ferry Point. (See Chart No. 3.)

Observed station is 1 foot above and 10 feet from high-water mark. Cement monument marking reference station is 7.67 meters southwest of observed station.

*Marks.*—Observed station is a nail in a pine stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Ginger" (N 22° 00' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Peak of yellow house (opposite shore) . . . . .	63	04	..	..... 1 $\frac{1}{2}$ miles.
Waggaman windmill.....	100	05	..	..... $\frac{3}{4}$ mile.
Flag pole on Waggaman Club house.....	105	15	..	..... $\frac{3}{4}$ mile.
North chimney on almshouse . . . . .	165	57	..	..... $\frac{1}{4}$ mile.
Nail in blaze on leaning red oak tree (12 inches diameter) . . . . .	222	55	..	..... 6.61 meters.
REFERENCE STATION . . . . .	257	01	00	..... 7.67 meters.
Nail in blaze on white oak tree (3 inches diameter).....	294	44	..	..... 9.11 meters.

## ALMSHOUSE.

*Locality.*—Southwest shore of South River about halfway between Glebe and Almshouse creeks and about 200 yards east of County Almshouse. (See Chart No. 3.)

Observed station is on a low sod point about 6 inches above high-water mark. A group of locust trees stands just southwest of station and an old white house stands on a hill about 100 yards southwest. Cement monument marking reference station is 9.87 meters southwest of station.

*Marks.*—Observed station is center of a 4-inch tile pipe set flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Waggaman" (N 37° 10' E).....	0	00	00	..... ½ mile.
Waggaman's windmill.....	5	08	..	..... ½ mile.
Nail in blaze on locust tree (5 inches diameter)	160	15	..	..... 9.76 meters.
REFERENCE STATION.....	171	06	00	..... 9.875 meters.
Nail in blaze on locust tree (5 inches diameter)	196	08	..	..... 7.84 meters.
North chimney of almshouse.....	245	17	..	..... 200 yards.
Peak of Edgewater post-office.....	279	57	..	..... 1½ miles.

## ALMSHOUSE (LIGHTNING ROD).

*Locality.*—Southwest shore of South River between Glebe and Almshouse creeks near County almshouse. (See Chart No. 3.)

*Marks.*—Lightning rod on south chimney of almshouse.

*References.*—None necessary.

## CEDAR (SOUTH RIVER).

*Locality.*—Southwest shore of South River on point between Glebe and Lonehouse creeks. (See Chart No. 3.)

Observed station is on low sand point about 1 foot above and 6 feet back from high-water mark. A number of small cedar trees stand southwest of station. Cement monument marking reference station is 5.61 meters south of observed station.

*Marks.*—Observed station is a nail in a stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Switch" (N 89° 57' E).....	0	00	00	..... ¾ mile.
REFERENCE STATION.....	122	14	10	..... 5.61 meters.
Nail in blaze on twin cedar tree (4 inches diameter) .....	133	24	..	..... 5.69 meters.
Nail in blaze on locust tree (4 inches diameter).	213	29	..	..... 5.11 meters.
South chimney on almshouse.....	223	06	..	..... 1 mile.
Flagstaff on Waggaman Clubhouse .....	253	54	..	..... 1 mile.
Waggaman windmill.....	256	43	..	..... 1 mile.
North chimney on brown house (opposite shore)	314	33	..	..... ¾ mile.

## MAYO.

*Locality.*—Southwest shore of South River on Mayo Point. (See Chart No. 3.)

Observed station is about 6 feet above and 40 feet back from high-water mark. A low holly bush stands 25 feet northeast and a low sand knoll 10 feet north of station. Cement monument marking reference station is 5.95 meters southwest of observed station.

*Marks.*—Observed station is a nail in a wooden stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Selby" (S 45° 44' E).....	0	00	00	..... 1 mile.
REFERENCE STATION.....	87	58	10	..... 5.95 meters.
Nail in blaze on red oak tree (12 inches diameter)	108	35	..	..... 6.07 meters.
Nail in blaze on cedar tree (8 inches diameter).	140	33	..	..... 9.30 meters.
South chimney on almshouse .....	177	27	..	..... 2¼ miles.

	°	'	"	
North chimney on Waggaman house.....	192	54	..	2¼ miles.
South chimney on red roof house (opposite shore).....	223	53	..	¾ mile.
Green water tower (South River Club).....	270	50	..	1½ miles.
North peak of old barn.....	281	00	..	1 mile.

SELBY.

*Locality.*—Southwest shore of South River on Turkey Point. (See Chart No. 3.)

Observed station is 6 feet above high-water mark and about 250 yards south of the extreme north end of Turkey Point. A lone locust tree stands about 12 yards south of station. Cement monument marking reference station is 7.81 meters southwest of observed station.

*Marks.*—Observed station is center point of a pine stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Arundel" (N 81° 27' E).....	0	00	00	1¼ miles.
Locust stump (1½ feet high).....	7	30	..	11.30 meters.
Thomas Point Light.....	20	38	..	3 miles.
Nail in blaze on locust tree (12 inches diameter).....	113	10	..	10.65 meters.
REFERENCE STATION.....	137	31	00	7.81 meters.
Water tower (South River Club).....	276	31	..	2 miles.
Peak of red roof house (opposite shore).....	278	23	..	1½ miles.
Peak of white house (opposite shore).....	307	50	..	1½ miles.

GOWAN.

*Locality.*—Western shore of bay on Saunders Point between entrances to South River and West River. (See Chart No. 3.)

Observed station is 21 feet back from edge of bluff 25 feet high. Two blazed cedar trees stand about 12 yards south of station. Cement monument marking reference station is 11.320 meters west of observed station.

*Marks.*—Observed station is a nail in a pine stub set flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Thomas Point Light" (N 74° 06' E).....	0	00	00	3 miles.
Nail in blaze on cedar tree (10 inches diameter).....	102	41	..	13.02 meters.
Nail in blaze on cedar tree (12 inches diameter).....	129	43	..	9.44 meters.
Peak of white house.....	171	08	..	¼ mile.
REFERENCE STATION.....	180	13	50	11.32 meters.
South chimney of house.....	240	12	..	100 yards.

DUTCHMAN.

*Locality.*—North side of entrance to West River on Dutchman Point between shore of bay and Rhode River. (See Chart No. 3.)

Observed station is on top of a bank 12 feet high and is 10 feet back from the edge. A small lone locust tree stands about 11 yards northwest of station. Cement monument marking reference station is 10.61 meters north of observed station.

*Marks.*—Observed station is center of a tile pipe with top 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Curtis" (S 29° 37' E).....	0	00	00	1¼ miles.
Peak of wharf house at Nowell Pier.....	21	34	..	1 mile.
Chimney on small white house.....	85	17	..	½ mile.
Cupola on large building.....	137	22	..	1 mile.
Nail in blaze on locust tree (2 inches diameter).....	155	03	..	10.25 meters.
Chimney on red-roof house.....	184	22	..	¼ mile.
REFERENCE STATION.....	189	50	30	11.61 meters.

## CATO.

*Locality.*—North shore of West River on point at east side of entrance to Rhode River. (See Chart No. 3.)

Observed station is the extreme west end of a low sand point and is awash at high tide. A bank 12 feet high is 75 yards east of station. Cement monument marking reference station is 20.01 meters east-southeast of observed station.

*Marks.*—Observed station is an auger hole in a pine stub projecting 2 inches above the ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Curtis" (S 35° 25' E).....	0	00	00	1¼ miles.
Peak of wharf house (Nowell Pier).....	20	41	..	1 mile.
Chimney on white house (opposite shore)....	83	00	..	½ mile.
Cupola on large building.....	145	34	..	1 mile.
South peak of packing house.....	161	31	..	1 mile.
Peak of Carr's wharf house.....	189	57	..	1¼ miles.
Chimney on red-roof house.....	213	50	..	¼ mile.
REFERENCE STATION.....	310	52	20	20.01 meters.

## DELTA.

*Locality.*—East shore of Rhode River on point south of entrance to Cadle Creek, about ½ mile north of mouth of Rhode River. (See Chart No. 3.)

Observed station is in a cultivated field about 300 yards southeast of Stiner's house and 15 yards back from edge of a bluff 12 feet high. Cement monument marking reference station is 4.32 meters northeast of observed station.

*Marks.*—Observed station is an auger hole in a pine stub. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Rhode" (S 26° 42' W).....	0	00	00	¼ mile.
Cupola on large building (opposite shore)....	55	11	..	½ mile.
South peak of old packing house (opposite shore).....	69	12	..	¼ mile.
Southeast corner of Carr's wharf house.....	124	31	..	¾ mile.
Chimney on yellow house.....	149	43	..	¼ mile.
REFERENCE STATION.....	193	09	10	4.32 meters.
Chimney on red-roof house.....	280	50	..	300 yards.
Nail in blaze on small locust tree (3 inches diameter).....	354	41	..	17.19 meters.

## ETNA.

*Locality.*—East shore of Rhode River, about 400 yards north of mouth to Cadle Creek. (See Chart No. 3.)

Observed station is 6 feet back from edge of a bank 12 feet high and is in front of the second house north of Cadle Creek, which stands about 25 yards northeast of station. Cement monument marking reference station is 5.40 meters northeast of observed station.

*Marks.*—Observed station is an auger hole in a pine stub projecting 3 feet above the ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Turf" (S 69° 27' W).....	0	00	00	¼ mile.
North peak of Murray's wharf house.....	14	08	..	1 mile.
West chimney of house.....	40	18	..	1¼ miles.
Southwest corner of Carr's wharf house.....	72	05	..	¼ mile.
South chimney on red-roof house.....	83	31	..	¼ mile.
Northwest corner of picket fence.....	98	53	..	17.45 meters.
REFERENCE STATION.....	152	17	20	5.40 meters.
Southwest corner of picket fence.....	173	00	..	11.85 meters.

CALF.

*Locality.*—Northern shore of upper Rhode River between Whitmarsh and Waters creeks about  $\frac{1}{4}$  mile west by north of Carr's wharf. (See Chart No. 3.)

Observed station is 25 feet back from edge of a bank 15 feet high. It is abreast of High Island and about 300 yards northwest of the extreme southeast end of a point of land between Whitmarsh and Waters creeks. Cement monument marking reference station is 4.96 meters northeast of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of a triangle on standard cement monument.

*References.*—

	°	'	"	
"Turf" (S 30° 10' E).....	0	00	00	..... $\frac{1}{2}$ mile.
Cupola on large house (opposite shore).....	55	07	..	..... $\frac{1}{2}$ mile.
Chimney on small white house (opposite shore). 115	05	..	.....	$\frac{1}{2}$ mile.
West chimney on red-roof house (first hill north) .....	129	25	..	..... 1 mile.
Nail in blaze on pine tree (4 inches diameter)..	201	48	..	..... 5.17 meters.
REFERENCE STATION.....	242	17	20	..... 4.96 meters.
Southwest corner of Carr's wharf.....	307	46	..	..... 300 yards.
Nail in blaze on small white oak tree (2 inches diameter) .....	327	30	00	..... 9.15 meters.

TURF.

*Locality.*—West shore of Rhode River on point at right-angle bend in river and  $\frac{1}{2}$  mile south of Carr's wharf. (See Chart No. 3.)

Observed station is on a low marshy point just above high-water mark. A large frame tobacco barn stands about  $\frac{1}{4}$  mile southwest of station. Cement monument marking reference station is 4.83 meters west of observed station.

*Marks.*—Observed station is a nail in a pine stub. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Etna" (N 69° 27' E).....	0	00	00	..... $\frac{1}{4}$ mile.
Chimney on white house (opposite shore)....	25	47	..	..... $\frac{1}{2}$ mile.
Chimney on red-roof house.....	58	29	..	..... 1 mile.
Southeast corner of old barn.....	149	04	..	..... $\frac{1}{4}$ mile.
Cupola on large building.....	157	36	..	..... $\frac{1}{4}$ mile.
REFERENCE STATION.....	179	49	00	..... 4.83 meters.

CUPOLA.

*Locality.*—On west side of Rhode River about  $\frac{3}{4}$  mile above its mouth and  $\frac{1}{4}$  mile back from shore. (See Chart No. 3.)

*Marks.*—Center of spindle on belfry cupola on dark colored frame barn. Bell in cupola under spindle.

*References.*—None necessary.

RHODE.

*Locality.*—West shore of Rhode River on point about  $\frac{1}{2}$  mile north of its mouth. (See Chart No. 3.)

Observed station is on a low sand point just above high-water mark and about 60 feet west of the extreme east end of point. Cement monument marking reference station is 7.39 meters west of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

References.—	°	'	"	
"Delta" (N 26° 40' E).....	0	00	00	..... ½ mile.
Chimney on red-roof house .....	31	14	..	..... ¼ mile.
West chimney on red-roof house .....	146	08	..	..... 1 ½ miles.
Nail in blaze on twin locust tree (4 inches diameter).....	181	59	..	..... 27.57 meters.
Nail in blaze on locust tree (5 inches diameter).....	208	14	..	..... 24.25 meters.
REFERENCE STATION .....	216	02	20	..... 7.39 meters.
Cupola on large building .....	261	38	..	..... ½ mile.

## CHES.

*Locality.*—North shore of West River on point at west side entrance to Rhode River and about 300 yards east of entrance to Chestons Creek. (See Chart No. 3.)

Observed station is 21 feet back from the edge of a bank 15 feet high. A twin locust stump stands about 2 yards southeast of station. Cement monument marking reference station is 8.71 meters northwest of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

References.—	°	'	"	
"Dutchman" (N 49° 52' E).....	0	00	00	..... ¾ mile.
Chimney on small house (opposite shore) .....	101	19	..	..... 1 mile.
West chimney on red-roof house (opposite shore).....	115	41	..	..... 1 mile.
East chimney on white house (opposite shore).....	157	13	..	..... 1 mile.
Chimney on small house.....	219	35	..	..... 200 yards.
REFERENCE STATION .....	253	53	30	..... 8.71 meters.

## ALPHA.

*Locality.*—North shore of West River between Scaffold and Chestons creeks and about ¾ mile north of Cedar Point. (See Chart No. 3.)

Observed station is about 10 feet above and 5 feet back from high-water mark. It is about 100 yards east of Scaffold Creek and 200 yards west of a small white shanty. Cement monument marking reference station is 8.26 meters north of observed station.

*Marks.*—Observed station is an auger hole in a hickory stump. Reference station is center point of triangle on standard cement monument.

References.—	°	'	"	
"Cove" (S 1° 21' E).....	0	00	00	..... ¾ mile.
Tangent to Councillor Point .....	20	57	..	..... 1 mile.
Peak of white house.....	68	17	..	..... ½ mile.
Nail in blaze on hickory tree (7 inches diameter).....	135	00	..	..... 11.33 meters.
Nail in blaze on black oak tree (7 inches diameter).....	163	46	..	..... 9.74 meters.
REFERENCE STATION .....	167	01	00	..... 8.26 meters.
Nail in blaze on black oak .....	230	15	..	..... 7.58 meters.
West chimney on house (opposite shore) .....	354	54	..	..... 1 mile.

## SHELL.

*Locality.*—West shore of Upper West River about 300 yards north of entrance to Cox Creek and ½ mile west of Cedar Point. (See Chart No. 3.)

Observed station is on an oyster shell bank about 8 feet above and 3 feet back from high-water mark. Cement monument marking reference station is 11.21 meters northwest of observed station.

*Marks.*—Observed station is a nail in a pine stub projecting 18 inches above ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Cove" (S 88° 05' E) .....	0	00	00	½ mile.
Chimney on small white house (opposite shore) .....	11	30	..	½ mile.
North chimney on red-roof house (opposite shore) .....	41	30	..	¾ mile.
West chimney on house belonging to Mr. Lerch (opposite shore) .....	68	24	..	1 mile.
Nail in blaze on gum tree (2 feet diameter) .....	120	07	..	10.34 meters.
REFERENCE STATION .....	200	02	10	11.21 meters.
Nail in blaze on cedar tree (5 inches diameter) .....	213	52	..	10.60 meters.
Southwest corner of white shanty .....	298	07	..	1¼ miles.

COUNALLOR.

*Locality.*—West shore of upper West River about 250 yards north of steamboat wharf at Galesville and on south side of entrance to Cox Creek. (See Chart No. 3.)

Observed station is about 22 feet back from edge of a bluff 12 feet high. An old dead stump stands about 6 feet to the south of station. Cement monument marking reference station is 10.93 meters west of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Apple" (S 53° 50' E) .....	0	00	00	¼ mile.
Lerch's windmill .....	10	21	..	½ mile.
East chimney on Mr. Hyde's house .....	50	15	..	¾ mile.
Chimney on Chalk Point wharf house .....	72	21	..	¼ mile.
Chimney on Galesville wharf .....	80	20	..	250 yards.
East peak on Wayson's store .....	112	28	..	250 yards.
REFERENCE STATION .....	159	27	55	10.93 meters.
Cedar tree .....	207	40	..	18.25 meters.

CHALK.

*Locality.*—Upper West River on west side of Chalk Point about ¼ mile southeast of Galesville and 200 yards east of Chalk Point steamboat wharf. (See Chart No. 3.)

Observed station is about 4 feet above and 27 feet back from high-water mark. It is about 8 yards west of a blazed locust tree standing on edge of bank. Cement monument marking reference station is 8.15 meters west of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Apple" (N 49° 35' E) .....	0	00	00	¼ mile.
Lerch's windmill .....	25	12	..	½ mile.
Nail in blaze on twin locust tree .....	49	48	..	7.32 meters.
Chimney on yellow house (opposite shore) .....	67	11	..	¾ mile.
East chimney on Mr. Hyde's house .....	124	35	..	¼ mile.
REFERENCE STATION .....	201	59	35	8.15 meters.
Chimney on small yellow house .....	216	43	..	100 yards.
Chimney on Galesville wharf house .....	284	27	..	300 yards.

LERCH WINDMILL.

*Locality.*—Upper West River about ½ mile east of Chalk Point and ¾ mile southeast of Galesville near house of Mr. Lerch.

*Marks.*—Center of shaft at highest point of windmill.

*References.*—None necessary.

## APPLE.

*Locality.*—East shore of Upper West River, abreast of Galesville, and about  $\frac{3}{4}$  mile south by west of Cedar Point. (See Chart No. 3.)

Observed station is 28 feet back from edge of bank, 8 feet high. It is about 45 yards east of the southwest corner of V. Hartge's house. Cement monument marking reference station is 7.17 meters east of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Chalk" (S 49° 35' W) .....	0	00	00	$\frac{1}{4}$ mile.
Chimney on Chalk Point wharf house.....	16	45		$\frac{1}{4}$ mile.
Chimney on Galesville wharf house.....	40	00		$\frac{1}{2}$ mile.
East peak of Wayson's store.....	41	36		$\frac{1}{2}$ mile.
Chimney on store .....	64	27		$\frac{1}{2}$ mile.
Southwest corner of Hartge wharf house.....	154	38		$\frac{1}{2}$ mile.
Apple tree (6 inches diameter).....	203	02		7.22 meters.
REFERENCE STATION .....	236	25	30	7.17 meters.
Twin apple tree.....	294	01		11.40 meters.

## COVE.

*Locality.*—South shore of West River, about  $\frac{3}{4}$  mile northeast of Galesville, on Cedar Point. (See Chart No. 3.)

Observed station is on a low narrow neck of land, about 125 yards from its extreme south end. It is about 6 inches above high-water mark and 5 yards west of a blazed cedar stump. Cement monument marking reference station is 5.41 meters northeast of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Counallor" (S 47° 00' W).....	0	00	00	$\frac{3}{4}$ mile.
Southwest corner of small shanty (opposite shore).....	137	40		$\frac{3}{4}$ mile.
Chimney on white house (opposite shore)....	156	41		1 mile.
REFERENCE STATION .....	171	09	30	5.41 meters.
Nail in blaze on cedar stump (15 inches diameter) .....	196	03		4.60 meters.
Northwest corner of Hartge wharf house .....	316	46		350 yards.
Lerch's windmill.....	318	26		1 mile.

## CURTIS.

*Locality.*—South side of entrance to West River on west side of Curtis Point. (See Chart No. 3.) Observed station is about 10 feet above and 6 feet back from edge of bank. It is north of entrance to Parish Creek and about 250 yards northwest of a house standing back in the woods. A line of sight was cut through woods in order to see Bloody Point Bar Light. Cement monument marking reference station is about 10.82 meters southeast of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Dutchman" (N 29° 36' W).....	0	00	00	1 $\frac{1}{4}$ miles.
Peak of white house (opposite shore).....	25	43		2 miles.
Nail in blaze on gum tree (4 inches diameter),	148	05		13.63 meters.
REFERENCE STATION .....	156	04	20	10.82 meters.
Nail in blaze on locust tree (5 inches diameter)	197	56		15.65 meters.
South peak of wharf house.....	273	32		$\frac{1}{2}$ mile.
East chimney of yellow house.....	281	50		$\frac{3}{4}$ mile.



HORSESHOE.

*Locality.*—On shore of bay about  $\frac{1}{4}$  mile south of eastern edge of Horseshoe Point. (See Chart No. 3.)

Observed station is on low marshy point nearly awash at high tide. It is about 300 yards east of a yellow house with three lightning rods. This house is surrounded by cedar trees. Cement monument marking reference station is 11.24 meters northwest of observed station.

*Marks.*—Observed station is a nail in a stub set in center of a tile pipe projecting 2 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Franklin" (S 15° 16' W).....	0	00	00	..... 1½ miles.
South chimney on white house.....	35	58		..... ½ mile.
Chimney on yellow house.....	56	53		..... 300 yards.
REFERENCE STATION.....	91	30	50	..... 11.24 meters.
Chimney on small house.....	124	05		..... 300 yards.
West chimney of house.....	131	54		..... 350 yards.

BLOODY POINT BAR LIGHT.

*Locality.*—Off eastern shore of bay, about  $1\frac{1}{4}$  miles due west of the southernmost point of Kent Island and about  $\frac{3}{4}$  mile west-southwest from mouth of Bloody Point Creek. (See Chart No. 3.)

*Marks.*—Center point of black lantern on brown caisson structure known as Bloody Point Bar Light.

*References.*—

"Horseshoe" (N 87° 45' W).....				..... 5¼ miles.
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FRANKLIN.

*Locality.*—Western shore of bay on Franklin Point, about halfway between West River and Hering Bay. (See Chart No. 4.)

Observed station is on low point, covered with tufts of marsh grass, situated between the marsh and shore. It is just above high-water mark and about 80 yards in front of the northeast point of a round grove of small oak trees. Cement monument marking reference station is 6.36 meters northwest of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center of triangle on standard cement monument.

*References.*—

	°	'	"	
"Horseshoe" (N 15° 15' E).....	0	00	00	..... 1½ miles.
Black oak tree at southeast point of round grove of trees (12 inches diameter).....	217	50		..... 100 yards.
White oak tree abreast of station (2 feet diameter).....	248	55		..... 80 yards.
REFERENCE STATION.....	274	47	40	..... 6.36 meters.
Peak of small white shanty.....	342	09		..... ¾ mile.
South peak of yellow house back of Horseshoe Point.....	353	22		..... 1½ miles.

NUT.

*Locality.*—Western shore of bay, about  $\frac{3}{4}$  miles northeast of mouth of Broadwater Creek. (See Chart No. 4.)

Observed station is on low marshy point, about 50 feet west of its extreme eastern end. A large brick house stands on edge of woods, about  $\frac{1}{4}$  mile northwest of station. Cement monument marking reference station is 13.40 meters northwest of observed station.

*Survey of Oyster Bars, Anne Arundel County, Md.*

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	''	
"Franklin" (N 33° 37' E) .....	0	00	00	1¼ miles.
Peak of white barn on south side Broadwater Creek .....	200	58		1½ miles.
REFERENCE STATION .....	260	28	10	13.40 meters.
North chimney of brick house .....	273	46		¼ mile.
East peak of old barn .....	330	41		¾ mile.
East tangent to grove on Franklin Point .....	359	00		1¼ miles.

BROAD.

*Locality.*—Western shore of bay, on south side of entrance to Broadwater Creek, on the extreme north end of a narrow neck of land between the creek and the bay. (See Chart No. 4.)

Observed station is about 25 feet back from edge of bank 4 feet high. A number of cedar trees stand 20 yards northwest of station. Cement monument marking reference station is 13.29 meters northwest of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	''	
"Nut" (N 43° 14' E) .....	0	00	00	1 mile.
North chimney on house across Broadwater Creek .....	201	21		¼ mile.
Chimney on house (opposite shore) .....	260	24		300 yards.
Nail in blaze on cedar tree .....				21.10 meters.
REFERENCE STATION .....	264	42	20	13.29 meters.
Nail in blaze on cedar tree on edge of bank (12 inches diameter) .....	289	07		30.25 meters.
East chimney of brown house (opposite shore) .....	295	19		½ mile.

PARKER.

*Locality.*—Western shore of bay, on north side of entrance to Herring Bay. (See Chart No. 4.)

Observed station is on a small detached sand island south of Parker Island, about 25 yards from the extreme south end and just above high-water mark. Cement monument marking reference station is 5.57 meters north of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	''	
"Fairhaven" (S 47° 11' W) .....	0	00	00	2 miles.
Chimney on white house .....	29	03		1 mile.
Chimney on small house .....	63	42		¼ mile.
West chimney on small white house .....	85	21		¼ mile.
West chimney on red-roof house .....	96	43		½ mile.
East chimney on red-roof house .....	115	04		¼ mile.
REFERENCE STATION .....	132	30	10	5.57 meters.

HOPKINS.

*Locality.*—North side of Herring Bay, on east side of entrance to Herring Creek and about 1½ miles north by west of Fairhaven Wharf. (See Chart No. 4.)

Observed station is 2 feet above and 15 feet back from high-water mark, and is nearly on line with south face of house standing just east of station. Cement monument marking reference station is 5.15 meters northwest of observed station.

*Marks.*—Observed station is a nail in a stub flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Fairhaven" (S 27° 28' W).....	0	00	00	1¼ miles.
Chimney on small house (opposite shore)....	16	25	..	¼ mile.
South chimney on white house (opposite shore).....	93	21	..	¼ mile.
South chimney on yellow house (opposite shore).....	102	00	..	¼ mile.
REFERENCE STATION.....	105	44	35	5.15 meters.
West chimney on small white house.....	124	37	..	150 yards.
Northwest corner of house.....	172	19	..	16.39 meters.
Southwest corner of house.....	192	11	..	15.17 meters.

FAIRHAVEN.

*Locality.*—Western shore of Herring Bay on prominent bold hill about ¼ mile back from shore and ¾ mile west by north of Fairhaven wharf. (See Chart No. 4.)

Observed station is about 25 yards south of a lone chestnut tree 3 feet in diameter and about 100 yards north of highway to Friendship. Cement monument marking reference station is 6.08 meters north of observed station.

*Marks.*—Observed station is the center of a 4-inch tile pipe with top 8 inches below the surface. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Hopkins" (N 27° 28' E).....	0	00	00	1¼ miles.
Cupola on old Fairhaven Hotel.....	45	44	..	½ mile.
East chimney on yellow house.....	51	06	..	½ mile.
West peak of Fairhaven wharf house.....	98	49	..	1 mile.
Chimney on small house close to shore.....	113	25	..	½ mile.
Post of rail fence.....	241	05	..	14.53 meters.
Nail in blaze on lone chestnut tree (3 feet diameter).....	346	37	..	25.78 meters.
REFERENCE STATION.....	351	49	50	6.08 meters.

HOLLAND.

*Locality.*—Western shore of bay on south side of entrance to Herring Bay about 30 yards west of Holland Point. (See Chart No. 4.)

Observed station is 5 feet back from top of a bank 7 feet high. Two large blazed trees stand south and west of station at distance 12 and 25 yards respectively. Cement monument marking reference station is 12.88 meters southwest of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Fairhaven" (N 48° 13' W).....	0	00	00	2½ miles.
Nail in blaze on red oak tree (2½ feet diameter).....	238	49	..	11.17 meters.
REFERENCE STATION.....	262	05	00	12.88 meters.
Nail in blaze on red oak tree (2½ feet diameter).....	286	55	..	22.63 meters.

## REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY.

## INSTRUCTIONS.

The two following letters, together with the laws<sup>a</sup> of the United States relating to the subject, constitute the "instructions" of the representative of the Survey. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of natural oyster bars. The "free hand" permitted by these orders proved very beneficial and was greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

LAWRENCE O. MURRAY, *Assistant Secretary.*

His Excellency HON. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the commissioners, prepare a programme of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. and G. S. Steamer "Endeavor," Baltimore, Md.*

HOUSE BOAT "OYSTER."

While arranging to turn over the command of the steamer *Endeavor*, the representative of the Survey, acting under preliminary instructions from the Superintendent, was engaged in frequent consultation with the Shell Fish Commissioners in reference to the programme of future work. In addition to these duties, he undertook for the commissioners the planning and supervision necessary to convert the old side-wheel steamer *Thomas L. Worthley* into a house boat for the surveying parties of both the Commission and the Government.

<sup>a</sup> For copies of these laws see "Introduction" to this publication.

The *Worthley*, now called the house boat *Oyster*, was in excellent condition when purchased by the Commission. The keelsons and timbers were sound and the upper works strong. After the removal of the old engine and boiler, the house boat was docked and her hull thoroughly examined. The outside planking below the water line was found in good condition, and although it was recalced, it was done as an additional precaution, the hull having been absolutely water-tight from the day of purchase.

The *Oyster* is about 135 feet over all and 35 feet in beam. The main deck contains living quarters for 27 men, the officers mess room and the galley. The upper deck has 11 staterooms, 5 for the 3 commissioners and their 2 hydrographic engineers, 4 for the Coast Survey officers, 1 for the representative of the U. S. Bureau of Fisheries, and 1 for the local county oyster commissioner. Besides these rooms, there are located on this deck a large drafting room, a laboratory for oyster investigations, and an office room. Coal for the two Government launches and the galley is stored in the hold, which also contains fresh-water tanks having a capacity of about 7,000 gallons. Signal lumber is carried on the main deck aft of the officers' mess room.

As a whole, the *Oyster* is plainly and practically equipped for the work to be done. She has added much to the amount of the surveying accomplished during the season, and the Coast and Geodetic Survey representative greatly appreciates the practical advantages furnished to his party by their quarters on the house boat. When the large party of the combined surveying forces is taken into consideration with the limited accommodations usually obtainable on shore, the attending difficulties of a scattered party, the uncertain location and supply of coal and water for launches and sufficient lumber for signals, it is easily to be seen that the amount of work accomplished would have been reduced greatly, if there had been no such house boat as the *Oyster* to supply all requirements of the surveying operations.

With reasonable care and repairs, the *Oyster* will be a valuable asset to the Commission at the completion of the oyster survey of the State, besides having paid her first cost several times over in both quality and quantity of work accomplished.

#### ORGANIZATION AND EQUIPMENT.

The command of the *Endeavor* was turned over to the hydrographic inspector July 9, 1906, and from that date to the commencement of active field work the Survey representative was engaged on organization of party, collection of surveying data, general supervision of the construction of the house boat, and preparation of field equipment.

Some delay was experienced in completing repairs to the Survey steam launch *Inspector*, and by the difficulties of obtaining surveying assistants who were qualified to receive an appointment under civil-service rules. In fact, the last field assistant did not take his oath of office until the middle of October.

The field organization of the party, when fully completed, remained the same during the season, and was as follows:

- C. C. Yates, assistant, Coast and Geodetic Survey, and chief of party.
- E. A. Borst, triangulator.
- N. L. Arbuckle, topographic draftsman.
- F. W. Seth, surveyman and computer.
- One launch coxswain.
- One launch engineer.
- Five seamen and hands.

Later two additional draftsmen, J. D. Torrey and G. C. Moore, were appointed and assigned to duty in the office in Washington, where they were employed on the preparation for publication of the charts of natural oyster bars, making in all a party of six officers from the Coast and Geodetic Survey engaged on the work. During the last weeks of the field work, Mr. Paul C. Whitney, assistant, Coast and Geodetic Survey, was assigned to temporary duty in the party in place of Mr. E. A. Borst, who resigned.

The equipment of the party, in addition to the quarters and accommodations on the house boat *Oyster*, consisted of the large Coast and Geodetic Survey steam launch *Inspector*, an excellent whaleboat, a large ship's cutter, and a fishing dory. The Survey also furnished a complete outfit of theodolites, levels, sextants, and other instruments necessary for the work of the Government and State surveying parties, and the usual outfit of tools, sails and oars, stationery, etc.

#### FIELD WORK.

The launch *Inspector* and outfit were moved to Annapolis on August 10, 1906, on which date the actual field work of the Coast and Geodetic Survey party commenced.

Previous to this time a number of signals had been erected over old Coast and Geodetic Survey triangulation stations on the Severn River by the hydrographic engineer of the Commission. By using the triangulation so established, considerable oyster bar location was accomplished.

After the arrival of the Coast Survey party, the erection of signals and the observations of horizontal angles necessary to establish a framework of triangulation were kept well ahead of the oyster bar locations and other oyster investigations.

The methods of triangulation were those established by the Coast and Geodetic Survey and require no explanation other than that given by the publications of the Survey.

In all there are 123 triangulation stations involved in the survey of Anne Arundel County natural oyster bars. These stations are scattered along the western shore line of the bay from Fort Carroll to Holland Point, and are located at intervals frequently less than a half and rarely more than a mile apart. The triangulation was carried on with energy and good judgment, but the scattered condition of the work, composed of a mixture of new and old stations, increased the number of observations without the usual proportionate increase in number of new stations established.

After the appointment of a topographic draftsman on September 19, all boat sheets for both the hydrographic and oyster investigation parties were prepared and much other drafting work was done to facilitate the operations of the commissioners. Besides this work, the draftsman checked the computations and kept up the smooth projections as far as the new field work permitted.

Considerable difficulty was experienced in bringing up the computations to the immediate requirements of the work, especially in West River and to the south along the shore of the bay, where practically all old triangulation stations had been washed away. This situation was much relieved by the appointment of a surveyman on October 15, who had received some training in the computing division of the Survey at Washington.

The operations in the vicinity of Severn and South rivers were completed September 13, when the house boat *Oyster* was moved to West River. Up to this time the party had lived on shore and suffered many of the resulting inconveniences and delays due to scattered lodgings, uncertain meal hours, etc. The advantages of the house boat were immediately shown in the results, and in spite of much bad weather the work in the vicinity of West River was completed and the *Oyster* moved to Magothy River on November 9. Here the house boat remained until the end of the month, when she was moved to Bodkin Creek. On December 9 the main body of the field work for the season was completed and the *Oyster* went to Annapolis for the winter. Quarters were taken up on shore, the parties reduced in number, and offices established in the state house.

During the following winter the unfinished ends of triangulation, construction and planting of permanent monuments, and new descriptions of stations, occupied about a third of the time of the triangulator.

Besides the training and assistance required by an entirely new organization, and the systematizing of a new class of work, the representative of the Coast and Geodetic Survey devoted much time and took much interest in the work of the Commission in general as affecting both the surveying and other operations of the oyster-culture laws of Maryland.

OFFICE WORK.

After October 15, a greater part of the original computations were made by the surveyman of the party and were checked by the triangulator and the topographic draftsman. This work included the computations of 166 triangles, 67 geodetic positions, and 1,083 back computations of geodetic positions required for the technical descriptions of the boundaries of natural oyster bars. These computations, together with the making out of the abstract of horizontal angles, the lists of geographic positions, the lists of directions, and the reduction to center for 8 eccentric stations, make up a creditable amount of computation for the short season's work.

The drafting consisted of the preparation of nearly all boat sheets used by the hydrographic and oyster-investigation parties, the construction of 9 projection sheets, and the plotting of 2,596 sextant positions on the projections. Besides this drafting, the progress map was prepared for the lithographer, the boundaries of 91 natural oyster bars were plotted on the projections, the geographic positions of 361 corners of bars were scaled off the sheets, and 1,083 distances to landmarks from corners of bars taken off the projections for use in checking computations. This work was done neatly and accurately, and represents a larger amount of labor than this statement would indicate.

The great amount of necessary work required to prepare for publication the 4 large scale charts of the natural oyster bars and the report containing the description of boundaries and landmarks to accompany charts, can be seen from an inspection of the charts and reports.

SUMMARY.

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Maryland Shell Fish Commission need no other summary than is indicated by the published charts of the natural oyster bars and the scheme of

projections and triangulation shown on the progress map at the end of this report.

The work completed will stand the test of time, and it will be recognized ultimately that both time and money have been saved by having the work done systematically and accurately.

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last sixty-five years.

Before ending this report the representative of the Coast and Geodetic Survey deems it both desirable and natural to make a statement of appreciation of the ever courteous actions of everyone connected with the Maryland Shell Fish Commission<sup>a</sup> and of his colleague<sup>b</sup> from the Department of Commerce and Labor. This excellent relationship made true cooperation possible and aided greatly in the successful accomplishment of much work.

---

<sup>a</sup> Walter J. Mitchell, chairman, Dr. Caswell Grave, secretary, Benjamin K. Green, treasurer, commissioners; Thomas H. Robinson, counsel; Swepson Earle, hydrographic engineer; W. Gibson Emory, assistant engineer; Joseph E. Smith, local oyster commissioner for Anne Arundel County; H. Courtney Jenifer, chief clerk; Samuel A. Harper, clerk; Ernest Reppenhagen, draftsman.

<sup>b</sup> Dr. H. F. Moore, scientific assistant in the U. S. Bureau of Fisheries.



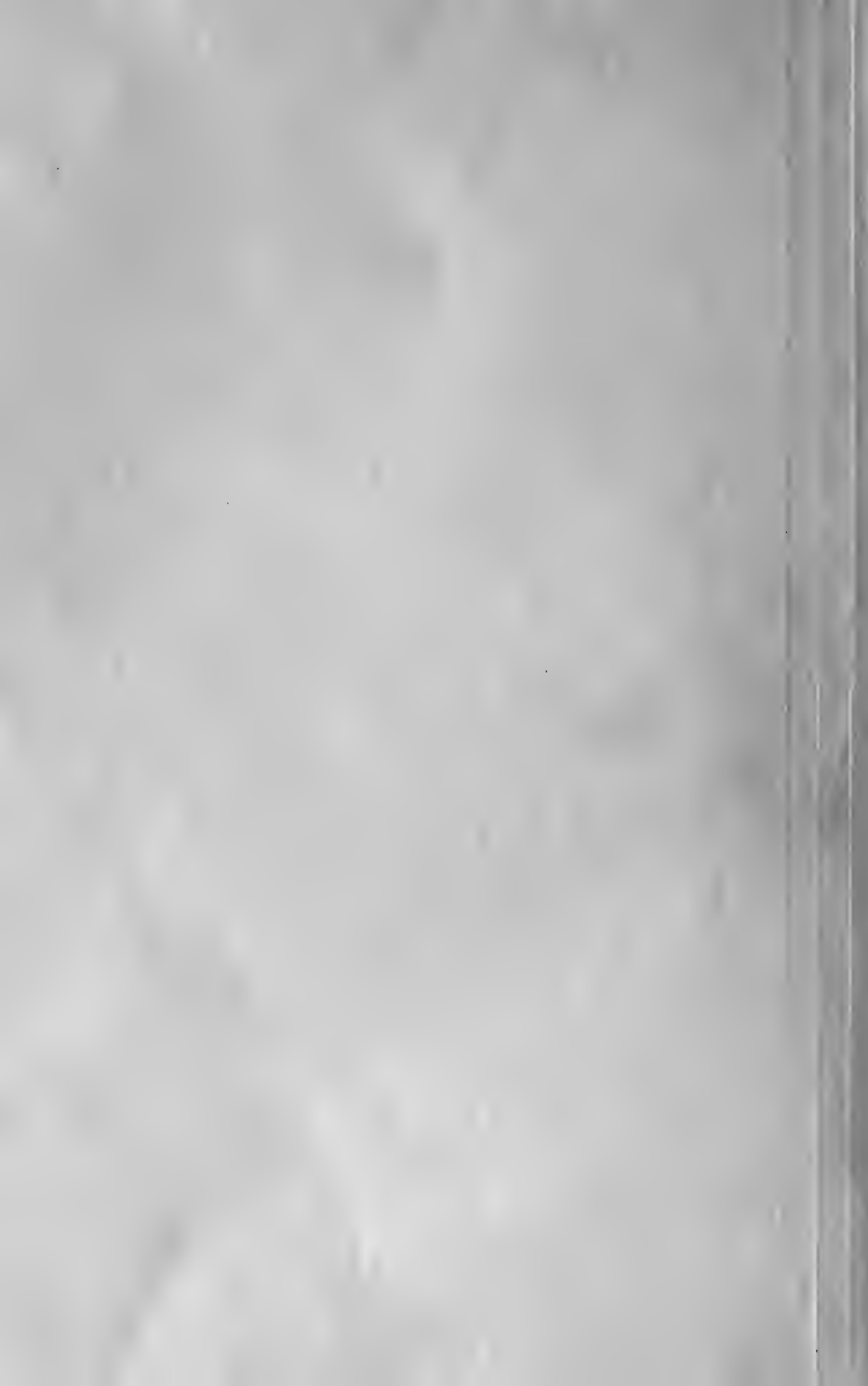


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To accompany report of work of United States Coast and Geodetic Survey in cooperation with the Maryland Shell Fish Commission

1906-07

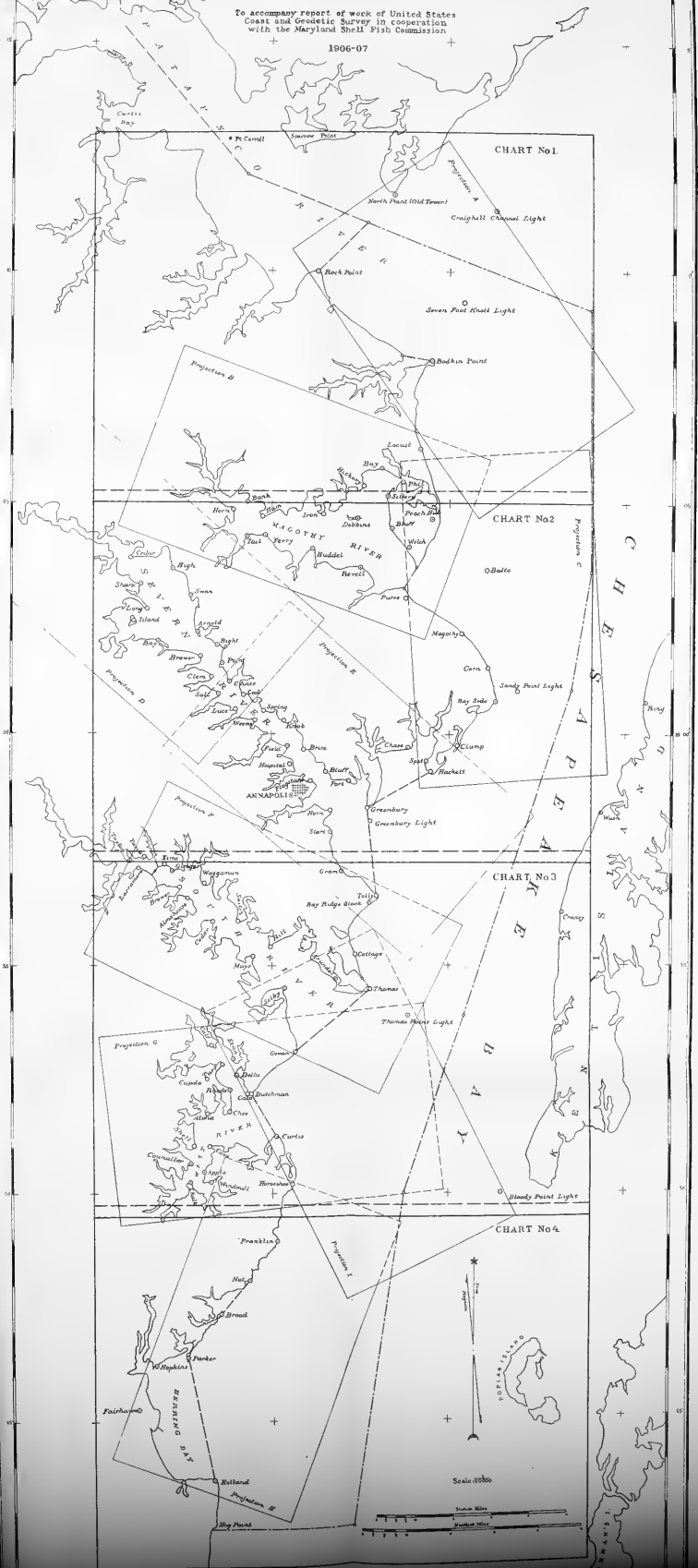


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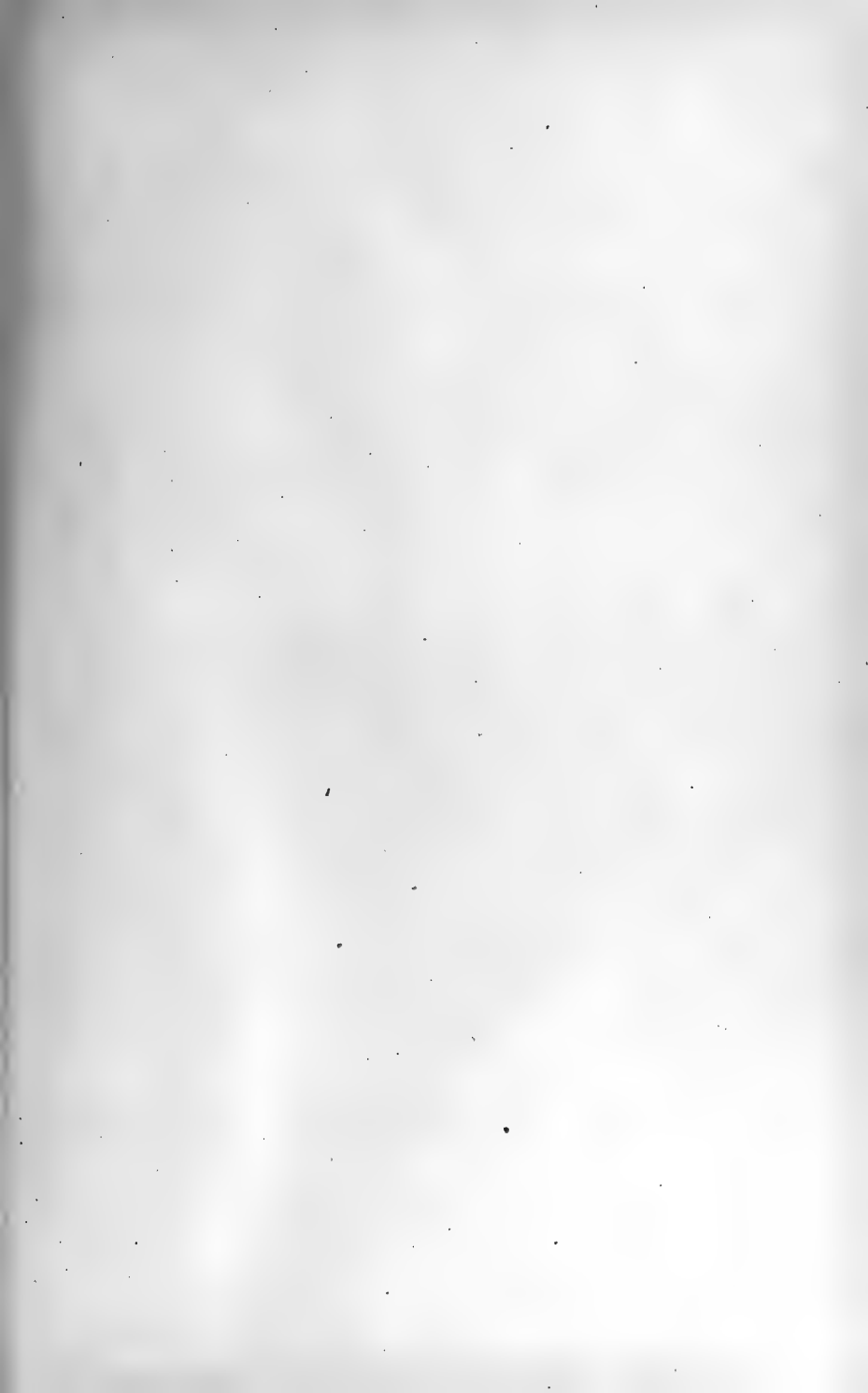
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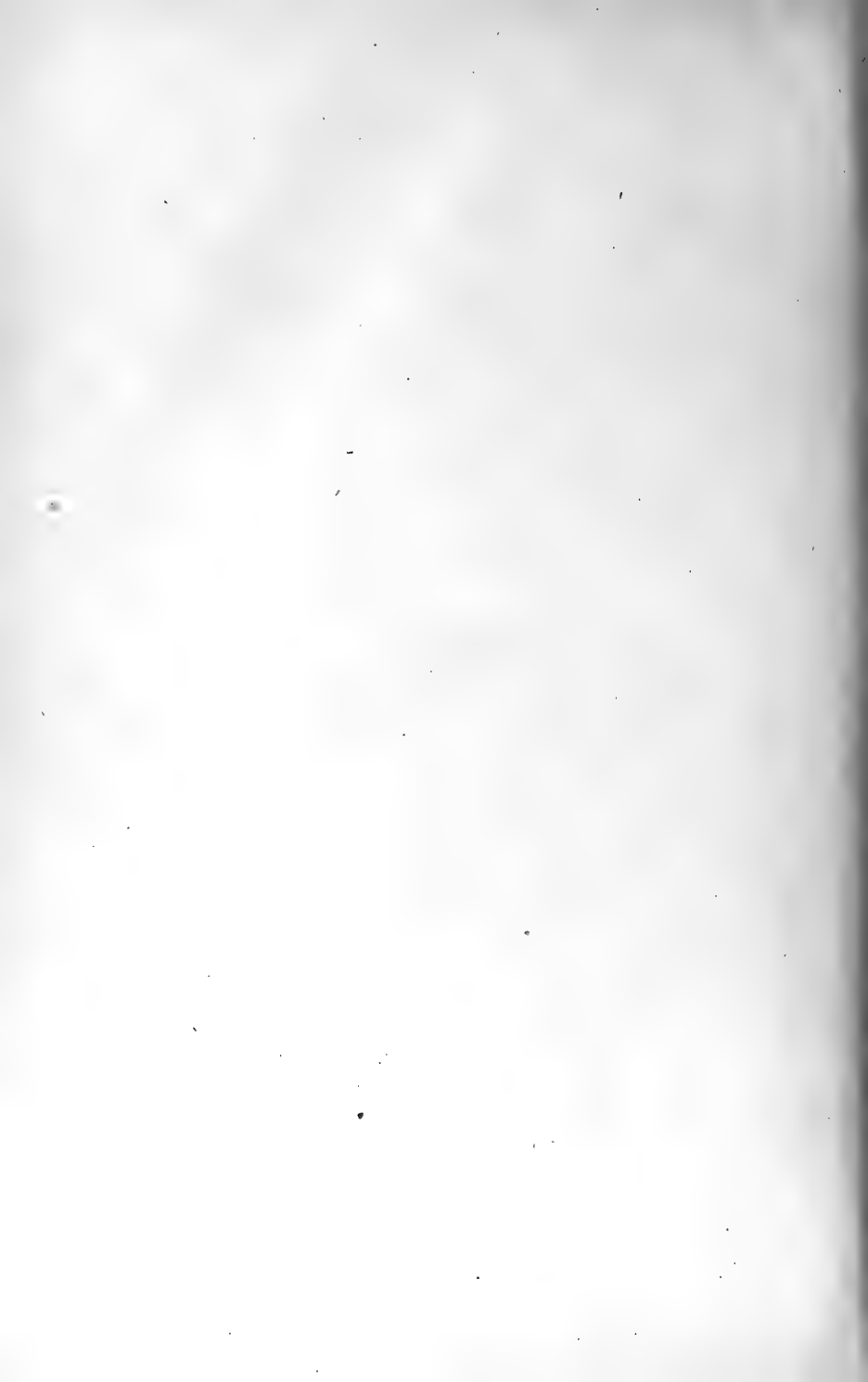
CHART No 3

CHART No 4

CHESAPEAKE BAY







DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY

O. H. TITTMANN, Superintendent

# SURVEY OF OYSTER BARS

## BALTIMORE COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND  
REPORT OF WORK OF UNITED STATES COAST  
AND GEODETIC SURVEY IN COOPERATION  
WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND  
SHELL FISH COMMISSION

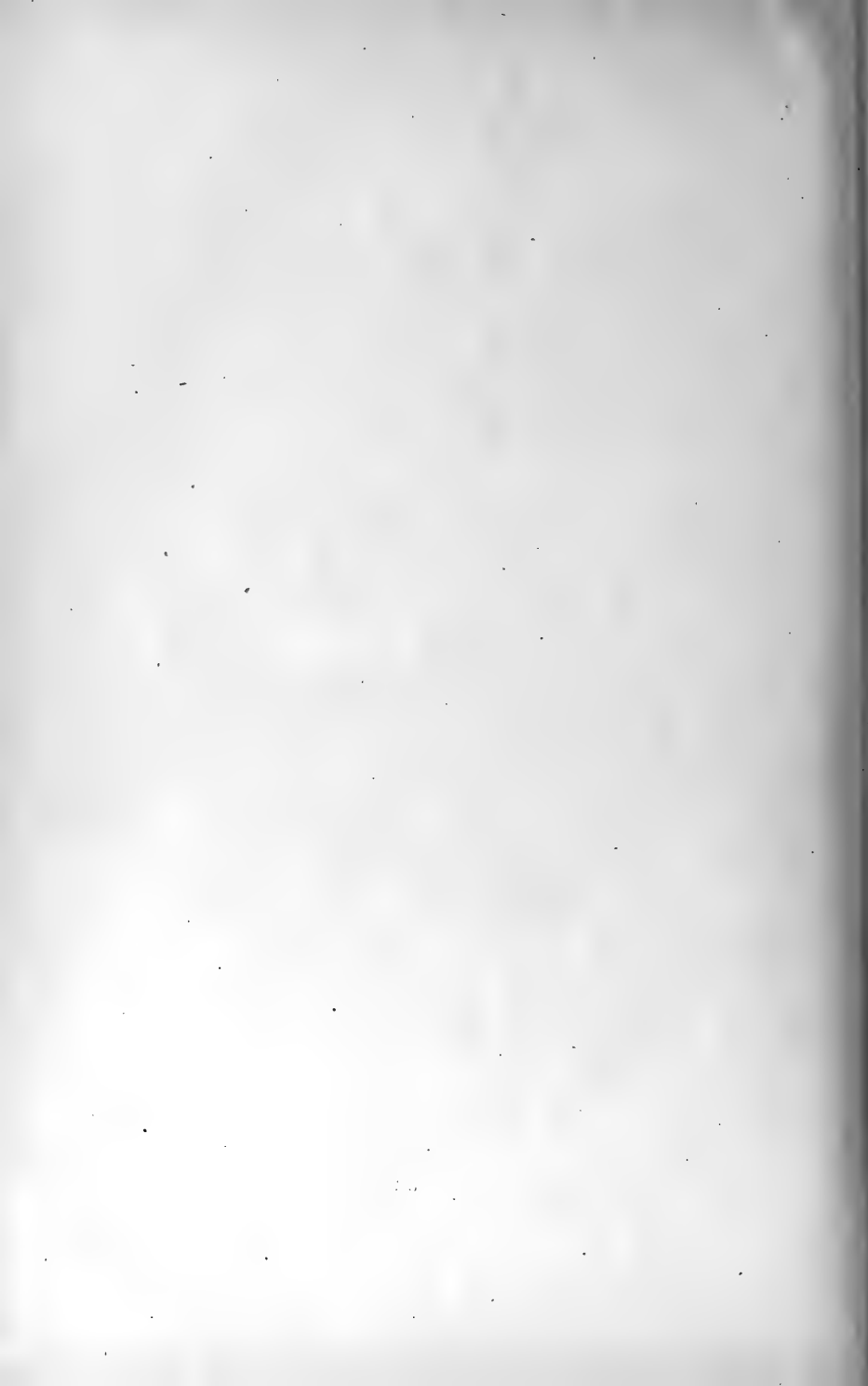
By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE

1911





## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,

*Washington, August 10, 1911.*

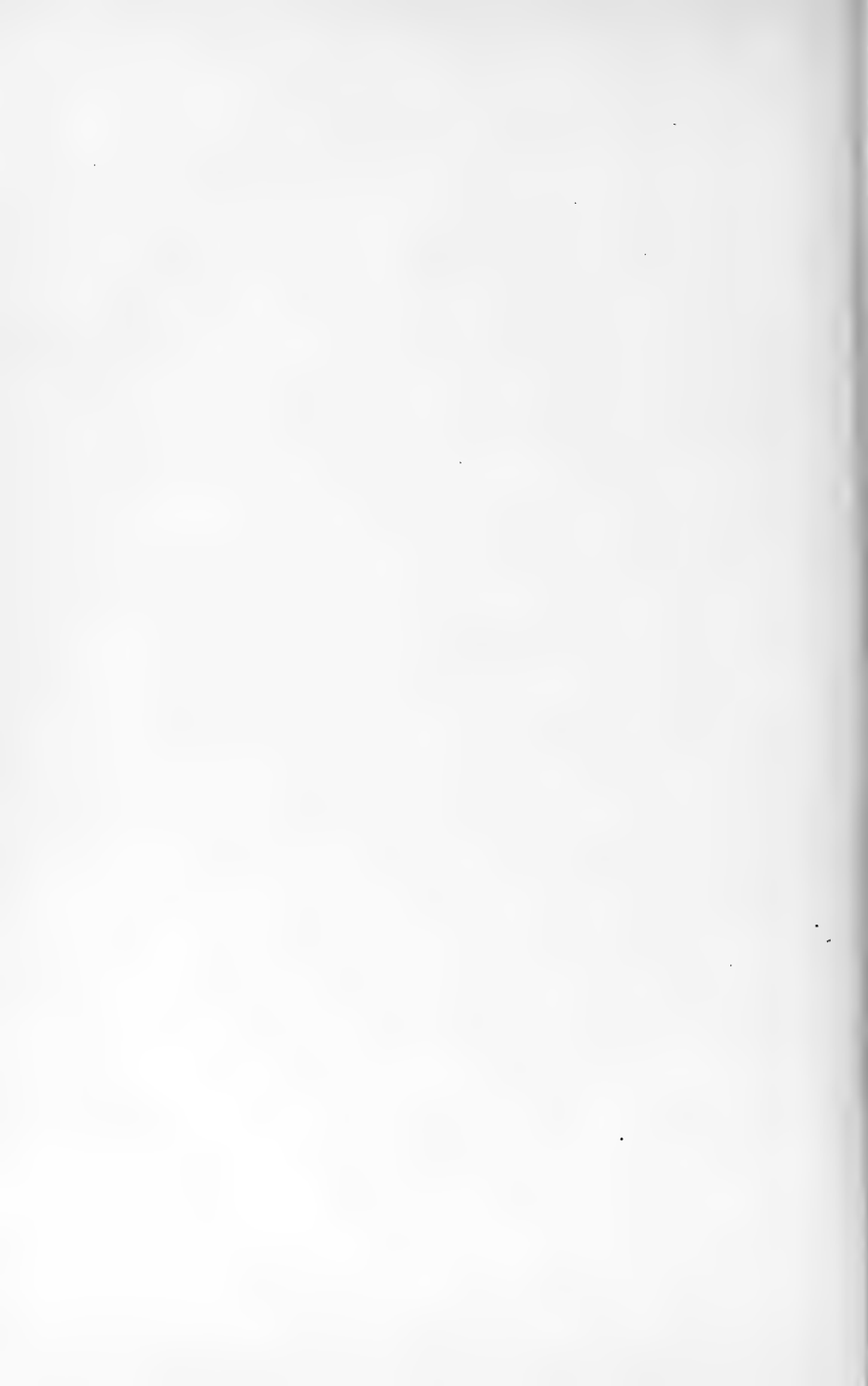
SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, together with certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shell fish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, 1909, 1910, 1911, and 1912.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To Hon. CHARLES NAGEL,  
*Secretary of Commerce and Labor.*



## CERTIFICATION.

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BALTIMORE, MD., *August 10, 1911.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in Baltimore County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,  
*Chief of Coast and Geodetic Survey Party,*  
*Assistant, Coast and Geodetic Survey.*

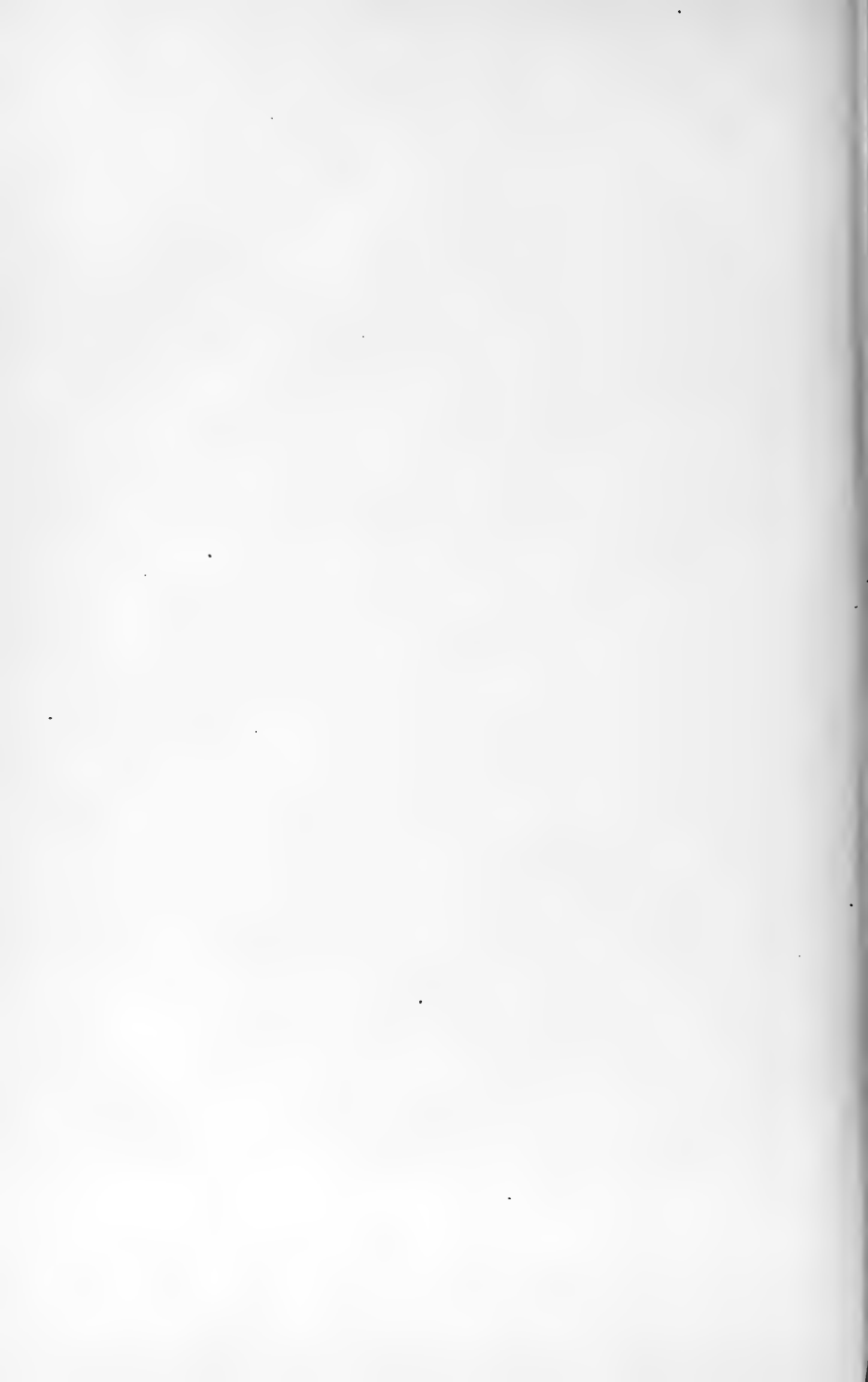
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BALTIMORE, MD., *August 10, 1911.*

Examined and certified to be correct.

WALTER J. MITCHELL,  
CASWELL GRAVE,  
BENJAMIN K. GREEN,  
*Maryland Shell Fish Commission.*  
SWEPSON EARLE,  
*Hydrographic Engineer.*

NOTE.—Certified copies of this publication and of the charts of the natural oyster bars of Baltimore County were filed in the office of the clerk of the circuit court of Baltimore County and in the office of the board of shell fish commissioners on August 10, 1911.



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# SURVEY OF OYSTER BARS, BALTIMORE COUNTY, MD.

## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws<sup>1</sup> authorizing the work and the natural division of the surveying operations<sup>2</sup> of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consists of a series of charts and a technical report for each county surveyed.<sup>3</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal description of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey in charge of the work of that service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.<sup>4</sup>

The publications prepared and issued by the State under the direction of the Shell Fish Commission consist of annual reports<sup>5</sup> of all the operations of the commission performed under the provisions of the laws of Maryland,<sup>6</sup> including results of biological

<sup>1</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>2</sup> See Appendix C for a summary of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland.

<sup>3</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C. The publications now ready for issue are those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, St. Marys, and Baltimore Counties.

<sup>4</sup> The technical records and charts for each county are published separately on account of the requirements of the oyster culture laws of the State and the practical considerations which make it desirable to have each county "opened up" for oyster culture as soon as practicable after the completion of its survey. For these reasons and the fact that these reports are each arranged for distribution and use in one county only without reference to other published records, much of the text of this publication is of necessity identical with similar previous publications for other counties.

<sup>5</sup> These reports can be obtained by application to the Shell Fish Commission, Marine Bank Building, Baltimore, Md. They are issued annually in October, and the first and second reports are now available for distribution.

<sup>6</sup> See Appendix B for an extract from the "Second Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman oyster-culture law."

and economic oyster investigations, methods and results of the hydrographic survey of the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.<sup>1</sup>

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential as a foundation for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>2</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL STATEMENT OF WORK OF COAST AND GEODETIC SURVEY.<sup>3</sup>

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need very little other summary than is indicated by the published "Charts of Natural Oyster Bars" and the index of hydrographic projections and triangulation stations shown on the county progress maps attached to each report.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, Assistant, Bureau of Fisheries.

<sup>3</sup> For a detail statement of the very large amount of excellent oyster-survey work of the Maryland Shell Fish Commission see the "Annual Reports of the Maryland Shell Fish Commission."



The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars but also to the Government for any future work it may do in the regions covered by the oyster-survey operations.

The hydrographic projections and published charts are prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various shell-fish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to and permanently fixed by published technical descriptions which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way, and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County":

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster-bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last 65 years.

# REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY IN BALTIMORE COUNTY.

## INSTRUCTIONS.

The following letters, together with the laws<sup>1</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the survey at Washington, have proved very beneficial to the work and are greatly appreciated:

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

His Excellency HON. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

LAWRENCE O. MURRAY, *Assistant Secretary.*

---

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector \* \* \*.

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the Commissioners, prepare a program of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TYTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. & G. S. Steamer "Endeavor," Baltimore, Md.*

## ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides

<sup>1</sup> For these laws see Appendix A.

the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the field and the preparation for publication of oyster charts and technical records in the office at Washington.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster*, the Coast and Geodetic Survey party has had the constant use of the large steam launch *Inspector* and several other boats furnished by its own service, and the occasional use of the Bureau of Fisheries launch *Canvasback*<sup>1</sup> and the steamer *Governor McLane*<sup>2</sup> of the State fishery force.

The greater part of the equipment of instruments for the operations of both the Government and State has been furnished by the Coast and Geodetic Survey and consists of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

#### CHRONOLOGICAL STATEMENT OF WORK.

The field work of the Coast and Geodetic Survey in Baltimore County<sup>3</sup> dates from April 14, 1909, when the Maryland Shell Fish Commission house boat *Oyster* was moved from her winter quarters in Baltimore to an anchorage off Rock Hall Landing in Kent County. The surveying operations carried on from this harbor covered a period of about six weeks, when practically all the triangulation of the Chesapeake Bay shores of both Baltimore and Kent Counties was completed.

On May 26, 1909, the *Oyster* was moved from Rock Hall Landing to near Cliffs Landing in the upper part of Chester River, and no further work was done in Baltimore County from that date to July 22, 1909, when the anchorage of the *Oyster* was changed back to Rock Hall to complete some unfinished details of the oyster survey work in that vicinity.

On August 5, 1909, the house boat was again moved, this time to Worton Creek, the extreme northern limit of oyster growth in Chesapeake Bay. From this harbor all the remaining oyster survey work of the Coast and Geodetic Survey in both Baltimore and Kent Counties was completed, although some weeks later a party of the Maryland Shell Fish Commission returned to finish certain oyster investigations and hydrographic observations in these waters.

The office work connected with the oyster survey of Baltimore County, including compilations and drafting necessary for the preparation for publication of the oyster charts and the technical records, was continued intermittingly with the office work of other counties from the beginning of the field work in Baltimore County to the time of filing of the certified oyster charts and technical reports in the archives of the Commission and with the clerk of the circuit court of Baltimore County on August 10, 1911.

<sup>1</sup> By courtesy of Dr. H. F. Moore, United States Bureau of Fisheries.

<sup>2</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>3</sup> The field work of Baltimore and Kent Counties was so intermixed in Chesapeake Bay that the chronological statement of work for one of these counties necessarily includes a considerable part of the work of the other county.

STATISTICS.<sup>1</sup>

Landmarks and triangulation signals erected.....	6
Monuments planted to mark triangulation stations.....	6
Triangulation stations occupied for observations of horizontal angles.....	3
Old triangulation stations recovered.....	14
New triangulation stations established.....	1
Total old and new triangulation stations marked and described.....	15
Linear miles of shore line covered by triangulation (approximate).....	12
Square miles covered by triangulation (approximate).....	50
Hydrographic projections prepared and completed as records of oyster boundaries.....	4
Triangles computed.....	8
Geographic positions computed.....	1
Corners of oyster boundaries established by computation.....	13
Back azimuths and distances computed from corners of boundaries to triangulation stations.....	39
Descriptions of triangulation stations prepared for publication.....	15
Descriptions of oyster boundaries prepared for publication.....	3
"Charts of Natural Oyster Bars" prepared for publication.....	1
Progress map prepared for publication.....	1

## GENERAL REMARKS.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore, of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unflinching tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the commission, who, as editor of the commission's annual report and commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Mr. Benjamin K. Green, treasurer of the commission, who has looked after the equipment and commissary of the house boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Mr. Swepson Earle, hydrographic engineer to the commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

And to the many others connected with the commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

<sup>1</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of Baltimore County, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland. See Appendix D of this publication for "Statistics of results of combined operations of the Government and the State."

## CHARTS AND MAPS.<sup>1</sup>

### CHARTS OF NATURAL OYSTER BARS.

The chart of the natural oyster bars of Baltimore County, published by the Coast and Geodetic Survey from results of surveys of the Government in cooperation with the Maryland Shell Fish Commission, covers that portion of the upper Chesapeake Bay and tributaries in Baltimore County in which the waters are sufficiently salt for the growth of oysters. This chart is published on a scale of 1 part in 20,000 (approximately  $3\frac{1}{8}$  inches to a statute mile). It is constructed on a polyconic projection and is based on the United States standard datum of the Coast and Geodetic Survey.

This chart shows all oyster bars and other boundaries established by the commission, and is certified for the purpose of filing in the office of the clerk of the circuit court of Baltimore County and in the office of the Maryland Shell Fish Commission, as required by the oyster laws of Maryland.

In addition to the oyster bar and other boundaries, the "Maryland Oyster Charts" show the location and name of all landmarks (United States Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.<sup>2</sup>

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the heading "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of the Coast and Geodetic Survey oyster survey publication in accordance with the charts upon which they are shown. To find a particular oyster bar or landmark which is only known by name, consult the "Contents" and the desired chart and general location will be

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> Much of the detail of the inshore topography was obtained from the excellent map of Baltimore County, prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the U. S. Geological Survey.

indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of the publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shellfish industries. The 1-fathom contour (6 feet) and the 5-fathom curve (30 feet) correspond in a general way to the inner and outer limits of all the oyster bars surveyed. The 3-fathom contour (18 feet) furnishes the curve of about the average depth of water on the oyster bars and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" and the boundaries of the "waters contiguous to the county" opened up for the leasing with each county are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart within the boundaries of the different shellfish bottoms.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Baltimore County, like those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, and St. Marys counties, have been prepared under the direction of the hydrographic engineer of the commission. These charts are constructed on polyconic projections and are based on the United States standard datum of the Coast and Geodetic Survey. They are made on the scales of 1 part in 5,000, or 1 part in 10,000, as the needs of oyster culture may require. Anne Arundel County required 13 leasing charts; Somerset County, 12 charts; Wicomico County, 2 charts; Worcester County, 3 charts; Calvert County, 5 charts; Charles County, 2 charts; St. Marys County, 8 charts; and Baltimore County, 1 chart, to cover their oyster bottoms.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts have been divided by parallels of latitude and meridians of longitude into small rectan-

gles of 1 acre or 5 acres, as may be best suited to the area under consideration, and prospective leaseholders by the rules of the commission are compelled to select whole rectangles as far as possible.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the commission, in the Marine Bank Building at Baltimore.

#### PROJECTIONS.

The polyconic projections<sup>1</sup> covering Baltimore County waters are four in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, but the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission were plotted by the draftsman of the commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster-bar and other boundaries established by the commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the archives of the Shell Fish Commission.

#### PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the United States Coast and Geodetic Survey in Baltimore County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress maps<sup>2</sup> accompanying the first and second annual reports of the Maryland Shell Fish Commission were prepared under the direction of the hydrographic engineer of the commission. They are on the scale of 1 part in 400,000, and show the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey.

<sup>1</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>2</sup> These maps and reports can be obtained by application to Maryland Shell Fish Commission, Marine Bank Building, Baltimore, Md.

## BOUNDARIES OF THE COUNTY WATERS.<sup>1</sup>

### WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>2</sup> between the waters "within the territorial limits" of Baltimore County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the "oyster" charts and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:

Following the boundary line in the middle of Gunpowder River between Baltimore and Harford counties to a point at the intersection of this boundary with a straight line between the northeastern end of Millers Island and the southwestern end of Sprys Island defined by latitude  $39^{\circ} 16' 58.8''$  and longitude  $76^{\circ} 20' 10.0''$ ; thence in a straight line across a part of the waters of the mouth of Gunpowder River to a point on the northeastern end of Millers Island defined by latitude  $39^{\circ} 15' 51.6''$  and longitude  $76^{\circ} 21' 09.0''$ ; thence along the mean low-water line of the Chesapeake Bay shore of Millers Island or a line across the mouth of all inlets less than 100 yards in width, as the case may be, to a point on the southwestern end of Millers Island defined by latitude  $39^{\circ} 15' 19.5''$  and longitude  $76^{\circ} 22' 51.9''$ ; thence in a straight line across the waters and small marsh islands between Millers Island and Hart Island to a point on the northeastern end of Hart Island defined by latitude  $39^{\circ} 15' 08.5''$  and longitude  $76^{\circ} 22' 18.0''$ ; thence along the mean low-water line of Chesapeake Bay shore of Hart Island or a line across the mouth of all inlets less than 100 yards in width, as the case may be, to a point on the southwestern end of Hart Island defined by latitude  $39^{\circ} 13' 47.5''$  and longitude  $76^{\circ} 23' 46.0''$ ; thence in a straight line across the waters between Hart Island and the mainland to a point on the mainland of Baltimore County defined by latitude  $39^{\circ} 13' 45.5''$  and longitude  $76^{\circ} 23' 56.8''$ ; thence along the mean low-water line of the Chesapeake Bay shore of Baltimore County or a line across the mouth of all inlets less than 100 yards in width, as the case may be, to a point on the northeastern side of the entrance to Shallow Creek defined by latitude  $39^{\circ} 12' 15.3''$  and longitude  $76^{\circ} 25' 57.4''$ ; thence in a straight line across the mouth of Shallow Creek to a point on the southwestern side of the entrance to Shallow Creek defined by latitude  $39^{\circ} 12' 11.1''$  and longitude  $76^{\circ} 26' 12.4''$ ; thence along the mean low-water line of the Chesapeake Bay shore of Baltimore County or a line across the mouth of all inlets less than 100 yards in width, as the case may be, to a point located on North Point at the extreme southern end of Baltimore County defined by latitude  $39^{\circ} 11' 43.8''$  and longitude  $76^{\circ} 26' 34.2''$ ; thence in a straight line to a point located in Chesapeake Bay about 150 yards offshore on the foundation of an old stone lighthouse tower defined by latitude  $39^{\circ} 11' 39.2''$  and longitude  $76^{\circ} 26' 31.4''$ ; thence in a straight line across a part of the waters of the mouth of Patapsco River to a point defined by the intersection of the center line of Brewerton Channel and a straight line between "North Point (Old Tower Foundation)" and a point defined by latitude  $39^{\circ} 09' 59.3''$  and longitude  $76^{\circ} 28' 39.7''$ , situated on Rock Point; thence along the center line of Brewerton Channel to a point defined by the intersection of this line with the center line of Fort McHenry Channel; thence along the center line of Fort McHenry Channel to a point defined by the intersection of this line with the southern boundary line of Baltimore County.<sup>3</sup>

<sup>1</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>2</sup> See "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and the progress map at the end of this publication.

<sup>3</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.



## WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the United States Coast and Geodetic Survey, "which said copies shall be filed in the office of the said commissioners," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county and the waters contiguous to but not within the territorial limits of adjacent counties.

This boundary line has been delineated on the "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey and is technically described and defined as follows:

Commencing at a point situated in the mouth of the Gunpowder River at the intersection of the boundary between Baltimore and Harford counties and a straight line between the northeastern end of Millers Island and the southwestern end of Sprys Island and defined by latitude  $39^{\circ} 16' 58.8''$  and longitude  $76^{\circ} 20' 10.0''$ ; thence in a straight line across a part of Chesapeake Bay to a point situated about  $1\frac{1}{8}$  miles south of the southern end of Pooles Island and defined by latitude  $39^{\circ} 15' 30.0''$  and longitude  $76^{\circ} 16' 20.4''$ ; thence in a straight line along the waters of Chesapeake Bay to a point situated about  $3\frac{3}{8}$  miles east of "Seven Foot Knoll Light" and  $3\frac{1}{8}$  miles southeast of "Craighill Channel Light (Front Range)" and defined by latitude  $39^{\circ} 09' 10.6''$  and longitude  $76^{\circ} 21' 00.0''$ ; thence in a straight line along the continuation of the center line of Brewerton Channel to Brewerton Channel, and thence along the center line of Brewerton Channel to a point defined by the intersection of this line and a straight line between "North Point (Old Tower Foundation)" and a point defined by latitude  $39^{\circ} 09' 59.3''$  and longitude  $76^{\circ} 28' 39.7''$ , situated on Rock Point.<sup>1</sup>

<sup>1</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.

## LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION.

The oyster laws of Maryland authorizing the survey to be made by the shell fish commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of location and character of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking a landmark has only an indefinite idea of its location. They gradually proceed from description of the general locality of a landmark to the descriptions of its immediate surroundings. This is followed by specific details of the character of the center and reference marks and a "round" of reference angles and distances which in themselves frequently contain enough information to furnish an independent and reliable location of the triangulation station.

### METHOD OF DESCRIBING TRIANGULATION STATIONS.

*The separate descriptions of triangulation stations should not be used without reading the following explanation of the method of describing the triangulation stations, as it contains certain details that are common to all the landmarks described in this publication and which are omitted in the separate descriptions as being needless repetitions:*

*Name.*—The title at the top of each separate description is the name by which the landmark or triangulation station is known and designated in all work and published oyster records or oyster charts of both the Government and State. The selection of the name is usually left to the triangulator establishing the station, and it may or may not have geographic or other significance in reference to the locality.

*General locality.*—Under this heading is given the general locality of the landmark in reference to well-known and prominent natural or artificial features, such as the nearest body of water, town, river, steamer wharf, well-defined point of land, church, or any other feature that is likely to remain both permanent and prominent.

This heading also covers a reference to the published chart or map which shows the location of the station most clearly. Nearly all the triangulation stations described in this publication are plainly indicated by name and a triangulation symbol on the published charts of oyster bars of Maryland. In this case they are referred to by serial number only, the words "charts of oyster bars of Maryland" being omitted to avoid needless repetition. These published oyster charts are on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{2}$  inches to a statute mile) and show the locations of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

*Immediate locality.*—Under this heading is given the description of the "observed station" in reference to its immediate surroundings. This is supposed to include a statement of the station's estimated elevation above high water or some other well-defined level of the locality, such as a road or house; the character of the ground on which it is located, such as marsh land, sand beach, cultivated field, or meadow; estimated bearings in points of the compass and estimated distances in yards *from (not to)* easily recognized features, such as extreme end of point, edge of bluff, bank of creek, line of telephone poles, shore line, barn, house, fence, ditch, trees, or any other definite detail, such as being on range with the tangent of an island and a church; and so forth.

When a standard monument has been established near the station as a "reference station," this heading also covers a statement of the true bearing of the monument in degrees and minutes and its measured distance in meters, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached and might be mistaken for the center mark of the "observed station" unless special attention is called to it.

The distinction between the "observed station" and "reference station" should be carefully noted by anyone making use of the description of stations for any future surveying operations.

The "observed station" is located at the particular triangulation point covered by the description of stations, and is the one whose geographic position is first computed, as it is the point which was "occupied" and "observed on" for horizontal angles. However, in spite of the primary importance of the location of the "observed station," it will be noted from the description of stations that frequently it is not marked as well as the "reference station," and in some instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate "observed stations" on edges of banks and ends of points of land, which in the tide-water section of Maryland generally means they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the great need of "reference stations," if the frequent reestablishment of a new framework of triangulation is to be avoided.

The chief reason and need for the establishment of the "reference station," or secondary station, as it might be well named, is explained in the preceding paragraph, but in several instances other reasons, such as the location of the "observed station"

on an unstable sand dune, in a cultivated field, in front of a residence, or other places objectionable to the landowner, have led to establishment of "reference stations." The location of the "reference station" in relation to the "observed station" is fixed for plotting on charts or for computation of its geographic position by checked measurements of its distances and azimuth from the "observed station."<sup>1</sup>

• *Marks.*—Under this heading is given a description of the character of the permanent monuments or other marks of the location of the "observed station," and of the "reference station" where one has been established.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom, the center of its square section can be used as the location of the station.

As the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

*References.*—Under this heading are given the "rounds" of directions and distances to all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described, this, if possible, being a lighthouse, church spire, or other permanent and prominent point. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>2</sup> of the initial object is always given in parentheses alongside its name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by horizontal angles or for the relocation of corner buoys of oyster-bar boundaries by the method of compass directions described in this publication under the heading of "Boundaries of oyster bars."

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles, and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters," however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner, the accuracy of the directions are indicated by the refinement of angular measure with which they are recorded.

<sup>1</sup> Geographic coordinates (latitude, longitude, distance, and azimuth) relating to any of the "observed stations" or of the "reference stations" described in this publication can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> The mean magnetic variation for Baltimore County was  $6^{\circ} 15'$  west of north in 1911 and increasing at the rate of  $5'$  yearly.

DESCRIPTIONS OF TRIANGULATION STATIONS.

POOLES ISLAND LIGHT.

*General locality.*—Upper Chesapeake Bay on northwest side of Pooles Island. (See Chart No. 27.)

*Immediate locality.*—Observed station is on a detached tower known as Pooles Island Lighthouse.

*Marks.*—Observed station is center point of lantern on tower.

*References.*—

“Craighill Channel Light (Front Range)” (S 44° 19' W).    0   '   "    00   00   00   . . . . . 10 miles.

POOLES ISLAND 2.

*General locality.*—Upper Chesapeake Bay on Pooles Island, about ¼ mile southeast of Pooles Island Light and ¼ mile north by west of Pooles Island wharf. (See Chart No. 27.)

*Immediate locality.*—Observed station is in a peach orchard, on highest ground on northern part of Pooles Island, about 500 yards southeast of Pooles Island Light and 370 yards north by west of farmhouse. The angle at the southwest corner of the farmhouse between the windmill at the barn and the observed station is 84°, and the angle at the observed station between the light tower and the fog-bell tower is 2° 47'.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument. (Note: These marks replace old ones of 1896.)

*References.*—

“Pooles Island Light” (N 47° 16' W). . . . .	0	00	00	. . . . .	452 meters.
Break in bluff on east shore of bay showing through peach trees. . . . .	153	12	..	. . . . .	3¾ miles.
Center of chimney of small house in rear of dwelling. . . . .	215	00	..	. . . . .	¼ mile.
Center of middle one of three chimneys on dwelling. . . . .	218	03	..	. . . . .	¼ mile.
Center of cupola on small building. . . . .	220	50	..	. . . . .	¼ mile.
Near gable of barn. . . . .	238	06	..	. . . . .	¼ mile.
Windmill. . . . .	241	56	..	. . . . .	¼ mile.
Center one of four nails in apple tree. . . . .	336	24	10	. . . . .	33.72 meters.

## WORTON POINT 2.

*General locality.*—Eastern shore of Chesapeake Bay on Worton Point, about  $1\frac{3}{8}$  miles north of mouth of Worton Creek and  $4\frac{1}{2}$  miles northeast of north end of Pooles Island. (See Progress map.)

*Immediate locality.*—Observed station is on tree and bush fringed bluff about 30 feet above high water, 2 yards east-southeast of edge of bluff and 1 yard south-southwest of a very small ravine. Cement monument marking reference station is 14.05 meters S  $61^{\circ} 17'$  E of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe with top 6 inches below surface of ground. Subsurface mark is center of 4-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Pooles Island 2" (S $62^{\circ} 18'$ W).....	0	00	00	..... $4\frac{5}{8}$ miles.
Right tree on Pooles Island.....	3	17	..	..... $4\frac{1}{2}$ miles.
South peak of small house.....	42	46	..	..... $4\frac{1}{2}$ miles.
Left peak of house.....	74	43	..	..... $4\frac{1}{2}$ miles.
Nail in blaze in ash tree ( $2\frac{1}{2}$ inches diameter).....	88	42	40	..... 1.06 meters.
Chimney outside of right end of old house.....	94	07	..	..... $3\frac{1}{2}$ miles.
Chimney near left end of roof of house with gables.....	116	04	..	..... $4\frac{1}{4}$ miles.
Nail in blaze in ash tree (3 inches diameter).....	154	28	10	..... 4.24 meters.
REFERENCE STATION.....	236	25	00	..... 14.05 meters.
Nail in blaze in locust tree (5 inches diameter).....	310	44	20	..... 4.61 meters.

## BRAMBLE.

*General locality.*—Eastern shore of Chesapeake Bay, about 3 miles southeast of center of Pooles Island, 3 miles north-northeast of Tolchester Beach, and  $1\frac{1}{4}$  miles southwest of entrance to Fairlee Creek. (See Progress map.)

*Immediate locality.*—Observed station is on a tree and bush fringed bluff about 30 feet above high water, 3 yards east of edge of bluff, 3 yards west of edge of cultivated field, 35 yards southwest of trees at edge of gully, and 200 yards west of other trees. Cement monument marking reference station is 47.16 meters N  $67^{\circ} 05'$  E of observed station.

*Marks.*—Observed station is 2-inch stub projecting 3 inches above surface of ground. Subsurface mark is beer bottle buried below base of stub. Reference station is center point of triangle on standard cement monument projecting 2 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Craighill Channel Light (Rear Range)" (S $78^{\circ} 44'$ W).....	0	00	00	..... $9\frac{3}{8}$ miles
Left tree on Pooles Island.....	37	53	..	..... 3 miles.
Windmill on middle of long building on Pooles Island.....	54	00	..	..... $2\frac{7}{8}$ miles.
North peak of house with several gables on Pooles Island.....	55	21	..	..... $2\frac{7}{8}$ miles.
"Pooles Island Light".....	57	19	00	..... $3\frac{3}{8}$ miles.
REFERENCE STATION.....	168	21	00	..... 47.16 meters.
Cupola on barn.....	259	24	40	..... 1 mile.
"Craighill Channel Light (Front Range)".....	344	34	10	..... $10\frac{1}{4}$ miles.
"Fort Howard Taller Water Tank".....	354	30	00	..... $12\frac{1}{2}$ miles.
Left one of two smokestacks at Sparrows Point.....	359	35	..	..... $14\frac{1}{2}$ miles.

## MITCHELLS BLUFF 2.

*General locality.*—Eastern shore of Chesapeake Bay on Mitchells Bluff, just north of first break in bluff, about  $\frac{5}{8}$  miles north-northeast of Tolchester Beach Wharf. (See Progress map.)

*Immediate locality.*—Observed station is in cultivated ground about 30 feet above high water, 13 yards southeast of edge of bluff, 50 yards northeast of point of gully where fishermen haul up gear, 70 yards south of small clump of trees, and  $\frac{1}{4}$  mile northwest of a large farmhouse.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is wire in center of 2-inch tile pipe buried with top 2 inches below base of monument. (Note: Subsurface mark is either a part or replaces the original one of 1896.)

*References.*—

"Craighill Channel Light (Rear Range)" (N 87° 52' W).....	0	00	00	.....	8 $\frac{3}{8}$ miles.
Chimney at left end of house on opposite shore.....	57	00	..	.....	6 $\frac{1}{4}$ miles.
Chimney at left end of house on Pooles Island.....	71	11	..	.....	4 $\frac{1}{4}$ miles.
Chimney on middle of roof of building beyond trees.....	170	10	..	.....	$\frac{5}{8}$ mile.
Spindle of weather vane on middle cupola of barn.....	200	28	30	.....	$\frac{1}{4}$ mile.
Near corner of large west chimney of house.....	210	54	..	.....	$\frac{1}{4}$ mile.
West peak of barn.....	260	07	..	.....	$\frac{3}{8}$ mile.
"Seven Foot Knoll Light".....	330	18	30	.....	10 $\frac{3}{4}$ miles.
"Craighill Channel Light (Front Range)".....	341	20	40	.....	8 $\frac{3}{4}$ miles.

## CRAIGHILL CHANNEL LIGHT (REAR RANGE).

*General locality.*—Western side of upper Chesapeake Bay, about 200 yards offshore from the southwestern end of Hart Island. (See Chart No. 27.)

*Immediate locality.*—Observed station is on a tall square pyramidal skeleton steel frame structure known as Craighill Channel Light (Rear Range).

*Marks.*—Observed station is center point of lantern on Craighill Channel Light (Rear Range).

*References.*—

"Craighill Channel Light (Front Range)" (S 0° 01' E).....	0	00	00	.....	2 $\frac{3}{4}$ miles.
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## CRAIGHILL CHANNEL LIGHT (FRONT RANGE).

*General locality.*—Western side of Chesapeake Bay, about 2 miles offshore and about 2 $\frac{3}{4}$  miles east of North Point at entrance to Patapsco River. (See Chart No. 27.)

*Immediate locality.*—Observed station is on dwelling on cylindrical foundation known as Craighill Channel Light (Front Range).

*Marks.*—Observed station is center point of lantern on Craighill Channel Light (Front Range).

*References.*—

"Craighill Channel Light (Rear Range)" (N 0° 01' W).....	0	00	00	.....	2 $\frac{3}{4}$ miles.
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## Survey of Oyster Bars, Baltimore County, Md.

## NORTH POINT (OLD TOWER FOUNDATION).

*General locality.*—Northern side of entrance to Patapsco River near North Point. (See Chart No. 27.)

*Immediate locality.*—Observed station is on an old stone tower foundation about 150 yards offshore from North Point.

*Marks.*—Observed station is center point of foundation of stone tower formerly used as a light-house.

*References.*—

"Craighill Channel Light (Front Range)" (Front  $0^{\circ} \quad ' \quad ''$   
Range)" (S  $81^{\circ} 20' E$ ).....  $0 \quad 00 \quad 00 \quad \dots \quad 2\frac{1}{2}$  miles.

## FORT HOWARD TALLER WATER TANK.

*General locality.*—Northern side of entrance to Patapsco River about  $\frac{1}{2}$  mile north-northwest of North Point. (See Chart No. 27.)

*Immediate locality.*—Observed station is the taller of two steel water tanks on steel towers at Fort Howard.

*Marks.*—Observed station is center point of pipe attached to center of bottom of tank.

*References.*—None necessary.

## CUTOFF CHANNEL LIGHT (FRONT RANGE).

*General locality.*—Northern side of entrance to Patapsco River about 125 yards offshore and  $\frac{1}{4}$  mile west-northwest of North Point. (See Chart No. 27.)

*Immediate locality.*—Observed station is an octagonal brick tower known as Cutoff Channel Light (Front Range).

*Marks.*—Observed station is center point of lantern on Cutoff Channel Light (Front Range).

*References.*—

"Cutoff Channel Light (Rear Range)"  $0^{\circ} \quad ' \quad ''$   
(N  $30^{\circ} 30' W$ ).....  $0 \quad 00 \quad 00 \quad \dots \quad 1\frac{1}{2}$  miles.

## CUTOFF CHANNEL LIGHT (REAR RANGE).

*General locality.*—Northeastern side of Patapsco River on western side of entrance to Jones Creek, about  $1\frac{3}{4}$  miles north-northwest of North Point and 1 mile east of the town of Sparrows Point. (See Chart No. 27.)

*Immediate locality.*—Observed station is on a square pyramidal skeleton steel frame structure known as Cutoff Channel Light (Rear Range).

*Marks.*—Observed station is center point of lantern on Cutoff Channel Light (Rear Range).

*References.*—

Bodkin Light (Old Tower) (S  $20^{\circ} 12' E$ )  $0 \quad 00 \quad 00 \quad \dots \quad 6$  miles.

## ROCK POINT.

*General locality.*—Southwestern shore of Patapsco River on Rock Point at southeastern side of entrance to Rock Creek and about  $2\frac{5}{8}$  miles southwest of North Point. (See Chart No. 27.)

*Immediate locality.*—Observed station is near the extreme end of point about 12 yards from sea wall, and 70 yards southeast of a small tower.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

"Seven Foot Knoll Light" (S  $78^{\circ} \quad 0^{\circ} \quad ' \quad ''$   
17' E).....  $0 \quad 00 \quad 00 \quad \dots \quad 3\frac{3}{4}$  miles.  
"Bodkin Point (Old Tower)"..... 25 43 ..  $3\frac{3}{4}$  miles.  
Small tower..... 194 00 .. 70 yards.  
Outer "White Rocks"..... 211 07 ..  $\frac{3}{4}$  mile.  
Water tower on opposite shore..... 291 27 ..  $2\frac{1}{2}$  miles.



BODKIN POINT (OLD TOWER).

*General locality.*—Southern side of entrance to Bodkin Creek on Bodkin Point. (See Progress map.)

*Immediate locality.*—Observed station is about 15 yards east of an old stone dwelling on top of an old tower formerly used as a lighthouse.

*Marks.*—Observed station is center of drill hole about 2 inches in diameter and 3 inches deep in stone platform on and near center of top of tower.

*References.*—

“Seven Foot Knoll Light” (N 30° 0' 0")  
 04' E)..... 0 00 00 ..... 1½ miles.

SEVEN-FOOT KNOLL LIGHT.

*General locality.*—Western side of Chesapeake Bay off entrance to Patapsco River about 2½ miles north-northeast of Bodkin Point and ¾ miles southeast of North Point. (See Chart No. 27.)

*Immediate locality.*—Observed station is on an octagonal screw pile structure known as Seven-Foot Knoll Lighthouse.

*Marks.*—Observed station is center point of lantern on Seven-Foot Knoll Light.

*References.*—

“Bodkin Point (Old Tower)” (S 30° 0' 0")  
 03' W)..... 0 00 00 ..... 1½ miles.

SWAN POINT 3.

*General locality.*—Eastern shore of Chesapeake Bay on Swan Point about 5½ miles south-southwest of Tolchester Beach Wharf and 7 miles north of Love Point. (See Progress map.)

*Immediate locality.*—Observed station is on sand and marsh point about 2 feet above high water, 5 feet east of shore, 60 yards south-southwest of a fisherman's cabin, and 250 yards from the extreme end of Swan Point. Cement monument marking old reference station is in marsh 21.43 meters N 89° 13' E of observed station. Standard cement monument marking new reference station is on line to old reference station 13.26 meters N 89° 13' E of observed station.

*Marks.*—Observed station is ¼-inch copper rod set in an 8-inch square cement monument with top about 5 inches below surface of ground. Subsurface mark is the neck of a flask set in cement about 4 feet below the surface. New reference station is center point of triangle on standard cement monument. Old reference station is eastern one of two ¼-inch copper rods in an 8-inch cement monument.

*References.*—

“Love Point Light” (S 2° 11' W) ... 0 00 00 ..... 5¾ miles.  
 “Baltimore Light”..... 46 07 00 ..... 8½ miles.  
 Stack on garbage plant at Bodkin  
 Point..... 82 21 .. ..... 8¾ miles.  
 “Seven-Foot Knoll Light”..... 95 04 50 ..... 7 miles.  
 Left stack at Sparrows Point..... 111 12 .. ..... 12¾ miles.  
 “Fort Howard Taller Water Tank”.. 112 28 20 ..... 9¾ miles.  
 “Craighill Channel Light (Front  
 Range)”..... 114 59 50 ..... 7 miles.  
 “Craighill Channel Light (Rear  
 Range)”..... 131 46 20 ..... 8¾ miles.  
 Chimney of cabin..... 203 54 .. ..... 58 yards.  
 Gable of Rockhall Wharf house..... 264 07 .. ..... 1 mile.  
 OLD REFERENCE STATION..... 267 02 20 ..... 21.43 meters.  
 NEW REFERENCE STATION  
 (STANDARD CEMENT MONUMENT). 267 02 20 ..... 13.26 meters.  
 Chimney of house to right of Wind-  
 mill Point..... 292 12 .. ..... 2 miles.  
 Gable of barn..... 303 49 .. ..... 2¾ miles.  
 Gable of barn near Wickes Beach... 340 52 .. ..... 7¾ miles.

## BOUNDARIES OF OYSTER BARS.

### EXPLANATION.

The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the designation and employment by the Department of Commerce and Labor of such officers, experts, and other technically qualified persons "as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland." The oyster laws of Maryland provide that the Maryland Shell Fish Commissioners, with the aid of such persons as may be designated by the Government, shall proceed "to have laid out, surveyed, and designated on the said charts the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts." The oyster laws of Maryland also provide in another section that there shall "be made a true and accurate survey of the natural oyster beds, bars, and rocks \* \* \* with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey."

Under the provisions of the laws quoted above the State of Maryland, in cooperation with the Department of Commerce and Labor, must define the boundaries of the natural oyster bars "as accurately as practicable" and also "with reference to fixed and permanent objects on the shore, giving courses and distances." The requirement of "as accurately as practicable" is easily fulfilled by definition of the location of the corners of the oyster bars by latitude and longitude. In fact, this method is probably the most satisfactory and accurate one that could be used for all purposes of legal definition or for relocation of the oyster-bar boundaries by competent engineers. Therefore the additional requirement of "giving courses and distances" is superfluous and is only fulfilled in the published definitions on account of the specific provisions of the law making it compulsory. This part of the description of boundaries has involved an immense amount of extra computations in order to prevent technical discrepancies between the latitude and longitude of a corner of an oyster bar and its distance and bearing from objects on shore of known latitude and longitude without adding anything to the accuracy and very little to the convenience of practical use of the descriptions of the oyster-bar boundaries.

As provided by law the boundaries of the oyster bars are all straight lines, but in the work already completed they have inclosed areas of all shapes from triangles to

complicated 14-sided figures, and of all sizes from 4 acres to 7,548 acres. The sides have varied in length from 93 to 7,529 yards, and in some cases the corners of the boundaries have been practically at the triangulation stations from which they are located, while in other instances they were over 13,600 yards from the landmarks most available for the purpose of fixing their position.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made and the magnitude of the work with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and great importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and the future.

#### METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in each county.

*Title.*—At the top of each tabular form is given the legal name of the oyster bar to be described, and the one by which it is known and designated in the published oyster records and on the oyster charts. The adopted name of the oyster bar is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the commission; and when there was no local name in common use a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the oyster bar was located.

Underneath the name, in parentheses, is given the general locality of the oyster bar and the serial number of the "Maryland Oyster Chart" on which its legal boundaries are shown.<sup>1</sup>

*First column.*—This column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar. Where a corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars, only the number of the corner of the oyster bar being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the commission as the primary technical definition of the location of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

Survey, and the points thus defined can be relocated from distant triangulation stations of the survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>1</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>2</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars: one, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

(1) *Triangulation.*—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those

<sup>1</sup> The mean magnetic variation for Baltimore County was 6° 15' west of north in 1911 and increasing at the rate of 5' yearly.

<sup>2</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D. C.

not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant, the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "Tea Table" oyster bar, which is the first one described in this publication, and assume that "Corner No. 3," is to be examined as to its position. The angle between the two landmarks "Pooles Island 2" and "Craighill Channel Light (rear range)" as determined from right to left from the forward bearings from this corner is  $122^{\circ} 06'$  and the angle between "Craighill Channel Light (rear range)" and "Swan Point 3" is  $86^{\circ} 06'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree, the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor (position finder), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The second angle is then placed

on the sextant and the same operation gone through, and so on, first using one angle on the sextant, then the other, until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic location of a point is attained. In fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State fishery force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer can take compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>1</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks for which the bearings are published have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used. This can be done by getting their bearings directly from the chart by parallel rulers or a protractor and then applying these new bearings in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fifth column of the tables opposite the "corner" in question. The direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

<sup>1</sup> The mean magnetic variation for Baltimore County is 6° 15' west of north in 1911 and increasing at the rate of 5' yearly.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

BOUNDARIES OF NATURAL OYSTER BARS.

TEA TABLE.

(Chesapeake Bay—Chart No. 27.)

Corner of bar	Latitude	Longitude	True bearing		Distance	United States Coast and Geodetic Survey triangulation station
			Forward	Back		
1	39 11 15.97	76 20 55.05	N 40 59 W	S 41 00 E	6,635	Craighill Channel Light (Rear Range). Craighill Channel Light (Front Range). Seven Foot Knoll Light.
			N 88 40 W	S 88 41 E	4,353	
			S 55 33 W	N 55 30 E	6,948	
2	39 13 44.08	76 18 37.80	N 32 17 E	S 32 18 W	8,413	Pooles Island 2. Craighill Channel Light (Rear Range). Craighill Channel Light (Front Range).
			S 89 54 W	N 89 51 E	7,951	
			S 58 15 W	N 58 12 E	9,351	
3	39 14 27.97	76 17 21.27	N 23 43 E	S 23 44 W	6,184	Pooles Island 2. Craighill Channel Light (Rear Range). Swan Point 3.
			S 81 37 W	N 81 33 E	10,065	
			S 4 29 E	N 4 29 W	11,999	
4	39 14 19.47	76 17 12.25	N 20 44 E	S 20 45 W	6,360	Pooles Island 2. Craighill Channel Light (Rear Range). Swan Point 3.
			S 83 26 W	N 83 20 E	10,261	
			S 3 26 E	N 3 26 W	11,697	
5	39 11 37.54	76 19 11.77	N 58 42 W	S 58 44 E	8,263	Craighill Channel Light (Rear Range). Seven Foot Knoll Light. Swan Point 3.
			S 61 08 W	N 61 04 E	9,640	
			S 31 43 E	N 31 41 W	7,304	

## Survey of Oyster Bars, Baltimore County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MILLERS ISLAND.

(Chesapeake Bay—Chart No. 27.)

Corner of bar	Latitude	Longitude	True bearing		Distance	United States Coast and Geodetic Survey triangulation station
			Forward	Back		
1	39 12 42.80	76 20 54.83	N 64 28 W	S 64 30 E	Yards. 4,827	Craighill Channel Light (Rear Range).
			S 57 02 W	N 57 00 E	5,194	Craighill Channel Light (Front Range).
			S 37 53 E	N 37 50 W	10,660	Swan Point 3.
2	39 12 57.17	76 21 00.00	N 69 16 W	S 69 18 E	4,512	Craighill Channel Light (Rear Range).
			S 51 54 W	N 51 52 E	5,364	Craighill Channel Light (Front Range).
			S 36 54 E	N 36 52 W	11,127	Swan Point 3.
3	39 13 08.45	76 20 11.73	N 77 30 W	S 77 32 E	5,620	Craighill Channel Light (Rear Range).
			S 56 05 W	N 56 02 E	6,615	Craighill Channel Light (Front Range).
			S 30 16 E	N 30 14 W	10,742	Swan Point 3.
4	39 12 54.00	76 20 05.95	N 73 11 W	S 73 13 E	5,890	Craighill Channel Light (Rear Range).
			S 60 24 W	N 60 22 E	6,486	Craighill Channel Light (Front Range).
			S 30 54 E	N 30 53 W	10,246	Swan Point 3.

## MAN O'WAR SHOALS.

(Chesapeake Bay—Chart No. 27.)

1	39 10 45.95	76 21 00.00	N 35 01 W	S 35 03 E	7,355	Craighill Channel Light (Rear Range).
			S 62 28 W	N 62 27 E	6,313	Seven Foot Knoll Light.
			S 56 12 E	N 56 10 W	8,040	Swan Point 3.
2	39 10 49.50	76 23 40.30	N 0 09 W	S 0 09 E	5,901	Craighill Channel Light (Rear Range).
			N 61 47 W	S 61 49 E	5,673	Fort Howard Taller Water Tank.
			S 24 35 W	N 24 35 E	3,341	Seven Foot Knoll Light.
3	39 11 16.18	76 23 40.00	N 0 16 W	S 0 16 E	5,000	Craighill Channel Light (Rear Range).
			N 70 24 W	S 70 26 E	5,315	Fort Howard Taller Water Tank.
			S 19 33 W	N 19 32 E	4,179	Seven Foot Knoll Light.
4	39 11 16.20	76 21 37.65	N 32 53 W	S 32 54 E	5,956	Craighill Channel Light (Rear Range).
			N 88 20 W	S 88 21 E	3,234	Craighill Channel Light (Front Range).
			S 49 30 W	N 49 28 E	6,064	Seven Foot Knoll Light.



## APPENDIXES.

### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*

SEC. 4. That this act shall take effect from the date of its passage.

[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May

*Survey of Oyster Bars, Baltimore County, Md.*

twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven \* \* \*.

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[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars \* \* \*.

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[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of Congress approved March 4, 1909.]

AN ACT Making appropriation for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and ten, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and ten, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

---

[Act of Congress approved June 25, 1910.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eleven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eleven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, fifteen thousand dollars.

*Survey of Oyster Bars, Baltimore County, Md.*

[Act of Congress approved March 4, 1911.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and twelve, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and twelve, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, thirteen thousand dollars \* \* \*.

[Act of the Legislature of Maryland approved April 2, 1906.]

AN ACT To establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis, and the said commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie \* \* \*.

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

\* \* \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the said to the Clerks of the Circuit court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks shall be construed in all the courts of the State to be barren bottoms and open for disposal by the State for the purpose of private planting or propagation of oysters thereon

under the provisions of this Act; provided, that the said survey and report shall not be construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act.

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the survey, is as follows:

AN ACT Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or leveling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>1</sup> *And be it enacted,* That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses (to be by them sworn or affirmed and examined), shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted,* That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

<sup>1</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from Second Report of Shell Fish Commission.]

OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman oyster culture law, upon the statute books of Maryland, had a twofold object in view:

"1. To encourage an industry in oyster culture upon the barren bottoms beneath the tidewaters of the State.

"2. To prevent the leasing of natural oyster bars for the purpose of oyster culture."

SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."

DEFINITION OF A NATURAL OYSTER BAR.

NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman oyster culture law to exercise its judgment liberally in favor of the natural bars when surveying, charting, and buoying them, but other than this the commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the commission."

DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally, even though now practically barren of oysters, should be considered natural bars. Other citizens of the State, who are not directly interested in the oyster business but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which by methods known to oyster culturists may be made to yield a greater number of oysters than they now produce.

"It should be evident to everyone that neither of these definitions could be adopted by the commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by oystermen on one hand and by oyster culturists on the other is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd *v.* Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed, and is as follows:

What, then, is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible; but if so, I imagine that their extent must be too limited for them to be of much practical general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them, and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be

called natural bars or beds of oysters within the meaning of the act of assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and can not be located or appropriated by any individual.

#### APPLICATION OF DEFINITION.

Before this definition may be of use in determining accurately and scientifically the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors, and these factors must be combined into a practical scheme of investigating the condition of the ground under consideration.

Stated briefly, a livelihood is represented by a sum of money obtained from the sale, at a fixed price, of a certain quantity of oysters gathered in a given time from an allotted area of ground.

Knowing the value of each of these factors, it becomes possible to calculate the number of oysters an oyster ground must produce per square yard in order that oystermen may secure a livelihood by working upon it.

NOTE.—The factors into which the commission resolved the livelihood problem, the value assigned to each factor, and the scheme devised for practical use in examining and applying the definition to oyster bottoms are given in outline in their second report under the heading of the preceding extract, and in detail in their first report on pages 32 to 69.

#### APPENDIX C.—SUMMARY OF THE PARTICULAR SURVEYING OPERATIONS WHICH CONSTITUTE AN "OYSTER SURVEY" AS NOW BEING CARRIED ON IN MARYLAND.

*Explanation.*—A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland, will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest practical accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

*Triangulation survey.*—Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a framework or foundation. Therefore, a triangulation survey, including the permanent marking of the positions of landmarks with monuments, and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

*Topographic survey.*—The technical records which establish the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the leasable bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore a topographic survey is a necessary operation of a complete oyster survey.

*Hydrographic survey.*—In the settlement of the important question of what is or what is not a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore a hydrographic survey is a necessary operation of a complete oyster survey.

*Necessary foundation for an oyster survey.*—Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

*Special surveys and investigations pertaining to oysters.*—Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>1</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding-boat party in addition to the usual hydrographic work.<sup>2</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells or absence of shells.

The special oyster investigations<sup>3</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affect the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

*Preparation of results.*—The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>4</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for publication by the Government, the preparation of that part of the annual report of the commission covering the special oyster surveys and investigations, the making of the leasing charts and finished projections, and finally the filing of the oyster charts and records with the courts and the commission, thus opening a county for oyster culture.

*Summary.*—From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> See pp. 104 to 123 of "First Annual Report of Maryland Shell Fish Commission."

<sup>3</sup> See pp. 30 to 67 and 129 to 199 of "First Annual Report of Maryland Shell Fish Commission."

<sup>4</sup> No mention is made here of the large amount of administrative work of the commission, which is greatly complicated and increased by the effect of the oyster-survey operations on many thousands of people whose interests are more or less involved; or of the large amount of survey work involved in the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

## Survey of Oyster Bars, Baltimore County, Md.

APPENDIX D.—STATISTICS OF RESULTS OF THE COMBINED OYSTER SURVEY OPERATIONS OF THE GOVERNMENT AND STATE.<sup>1</sup>

Operations	Anne Arundel County		Somerset County		Wicomico County		Worcester County		Calvert County		Charles County		St. Marys County		Baltimore County		Total :
	June 20, 1906 June 20, 1907	June 20, 1907	May 1907 July 1907	Aug. 27, 1907 Dec. 1, 1908	Nov. 8, 1907 Apr. 11, 1908	May 2, 1908 Dec. 14, 1909	Aug. 18, 1908 Jan. 27, 1911	May 2, 1908 July 6, 1911	Apr. 14, 1909 Aug. 10, 1911	May 2, 1908 July 6, 1911	Aug. 18, 1908 Jan. 27, 1911	May 2, 1908 July 6, 1911	Apr. 14, 1909 Aug. 10, 1911	May 2, 1908 July 6, 1911	Apr. 14, 1909 Aug. 10, 1911	Apr. 14, 1909 Aug. 10, 1911	
Beginning of field work																	
Filing of certified charts and reports																	
Natural oyster bars surveyed and delineated																	
Acres of natural oyster bars	91		37	21,038	1,055	12,403	2,285	25,778	3,010								108,354
Acres of oyster bars surveyed and delineated	33,066		27,566														30,010
Acres of clam beds			54														54
Clam beds surveyed and delineated			32,168														32,168
Acres of clam beds			306														306
Boundary buoys located and planted	361		154	53	108	140	51	113	11								1,506
Triangulation landmarks established	123		86	30	48	78	42	238	15								1,515
Miles of water covered by triangulation	110		125	40	95	95	32	160	12								1,062
Square miles of water covered by triangulation	230		375	44	110	157	50	180	50								1,062
Miles of examination of shell bottom with chain apparatus	369		290	88	63	280	38	400	33								1,507
Oyster investigation stations occupied	440		679	162	147	667	123	1,422	61								3,170
Net stations established	4		3	1	2	2	1	7	1								20
Net stations occupied	37,049		17,904	3,387	3,649	11,292	1,631	19,344	1,080								95,336
Square miles covered by soundings and chain apparatus	88		47	3	3	30	4	37	6								198
Projections prepared and plotted	9		13	2	5	8	3	10	4								44
Leasing charts prepared	13		12	2	3	5	2	10	1								44
Charts published	4		6	2	3	5	1	8	1								27
Reports published	2		2	2	2	2	2	2	2								10
Progress maps published	2		2	2	2	2	2	2	2								10

<sup>1</sup> These statistics do not include the three amount of triangulation, topography, and hydrography resulting from previous work of the Coast and Geodetic Survey, which was utilized in the preparation of the publications here given. Work in Kent, Queen Annes, Talbot, and Dorchester Counties has been finished, but final statistics of results will not be published until these counties are opened for oyster culture.

<sup>2</sup> Less quantities covered by statistics of more than one county.

<sup>3</sup> Total area of natural oyster bars of Connecticut, 5,770 acres.







BALTIMORE

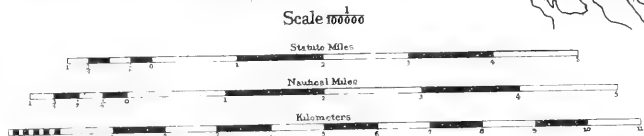
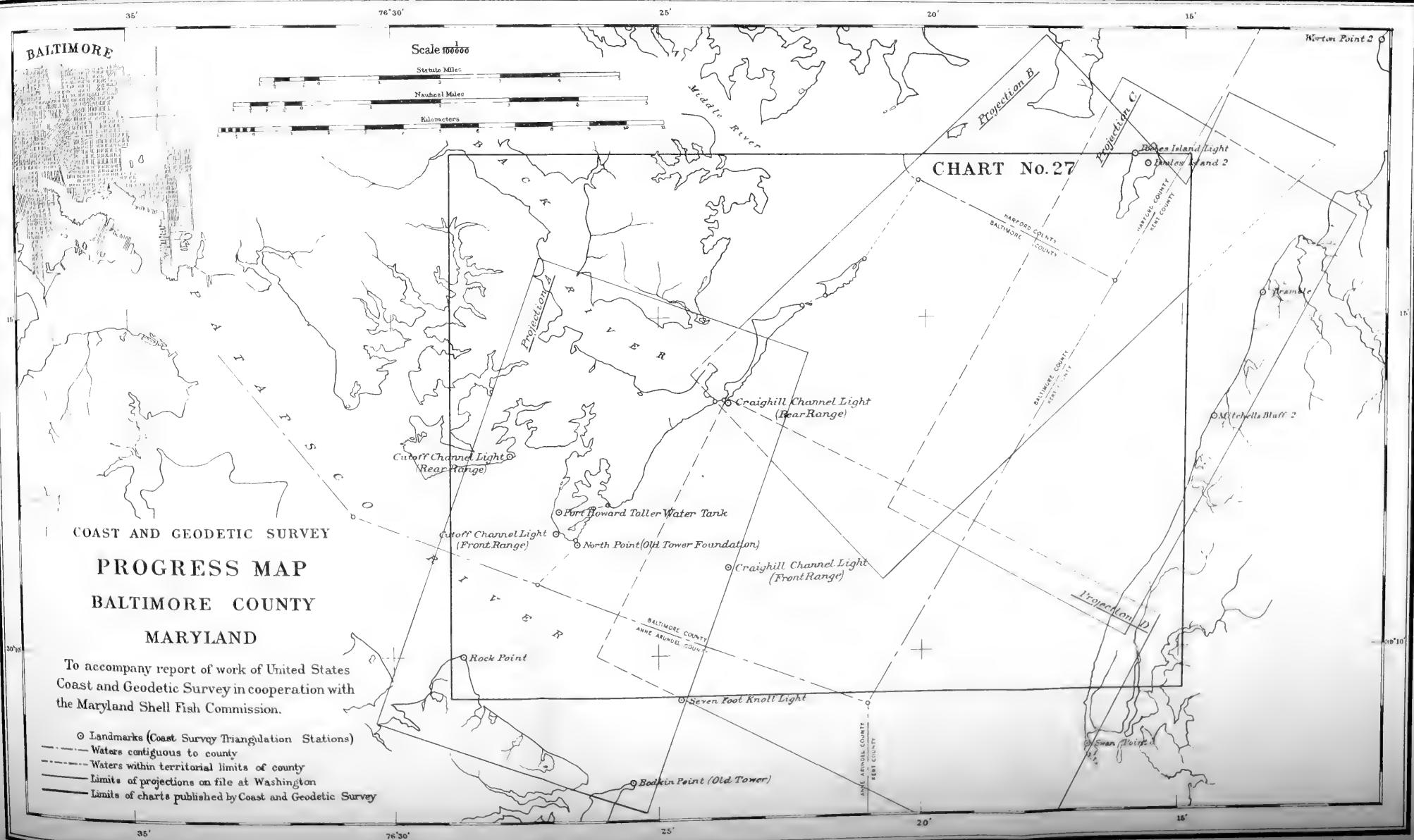


CHART No. 27

COAST AND GEODETIC SURVEY  
**PROGRESS MAP**  
 BALTIMORE COUNTY  
 MARYLAND

To accompany report of work of United States  
 Coast and Geodetic Survey in cooperation with  
 the Maryland Shell Fish Commission.

- Landmarks (Coast Survey Triangulation Stations)
- Waters contiguous to county
- - - Waters within territorial limits of county
- Limits of projections on file at Washington
- Limits of charts published by Coast and Geodetic Survey



COAST AND GEODETIC SURVEY

PROGRESS REPORT

BALTIMORE COUNTY

MANUAL

In compliance with the provisions of the Act of March 3, 1879, and the Act of March 3, 1879, the following report is submitted to the Board of Commissioners of the Coast and Geodetic Survey, Department of the Interior, Washington, D. C.

Prepared by the Surveyors-in-Chief, Baltimore County, Maryland

Washington, D. C., 1880

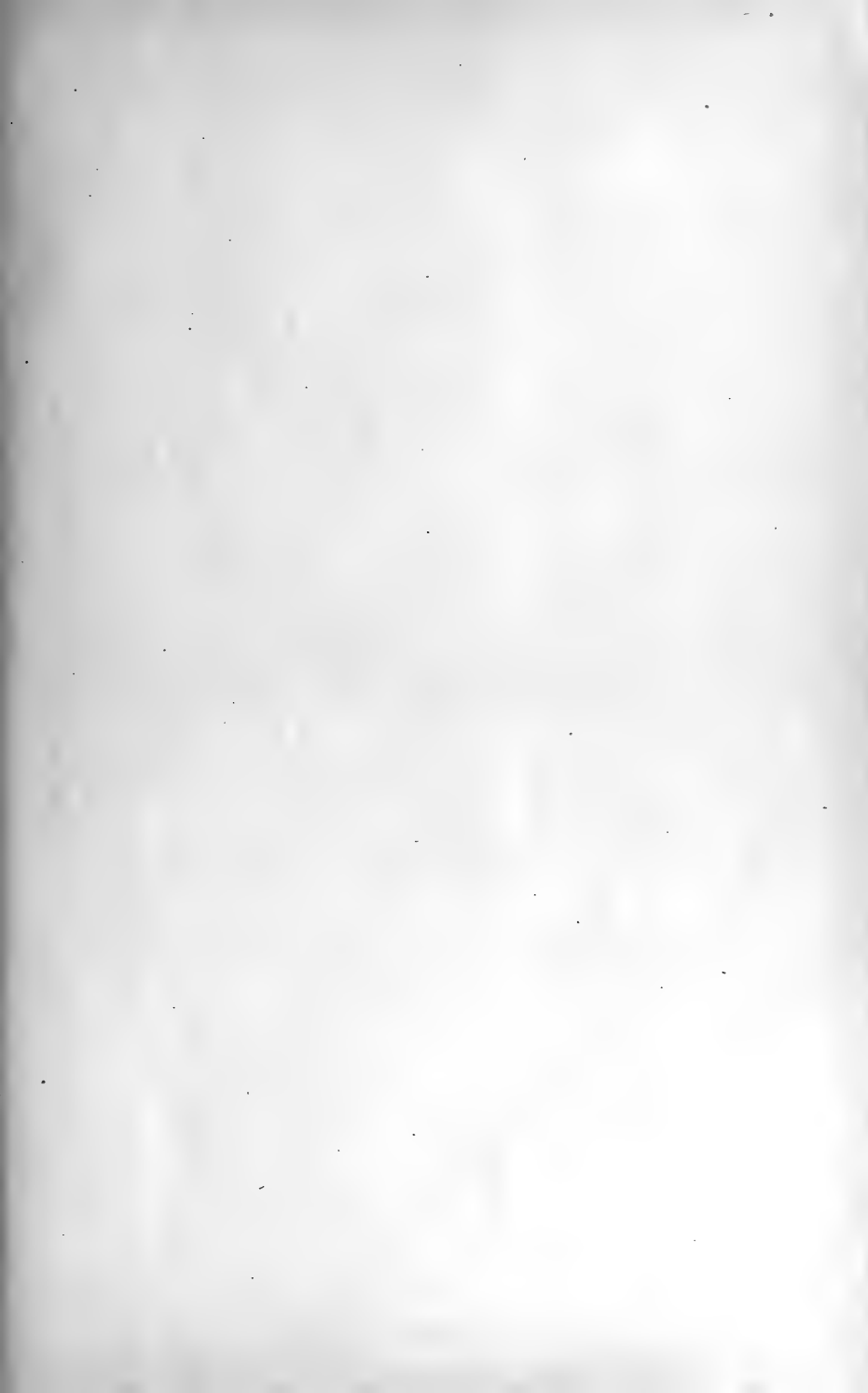
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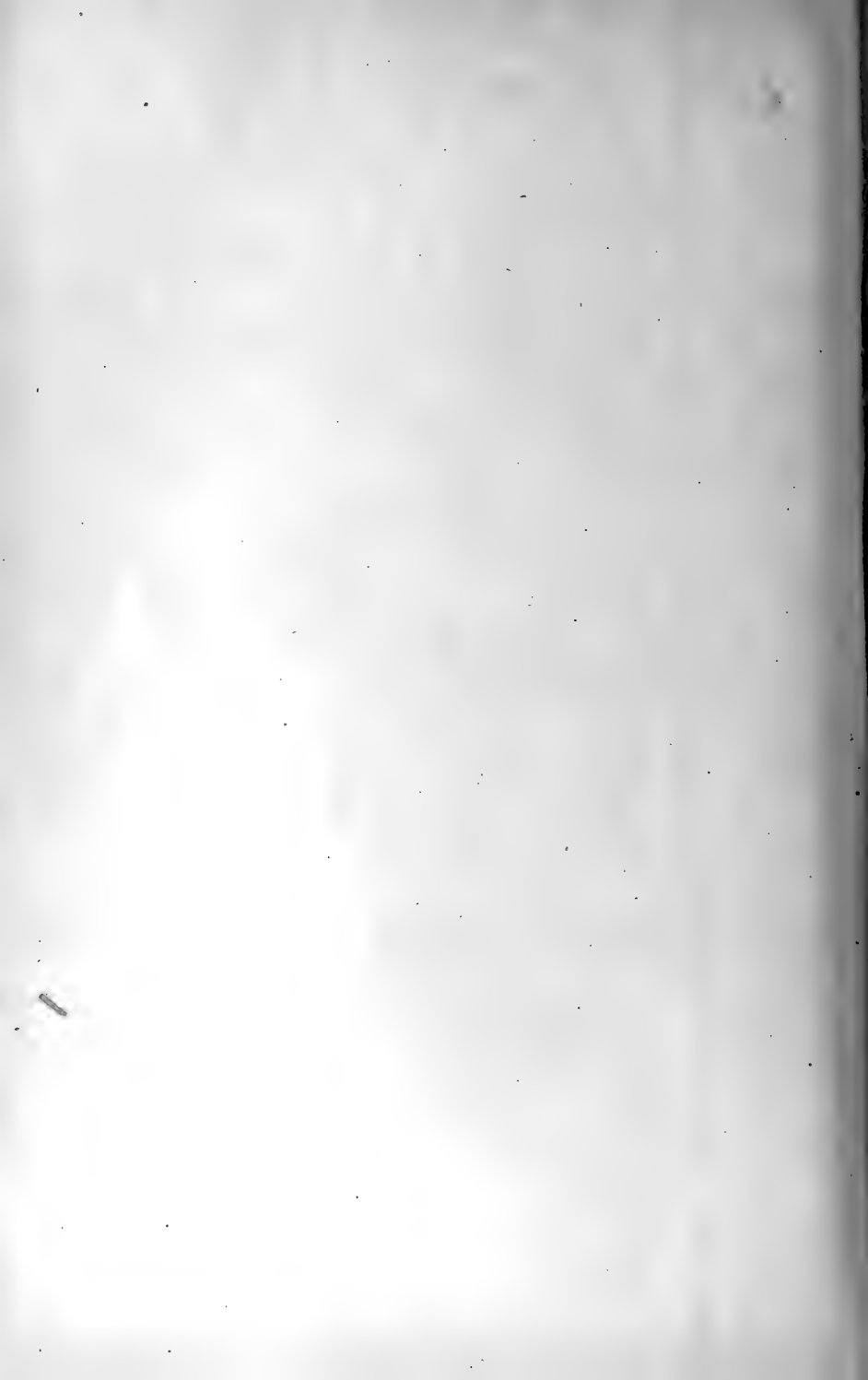
Under the authority of the Board of Commissioners

of the Coast and Geodetic Survey

Department of the Interior

Washington, D. C.





DEPARTMENT OF COMMERCE AND LABOR

COAST AND GEODETIC SURVEY

O. H. TITTMANN, Superintendent

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# SURVEY OF OYSTER BARS

## CALVERT COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND REPORT  
OF WORK OF UNITED STATES COAST AND GEODETIC SUR-  
VEY IN COOPERATION WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND SHELL FISH COMMISSION

By C. C. YATES

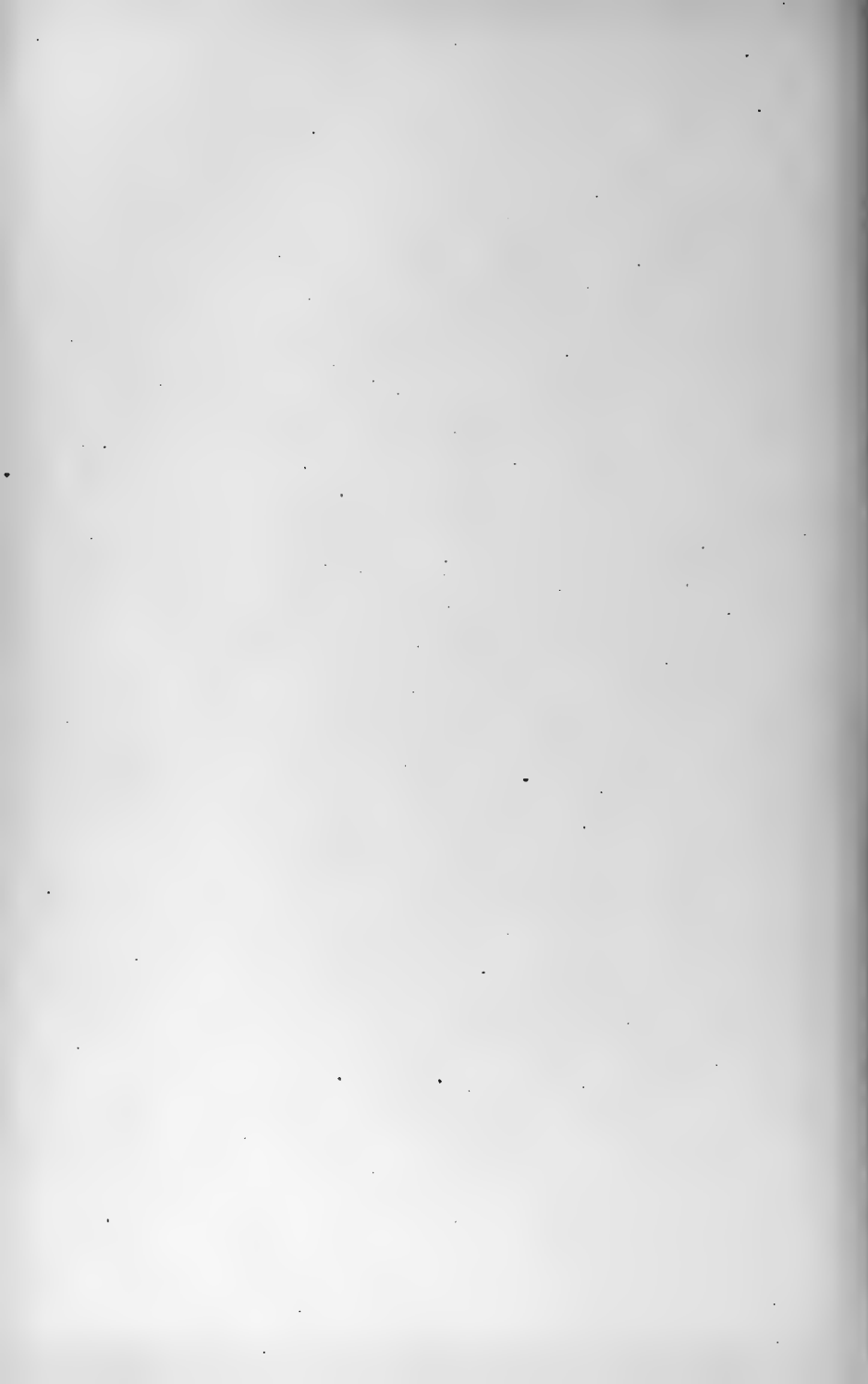
CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON

GOVERNMENT PRINTING OFFICE

1910





## LETTER OF SUBMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, December 21, 1909.*

SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, and certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shell fish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, 1909, and 1910.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To HON. CHARLES NAGEL,  
*Secretary of Commerce and Labor.*



## CERTIFICATION.

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BALTIMORE, MD., *December 10, 1909.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in Calvert County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,  
*Chief of Coast and Geodetic Survey Party,*  
*Assistant, Coast and Geodetic Survey.*

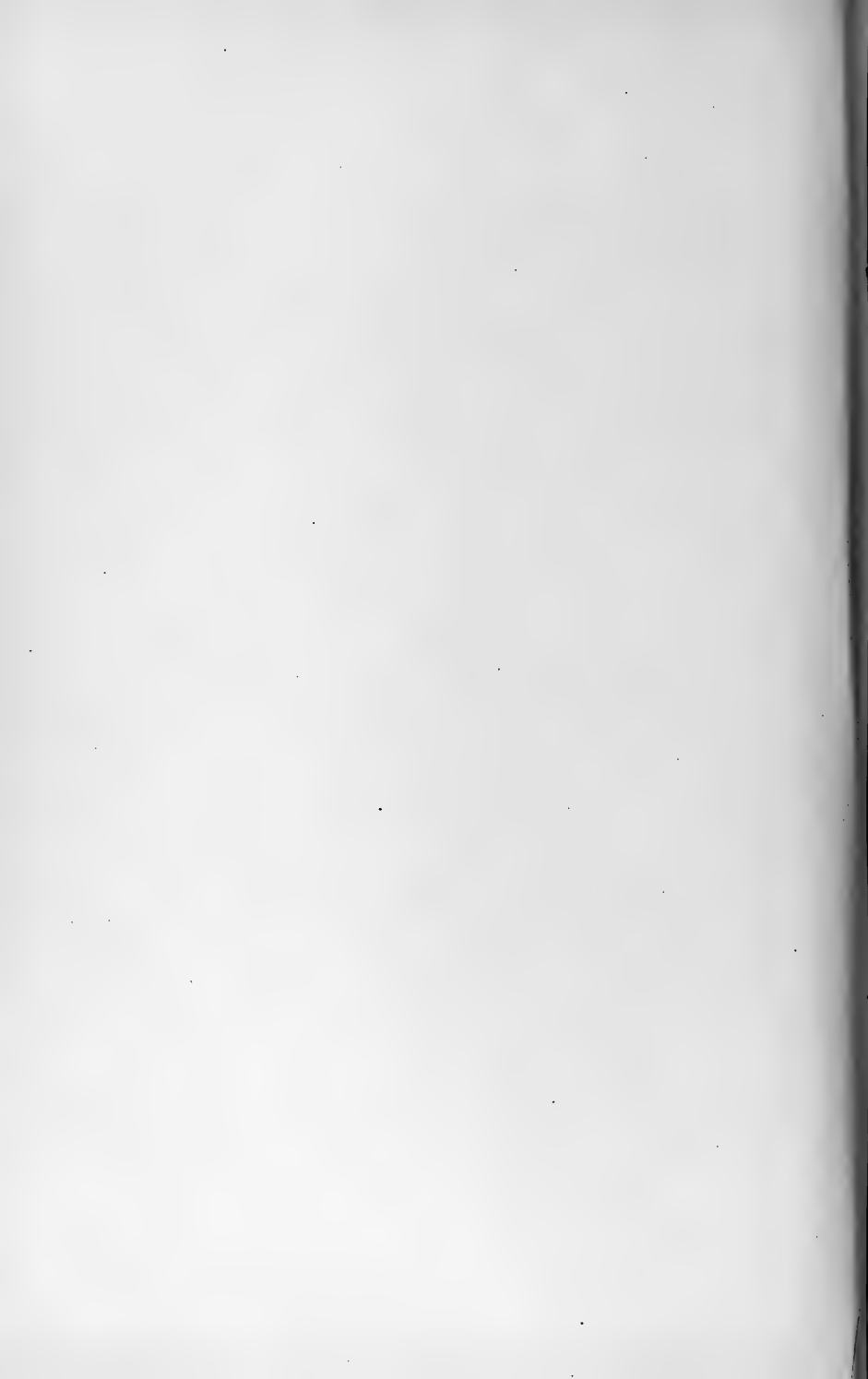
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BALTIMORE, MD., *December 10, 1909.*

Examined and certified to be correct.

WALTER J. MITCHELL,  
CASWELL GRAVE,  
BENJAMIN K. GREEN,  
*Maryland Shell Fish Commission.*  
SWEPSON EARLE,  
*Hydrographic Engineer.*

NOTE.—Certified copies of this publication and of the charts of the natural oyster bars of Calvert County were filed in the office of the clerk of the circuit court of Calvert County and in the office of the Board of Shell Fish Commissioners, at Annapolis, on December 14, 1909.



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# SURVEY OF OYSTER BARS, CALVERT COUNTY, MD.

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## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws <sup>a</sup> authorizing the work and the natural division of the surveying operations <sup>b</sup> of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consist of a series of charts and a technical report for each county surveyed.<sup>c</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster-bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey in charge of the work of that Service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.<sup>d</sup>

The publications prepared and issued by the State under the direction of the Shell Fish Commission consist of annual reports <sup>e</sup> of all the operations of the Commission

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<sup>a</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>b</sup> See Appendix C for a summary of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland.

<sup>c</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C. The publications ready for issue are those for Anne Arundel, Somerset, Wicomico, Worcester, and Calvert counties, those for St. Marys and Charles counties are now being prepared.

<sup>d</sup> The technical records and charts for each county are published separately on account of the requirements of the oyster-culture laws of the State and the practical considerations which make it desirable to have each county "opened up" for oyster culture as soon as practicable after the completion of its survey. For these reasons and the fact that these reports are each arranged for distribution and use in one county only without reference to other published records, much of the text of this publication is of necessity identical with similar previous publications for other counties.

<sup>e</sup> These reports can be obtained by application to the Shell Fish Commission, Annapolis, Md. They are issued annually in October, and the first and second reports are now available for distribution.

performed under the provisions of the laws of Maryland,<sup>a</sup> including results of biological and economic oyster investigations, methods and results of the hydrographic survey of the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.<sup>b</sup>

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the Service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential as a foundation for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>c</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the Bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL STATEMENT OF WORK OF COAST AND GEODETIC SURVEY.<sup>d</sup>

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need very

<sup>a</sup> See Appendix B for an extract from the "Second Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman Oyster Culture Law."

<sup>b</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>c</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, Assistant, Bureau of Fisheries.

<sup>d</sup> For a detail statement of the very large amount of excellent oyster survey work of the Maryland Shell Fish Commission see the "Annual Reports of the Maryland Shell Fish Commission."

little other summary than is indicated by the published "Charts of Natural Oyster Bars" and the scheme of hydrographic projections and triangulation stations shown on the county progress maps attached to each report.

The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars, but also to the Government for any future work it may do in the regions covered by the oyster-survey operations.

The boundaries of the various shellfish bottoms in relation to landmarks and the adjacent topography have been shown with all the accuracy permitted by the large-scale oyster charts published especially for that purpose.

The technical and legal descriptions of the boundaries and the description of the location of landmarks have been prepared and published in such a manner as to minimize the probability of future disputes in reference to their location.

Stated another way and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County:"

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last sixty-five years.

In fact, when the survey of the oyster bars of Maryland is completed, it is believed that it will stand the test of time and practical use as a working foundation for whatever form the oyster legislation of the future may assume, and that the doing of the work systematically and accurately, once for all, will lead finally to the development of a great natural food resource in the form of real oyster culture which will bring ample reward for all expenditures of the "oyster survey."

REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY IN  
CALVERT COUNTY.

INSTRUCTIONS.

The following two letters, together with the laws <sup>a</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the Survey at Washington, have proved very beneficial to the work, and are greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

LAWRENCE O. MURRAY, *Assistant Secretary.*

His Excellency Hon. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the commissioners, prepare a programme of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. and G. S. Steamer Endeavor, Baltimore, Md.*

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<sup>a</sup> For these laws see Appendix A.

## ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the field and the preparation for publication of oyster charts and technical records in the Office at Washington.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster* the Coast and Geodetic Survey party has had the constant use of the large steam launch *Inspector* and several other boats furnished by their own Service, and the occasional use of the Bureau of Fisheries launch *Canvasback*<sup>a</sup> and the steamer *Governor McLane*<sup>b</sup> of the State fishery force.

The greater part of the equipment of instruments for the operations of both the Government and State have been furnished by the Coast and Geodetic Survey and consist of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

## CHRONOLOGICAL STATEMENT OF WORK.

The field work of the Coast and Geodetic Survey in Calvert County<sup>c</sup> dates from May 2, 1908, when the house boat *Oyster* left Baltimore for an anchorage in the Patuxent River, inside of Solomons Island. She remained in this harbor for three months, it practically being the only suitable anchorage for the work for the entire Chesapeake Bay shore of Calvert County, as well as for the lower Patuxent River. During this period there was a great amount of windy weather and consequent rough seas, which prevented work in the open bay, and in general the triangulation foundation for the oyster survey made very slow progress.

On August 4, 1908, the part of the work necessarily done from the mouth of the Patuxent River was completed, and the *Oyster* was moved about 7 miles up the river to St. Leonards Creek.

On August 18, 1908, the headquarters for the field work was again changed by moving the house boat *Oyster* 8 miles still farther up the river to an anchorage in Battle Creek, where she remained until the completion of that part of the field work which naturally included all the Patuxent River work of Charles and St. Marys counties as well as that of Calvert County, although the results are published separately.

On September 3, 1908, the house boat finally left the Patuxent River for a new anchorage in a tributary of the Potomac River, and the field work of Calvert County

<sup>a</sup> By courtesy of Dr. H. F. Moore, U. S. Bureau of Fisheries.

<sup>b</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>c</sup> The field work of Calvert, Charles, and St. Marys counties was so intermixed in the Patuxent River that the chronological statement of work for any one of these counties necessarily includes a considerable part of the work of the other two counties.

was dropped from that date until July 27, 1909, when it was again taken up for a period of four days to add a few details of the triangulation required for the descriptions of stations.

On December 2, 1909, it was again found necessary to obtain further triangulation details for the publication of the technical report for Calvert County, and field work was carried on for that purpose from that date to December 8, 1909.

The office work connected with the "oyster survey" of Calvert County, including computations and drafting necessary for the preparation of oyster charts and technical records for publications, was continued intermittingly with the office work of other counties surveyed during same season from the beginning of field work of Calvert County to the time of the filing of the certified oyster charts and reports in the archives of the Commission and with the clerk of the circuit court of Calvert County on December 14, 1909.

#### STATISTICS.<sup>a</sup>

Landmarks and triangulation signals erected.....	69
Monuments planted to mark triangulation stations.....	67
Triangulation stations occupied for observations of horizontal angles.....	52
Old triangulation stations recovered.....	20
New triangulation stations established.....	58
Total old and new triangulation stations marked and described.....	78
Linear miles of shore line covered by triangulation (approximate).....	95
Square miles covered by triangulation (approximate).....	157
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Descriptions of oyster boundaries prepared for publication.....	41
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Progress map prepared for publication.....	1

#### GENERAL REMARKS.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

<sup>a</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of Calvert County, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the Commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland. See Appendix D of this publication for "Statistics of results of combined operations of the Government and the State."

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unfailing tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the Commission, who, as editor of the Commission's annual report and Commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Mr. Benjamin K. Green, treasurer of the Commission, who has looked after the equipment and commissary of the house boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Mr. Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

To Mr. Thomas H. Robinson, counsel to the Commission, for courteously furnishing valuable information relating to county boundaries.

And to the many others connected with the Commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

## CHARTS AND MAPS.

### CHARTS OF NATURAL OYSTER BARS.

The charts <sup>a</sup> of the natural oyster bars of Calvert County, published by the Coast and Geodetic Survey from results of surveys of the Government in cooperation with the Maryland Shell Fish Commission, consist of five sheets covering a portion of the waters of Chesapeake Bay and all of Patuxent River, including all oyster-producing bottoms of Calvert County. They are published on a scale of 1 part in 20,000 (approximately 3½ inches to a statute mile) and are constructed on polyconic projections and based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars and other boundaries established by the Commission, and are certified for the purpose of filing in the office of the clerk of the circuit court of Calvert County and in the office of the Commission at Annapolis, as required by the oyster laws of Maryland.

In addition to the oyster-bar and other boundaries, the charts show the location and name of all landmarks (U. S. Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography <sup>b</sup> necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the heading "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a particular oyster bar or landmark which is only known by name, consult the "Contents" and

<sup>a</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>b</sup> Much of the detail of the inshore topography was obtained from the excellent map of Calvert County prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the U. S. Geological Survey.



the desired chart and general location will be indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shellfish industries. The 1-fathom contour (6 feet) and the 5-fathom curve (30 feet) correspond in a general way to the inner and outer limits of all the oyster bars surveyed. The 3-fathom contour (18-feet) furnishes the curve of about the average depth of water on the oyster bars and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" and the boundaries of the "waters contiguous to the county" opened up for the leasing with Calvert County are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart within the boundaries of the different shellfish bottoms.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Calvert County, like those for Anne Arundel, Somerset, Wicomico, and Worcester counties, have been prepared under the direction of the hydrographic engineer of the Commission. These charts are constructed on polyconic projections and are based on the United States standard datum of the Coast and Geodetic Survey. They are made on the scales of 1 part in 5,000 or 1 part in 10,000, as the needs of oyster culture may require. Anne Arundel County required 13 leasing charts; Somerset County, 12 charts; Wicomico County, 2 charts; Worcester County, 3 charts; and Calvert County 5 charts, to cover their oyster bottoms.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts have been divided by parallels of latitude and meridians of longitude into small rectangles of 1 acre or 5 acres, as may be best suited to the area under consideration,

and prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as practicable.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in Annapolis.

#### PROJECTIONS.

The polyconic projections<sup>a</sup> covering Calvert County waters are 8 in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, but the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission were plotted by the draftsman of the Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster-bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the office of the Shell Fish Commission, at Annapolis.

#### PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the U. S. Coast and Geodetic Survey in Calvert County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress maps<sup>b</sup> accompanying the first and second annual reports of the Maryland Shell Fish Commission were prepared under the direction of the hydrographic engineer of the Commission. They are on the scale of 1 part in 400,000, and show the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey.

<sup>a</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>b</sup> These maps and reports can be obtained by application to Maryland Shell Fish Commission, Annapolis, Md.

## BOUNDARIES OF THE COUNTY WATERS.<sup>a</sup>

### WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line <sup>b</sup> between the waters "within the territorial limits" of Calvert County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the charts and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:

Commencing at a point defined by the intersection of the mean low-water line of the western shore of Chesapeake Bay in the vicinity of Hog Point and the boundary line between Anne Arundel and Calvert counties; thence along the mean low-water line of the Chesapeake Bay shore of Calvert County across the mouth of all inlets less than 100 yards in width, around Plum Point and Cove Point, to a point defined by latitude  $38^{\circ} 19' 09''.8$  and longitude  $76^{\circ} 25' 21''.0$  situated on Drum Point on the northern side of the entrance to Patuxent River; thence along a straight line ending at a point defined by latitude  $38^{\circ} 18' 35''.9$  and longitude  $76^{\circ} 23' 59''.8$  situated on Hog Point on the southern side of the entrance to Patuxent River, to a point defined by the intersection of this straight line and the Patuxent River channel boundary line between Calvert and St. Marys counties as laid down on "Chart No. 20, Natural Oyster Bars, Maryland;" thence up the channel of Patuxent River following the channel boundary line between Calvert and St. Marys counties and the channel boundary line between Calvert and Charles counties and the channel boundary line between Calvert and Prince Georges counties as laid down on "Charts Nos. 19 and 20, Natural Oyster Bars, Maryland;" thence continuing up the channel of Patuxent River following the channel boundary line between Calvert and Prince Georges counties to its end on the boundary line between Anne Arundel and Calvert counties.<sup>c</sup>

### WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the U. S. Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners in the city of Annapolis," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

<sup>a</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, Superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>b</sup> See "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and the progress map at the end of this publication.

<sup>c</sup> Latitudes and longitudes based on the United States standard datum of the U. S. Coast and Geodetic Survey.

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county and the waters contiguous to but not within the territorial limits of adjacent counties.

This boundary line <sup>a</sup> has been delineated on the "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and is technically described and defined as follows:

Commencing at a point defined by the intersection of the mean low-water line of the western shore of Chesapeake Bay in the vicinity of Hog Point and the boundary line between Anne Arundel and Calvert counties; thence in a straight line along the Chesapeake Bay boundary between Anne Arundel and Calvert counties as laid down on "Charts Nos. 4 and 16, Natural Oyster Bars, Maryland," to a point defined by latitude  $38^{\circ} 42' 33''.4$  and longitude  $76^{\circ} 27' 40''.0$  situated about  $3\frac{5}{8}$  miles east of Hog Point; thence in a straight line along the Chesapeake Bay boundary between Calvert and Talbot counties and Calvert and Dorchester counties as laid down on "Charts Nos. 16, 17, and 18, Natural Oyster Bars, Maryland," to a point defined by latitude  $38^{\circ} 30' 00''.0$  and longitude  $76^{\circ} 25' 30''.0$  situated about  $4\frac{3}{8}$  miles east of Governors Run; thence in a straight line along the Chesapeake Bay boundary between Calvert and Dorchester counties as laid down on "Charts Nos. 17, 18, and 20, Natural Oyster Bars, Maryland," to a point defined by latitude  $38^{\circ} 23' 10''.3$  and longitude  $76^{\circ} 20' 00''.0$  situated about  $2\frac{5}{8}$  miles east of Cove Point Light; thence in a straight line along the Chesapeake Bay boundary between Calvert and Dorchester counties as laid down on "Charts Nos. 18 and 20, Natural Oyster Bars, Maryland," to a point defined by latitude  $38^{\circ} 19' 37''.7$  and longitude  $76^{\circ} 19' 19''.0$  situated about  $5\frac{1}{4}$  miles southeast of Cove Point Light and about  $5\frac{1}{4}$  miles east by north of Drum Point Light; thence along the Chesapeake Bay boundary between Calvert and St. Marys counties as laid down on "Chart No. 20, Natural Oyster Bars, Maryland," to a point defined by the intersection of this boundary and a straight line between a point situated on the southern side of the entrance to Patuxent River defined by latitude  $38^{\circ} 18' 35''.9$  and longitude  $76^{\circ} 23' 59''.8$  and a point situated on Drum Point on the northern side of the entrance to Patuxent River defined by latitude  $38^{\circ} 19' 09''.8$  and longitude  $76^{\circ} 25' 21''.0$ ; thence in a straight line to a point at the end defined by latitude  $38^{\circ} 19' 09''.8$  and longitude  $76^{\circ} 25' 21''.0$  situated on Drum Point on the northern side of the entrance to Patuxent River.

<sup>a</sup> See progress map at the end of this publication.

## LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION.

The oyster laws of Maryland authorizing the survey to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of location and character of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking a landmark has only an indefinite idea of its location. They gradually proceed from description of the general locality of a landmark to the descriptions of its immediate surroundings. This is followed by specific details of the character of the center and reference marks and a "round" of reference angles and distances which in themselves frequently contain enough information to furnish an independent and reliable location of the triangulation station.

### METHOD OF DESCRIBING TRIANGULATION STATIONS.

*The separate descriptions of triangulation stations should not be used without reading the following explanation of the method of describing the triangulation stations, as it contains certain details that are common to all the landmarks described in this publication and which are omitted in the separate descriptions as being needless repetitions:*

*Name.*—The title at the top of each separate description is the name by which the landmark or triangulation station is known and designated in all work and published oyster records or oyster charts of both the Government and State. The selection of the name is usually left to the triangulator establishing the station, and it may or may not have geographic or other significance in reference to the locality.

*General locality.*—Under this heading is given the general locality of the landmark in reference to well-known and prominent natural or artificial features, such as the

nearest body of water, town, river, steamer wharf, well-defined point of land, church, or any other feature that is likely to remain both permanent and prominent.

This heading also covers a reference to the published chart or map which shows the location of the station most clearly. Nearly all the triangulation stations described in this publication are plainly indicated by name and a triangulation symbol on the published charts of oyster bars of Maryland. In this case they are referred to by serial number only, the words "charts of oyster bars of Maryland" being omitted to avoid needless repetition. These published oyster charts are on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{6}$  inches to a statute mile) and show the location of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

*Immediate locality.*—Under this heading is given the description of the "observed station" in reference to its immediate surroundings. This is supposed to include a statement of the station's estimated elevation above high water or some other well-defined level of the locality, such as a road or house; the character of the ground on which it is located, such as marsh land, sand beach, cultivated field, or meadow; estimated bearings in points of the compass and estimated distances in yards *from* (not *to*) easily recognized features, such as extreme end of point, edge of bluff, bank of creek, line of telephone poles, shore line, barn, house, fence, ditch, trees, or any other definite detail, such as being on range with the tangent of an island and a church; and so forth.

When a standard monument has been established near the station as a "reference station," this heading also covers a statement of the true bearing of the monument in degrees and minutes and its measured distance in meters, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached and might be mistaken for the center mark of the "observed station" unless special attention is called to it.

The distinction between the "observed station" and "reference station" should be carefully noted by anyone making use of the description of stations for any future surveying operations.

The "observed station" is located at the particular triangulation point covered by the description of stations, and is the one whose geographic position is first computed, as it is the point which was "occupied" and "observed on" for horizontal angles. However, in spite of the primary importance of the location of the "observed station," it will be noted from the description of stations that frequently it is not marked as well as the "reference station," and in many instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate "observed stations" on edges of banks and ends of points of land, which in the tide-water section of Maryland generally means they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the great need of "reference stations," if the frequent reestablishment of a new framework of triangulation is to be avoided.

The chief reason and need for the establishment of the "reference station," or secondary station, as it might be well named, is explained in the preceding paragraph, but in several instances other reasons, such as the location of the "observed station" on an unstable sand dune, in a cultivated field, in front of a residence, or other places

objectionable to the landowner, have led to establishment of "reference stations." The location of the "reference station" in relation to the "observed station" is fixed for plotting on charts or for computation of its geographic position by checked measurements of its distances and azimuth from the "observed station."<sup>a</sup>

*Marks.*—Under this heading is given a description of the character of the permanent monuments or other marks of the location of the "observed station," and of the "reference station" where one has been established.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground, unless otherwise stated.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

*References.*—Under this heading are given the "rounds" of directions and distances to all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described, this, if possible, being a light-house, church spire, or other permanent and prominent point. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>b</sup> of the initial object is always given in parenthesis alongside its name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by horizontal angles or for the relocation of corner buoys of oyster-bar boundaries by the method of compass directions described in this publication under the heading of "Boundaries of oyster bars."

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may

<sup>a</sup> Geographic coordinates (latitude and longitude) and the distance and azimuth relating to any of the "observed stations" or of the "reference stations" described in this publication can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>b</sup> The mean magnetic variation for Calvert County was  $5^{\circ} 50'$  west of north in 1909 and increasing at the rate of  $3'$  yearly.

be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters," however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner the accuracy of the directions are indicated by the refinement of angular measure with which they are recorded.

## DESCRIPTIONS OF TRIANGULATION STATIONS.

## HOLLAND.

*General locality.*—Western shore of Chesapeake Bay, on south side of entrance to Herring Bay on Holland Point. (See Chart No. 16.)

*Immediate locality.*—Observed station is about 30 yards west of point, 5 feet back from the top of a bank 7 feet high, 12 yards north of a large blazed tree and 25 yards east of another large blazed tree. Cement monument marking reference station is 12.88 meters S 33° 52' W of observed station.

*Marks.*—Observed station is a nail in a pine stub. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Fairhaven" (N 48° 13' W) .....	0	00	00	2 1/2 miles.
Nail in blaze on red-oak tree (2 1/2 feet diameter) .....	238	49	--	11.17 meters.
REFERENCE STATION .....	262	05	00	12.88 meters.
Nail in blaze on red-oak tree (2 1/2 feet diameter) .....	286	55	--	22.63 meters.

*NOTE.*—This station was established and described in 1906 during the survey of the oyster bars of Anne Arundel County.

## HOG POINT (HOLLAND 3).

*General locality.*—Western shore of Chesapeake Bay, about half way between Herring Bay and Chesapeake Beach, on Hog Point, which is near the land end of boundary line between Anne Arundel and Calvert counties. (See Chart No. 16.)

*Immediate locality.*—Observed station is about 5 feet above high water mark on a narrow strip of solid land 25 yards by 10 yards between the edge of a large marsh and the bay shore, about 60 yards north of the point where the shore line changes direction from north and south to northeast and southwest. It is about 4 yards west of the bay shore, 4 yards east of top edge of hummock near marsh, 7 yards east of edge of marsh, 9 yards north northwest of point of a hummock, and 18 yards south by west of point of another hummock. Cement monument marking reference station of 1908 is 2.13 meters S 80° 38' W of observed station.

*Marks.*—Observed station is nail in center of drain tile set in cement, with top flush with ground, the cement being roughly scribed "U. S. C. & G. S., 1907." Subsurface marks to observed station were reported in 1907 as being two hexagonal drain tiles placed one directly over the other, with top of upper 3 feet below the surface of the ground. Reference station of 1907 is marked the same as the observed station, except that only one drain tile was used as subsurface mark. Reference station of 1908 is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sharps Island Light" (S 58° 46' E) .....	0	00	00	9 5/8 miles.
Left tangent of North Chesapeake Beach wharf .....	58	16	--	3/4 mile.
Flagstaff on center of Carousel roof .....	64	49	30	1 3/8 miles
Large brick chimney .....	75	34	30	2 miles.
Water tank .....	76	44	50	2 miles.
Nail in blaze in white oak (16 inches diameter) .....	138	40	20	6.32 meters.
REFERENCE STATION 1908 (cement monument) .....	139	23	40	2.13 meters.



Nail in blaze in pin oak (18 inches diameter)-----	190	18	20	-----	7.98 meters.
Nail in blaze in pin oak (16 inches diameter)-----	236	14	--	-----	17.65 meters.
Nail in blaze in pin oak (18 inches diameter)-----	250	02	20	-----	21.96 meters.
REFERENCE STATION 1907 (tile)-----	255	18	50	-----	11.13 meters.
Left tangent of woods on eastern shore of bay-----	299	44	50	-----	9¼ miles.

NOTE.—This station is also known as "Holland 3 of 1907," but the name has been changed to "Hog Point (Holland 3)" in the oyster survey work of Calvert County, in order to avoid confusion with "Holland 1906," which is only 1 mile to the north.

## BEACH.

*General locality.*—Western shore of Chesapeake Bay, about 1 mile south of Chesapeake Beach and ½ mile south of the first marshy slough south of Chesapeake Beach. (See Chart No. 16.)

*Immediate locality.*—Observed station is about 110 feet above high water and 7 yards back from the edge of the highest bluff in this vicinity. The ground falls off rapidly to the southwest and west of the station, and is covered with brush and small locust trees. A cultivated field extends to within 10 yards of the station on the northwest. Cement monument marking reference station of 1908 is 11.40 meters N 85° 03' W of observed station.

*Marks.*—Observed station is a nail in center of drain tile set in cement, with top flush with ground. Subsurface marks to observed station were reported in 1907 as being two hexagonal drain tiles placed one directly over the other, with top of upper 3 feet below the surface of the ground. Reference station of 1907 is marked the same as the observed station, except that only one drain tile was used as a subsurface mark. Reference station of 1908 is center point of triangle on standard cement monument.

*References.*—

"Hog Point (Holland 3)" (N 2° 55' E)---	0	00	00	-----	2½ miles.
Outside end of wharf at North Chesapeake Beach-----	0	45	--	-----	2 miles.
Outside end of wharf near Chesapeake Beach-----	18	17	--	-----	1 mile.
"Sharps Island Light"-----	102	46	20	-----	8¾ miles.
Nail in blazed locust tree-----	161	08	00	-----	16.85 meters.
REFERENCE STATION (cement monument, 1908)-----	272	00	20	-----	11.40 meters.
OLD REFERENCE POINT (tile—1907)-----	282	13	10	-----	10.25 meters.
Nail in blazed locust tree-----	289	58	20	-----	8.47 meters.
Near gable of house-----	343	16	--	-----	1 mile.
High View Hotel-----	344	57	--	-----	½ mile.
Cupola at Chesapeake Beach-----	348	04	--	-----	¾ mile.
Flagpole of "merry-go-round" at Chesapeake Beach-----	353	44	--	-----	¾ mile.
Left corner of house at North Chesapeake Beach-----	358	26	--	-----	2 miles.

## ILL 2.

*General locality.*—Western shore of Chesapeake Bay about 2¼ miles south of Chesapeake Beach and 2¾ miles north of Plum Point. (See Chart No. 16.)

*Immediate locality.*—Observed station is about 90 feet above high water and 12 feet west of edge of bluff which rises rapidly from the south. It is in a cultivated field about 100 yards south of a fence and trees running east and west and 7 feet west of a wire fence along edge of cliff. No other permanent reference objects near station. Cement monument marking reference station is 23.84 meters S 80° 43' W of station.

*Marks.*—Observed station is nail in cement in center of drain tile with top flush with ground. Subsurface marks to observed station were reported in 1907 as being two hexagonal drain tiles placed one directly over the other with top of upper 3 feet below the surface of the ground. Reference station of 1907 is marked the same as the observed station, except that only one drain tile was used as a subsurface mark. Reference station of 1908 is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Sharps Island Light" (S 82° 30' E).....	0	00	00	8¼ miles.
Tangent of land to south.....	62	39	--	1¼ miles.
New gable of unpainted barn.....	104	49	--	¾ mile.
Left chimney of four-gabled house.....	116	36	--	1 mile.
North gable of small barn.....	127	15	--	½ mile.
Center chimney of white house.....	140	33	--	¾ mile.
REFERENCE STATION of 1908 (cement monument).....	163	12	40	23.83 meters.
East gable of unpainted barn.....	164	10	--	¾ mile.
Chimney on outside of old house.....	169	41	--	1 mile.
REFERENCE STATION of 1907 (tile).....	179	51	20	16.80 meters.
South gable of house at North Beach.....	260	29	--	2½ miles.
Tangent of woods on Holland Point.....	263	36	--	4½ miles.
Tangent on north end of Poplar Island.....	305	59	--	10¾ miles.

## PLUM 3.

*General locality.*—Western shore of Chesapeake Bay about 1¼ miles north by west of Plum Point wharf and about ½ mile north by west of Plum Point. (See Chart No. 16.)

*Immediate locality.*—Observed station is about 7 yards west of edge of first bluff north of low land above Plum Point wharf and 12 yards south of rail fence and a line of bushes and cedar trees. Cement monument marking reference station of 1908 is 14.03 meters S 81° 43' W of observed station. No other reference objects near station.

*Marks.*—Observed station is center of drain tile with top flush with ground. Subsurface marks to observed station were reported in 1907 as being two hexagonal drain tiles placed one directly above the other with the top of the upper tile 3 feet below the surface of the ground. Reference station of 1907 is marked the same as the observed station except that only one drain tile was used as a subsurface mark. Reference station of 1908 is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Sharps Island Light" (N 81° 31' E).....	0	00	00	7 ¾ miles.
Peak of near gable of large house.....	10	15	--	8¼ miles.
Outer end of Plum Point wharf.....	78	13	--	1¼ miles.
Chimney outside of north end of house.....	120	22	--	1¼ miles.
Southwest peak of barn.....	150	27	--	¾ mile.
REFERENCE STATION 1908 (cement monument).....	180	12	20	14.03 meters.
REFERENCE STATION 1907 (tile).....	213	12	10	14.23 meters.
Tangent to Holland Point.....	273	31	--	7½ miles.
Right tangent Chesapeake Beach wharf.....	273	56	--	4¾ miles.
Left tangent Poplar Island.....	312	43	10	12½ miles.
Large lone tree Poplar Island.....	319	39	10	12 miles.
Left chimney of house.....	326	30	--	12¾ miles.
Left chimney of house.....	334	55	--	11 miles.
Steeple on church or house Tilghman Island.....	341	02	00	10 miles.

## PIER.

*General locality.*—Western shore of Chesapeake Bay about south southeast of Plum Point on outer end of wharf at Plum Point Landing. (See Charts Nos. 16 and 17.)

*Immediate locality.*—Observed station is on outer part of wharf known as Plum Point Landing about 20 yards from extreme end and nearly on line with northern side of warehouse.

*Marks.*—Observed station is an auger hole bored in plank flooring of wharf surrounded by a triangle marked by nails.

*References.*—

Northeast corner of calf pen.....	Southeast.....	6.68 meters.
Northwest corner of calf pen.....	South southeast.....	4.48 meters.
Rail of fence on south edge of wharf.....	South.....	2.03 meters.
Prolongation of line of north side of warehouse.....	North.....	0.11 meter.
South rail of wharf track.....	North.....	0.92 meter.
North rail of wharf track.....	North.....	2.36 meters.
North side of wharf.....	North.....	3.39 meters.
West side of warehouse.....	East.....	8.60 meters.

SHARPS ISLAND LIGHT.

*General locality.*—Easterly side of Chesapeake Bay off entrance to Choptank River on a shoal about 1¼ miles north northwest of Sharps Island. (See Chart No. 16.)

*Immediate locality.*—Observed station is on light-house known as "Sharps Island Light."

*Marks.*—Observed station is center point of black lantern on top of tower on a cylindrical caisson foundation.

*Reference.*—

	o ' "	
"Parker" (S 44° 36' W).....	o oo oo	10 miles.

PEN.

*General locality.*—Western shore of Chesapeake Bay about half way between Plum Point and Governors Run on the outer end of Dares Wharf. (See Chart No. 17.)

*Immediate locality.*—Observed station is on outer part of Dares Wharf about 30 yards from the extreme end, 12 yards west of warehouse, and 1 yard north of south side of wharf.

*Marks.*—Observed station is auger hole in plank flooring surrounded by a triangle marked by nails.

*References.*—

Southwest corner of warehouse.....	East by south.....	11.10 meters.
Inside corner on angle in wharf.....	East by south.....	5.09 meters.
South edge of wharf.....	South.....	0.95 meter.
South rail of straight track at point of frog.....	North.....	2.13 meters.
South rail of curved track.....	North.....	0.90 meter.
North edge of wharf.....	North.....	4.15 meters.
Southwest corner of cattle pen.....	Northeast.....	7.12 meters.
Southeast corner of cattle pen.....	Northeast by north.....	9.63 meters.
Northwest corner of warehouse.....	Northeast by north.....	12.80 meters.

PATCH.

*General locality.*—Western shore of Chesapeake Bay about 1 mile south of Dares Wharf. (See Chart No. 17.)

*Immediate locality.*—Observed station is on a high bluff of land about 65 yards back from its edge. Station is in a cultivated field and on a high knoll and the land slopes away from it on all sides. A locust thicket stands northwest of the station and the land slopes steeply from the station to the thicket. Cement monument marking reference station is 9.07 meters N 52° 41' W of observed station.

*Marks.*—Observed station is nail set in cement in tile pipe buried with top about 15 inches below the surface of the ground. Reference station is center point of triangle on standard cement monument

*References.*—

	o ' "	
"Sharps Island Light" (N 50° 39' E).....	o oo oo	10 miles.
"Cove Point Light".....	96 01 20	15 miles.
Tangent to Point of Rocks.....	98 30 --	4 miles.

	°	'	"	
East end of Governors Run wharf.....	112	57	--	1 1/2 miles.
East end of roof of barn.....	155	25	--	1 mile.
Nail in blazed locust (old reference mark)...	210	17	50	11.93 meters.
Nail in blazed locust (old reference mark)...	226	02	50	12.04 meters.
REFERENCE STATION (cement monument).....	256	49	10	9.07 meters.
East peak of large barn on hill.....	257	14	--	1/2 mile.
East end of Plum Point wharf.....	316	50	--	3 1/2 miles.

## PARKER.

*General locality.*—Western shore of Chesapeake Bay about 2 miles north of Governors Run wharf and 2 1/2 miles south of Dares Wharf. (See Chart No. 17.)

*Immediate locality.*—Observed station is about 100 feet above high water, 10 yards west of edge of bluff, 50 yards north of a small stream in a deep gully, and 25 yards east of cultivated field back of a growth of locust trees. The land slopes rapidly to the small stream from a point about 10 yards south of the station. Reference station is 23.29 meters N 83° 45' W of observed station.

*Marks.*—Observed station is nail in center of tile pipe filled with cement. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cove Point Light" (S 36° 39' E).....	0	00	00	11 miles.
East end of Governors Run wharf.....	11	10	--	1 1/4 miles.
REFERENCE STATION.....	132	54	10	23.29 meters.
Nail in blazed locust.....	159	39	25	8.19 meters.
East end of Dares Wharf.....	223	45	--	3 1/4 miles.
"Sharps Island Light".....	261	10	30	11 miles.
White house on Eastern Shore.....	327	32	--	10 miles.

## RUN.

*General locality.*—Western shore of Chesapeake Bay on Governors Run wharf. (See Charts Nos. 17 and 18.)

*Immediate locality.*—East peak of wharf house.

*Marks.*—Observed station is braced pole with cage on east peak of wharf house on Governors Run wharf.

*References.*—None necessary.

## POPLAR.

*General locality.*—Western shore of Chesapeake Bay about 2 miles south of Governors Run wharf (See Chart No. 18.)

*Immediate locality.*—Observed station is in a cultivated field about 60 feet above high water, 50 feet west from edge of bluff, 25 yards south of a ravine which starts at shore, 115 yards north of where high cliff covered with trees commences to rise rapidly, and 30 yards from a large poplar tree on opposite side of a ravine with sycamore, cherry, and locust trees along its edge. Another bluff rises rapidly on opposite side of ravine.

*Marks.*—Observed station is center point of triangle on standard cement monument with a sub-surface mark of a nail in a short stub.

*References.*—

	°	'	"	
"Sharps Island Light" (N 27° 41' E).....	0	00	00	12 miles.
Tangent of James Point woods.....	18	28	--	8 miles.
White house on Eastern Shore.....	65	00	--	8 miles.
Chimney on house.....	198	25	--	1 mile.
East peak of barn.....	203	37	--	1 1/4 miles.
East end of Governors Run wharf.....	309	18	--	1 1/2 miles.
Chimney on white house above "Parker".....	310	45	--	2 1/2 miles.
South peak of barn.....	311	47	--	2 3/4 miles.
Peak of unpainted barn.....	317	23	--	3 miles.

	°	'	"	
East end of Dares Wharf.....	320	43	--	4 miles.
East end of Plum Point wharf.....	324	57	--	8 miles.
Tangent of Plum Point.....	325	04	--	9 miles.

## FLAG POND.

*General locality.*—Western shore of Chesapeake Bay,  $3\frac{3}{4}$  miles north-northwest of Point of Rocks and 4 miles southeast of Governors Run. (See Chart No. 18.)

*Immediate locality.*—Observed station is on sand and grass land between bay shore and swamp about 5 feet above high water, 35 yards south of shore, 20 yards northwest of shore, 9 yards northwest of cedars between shore and station, 10 yards west of cedars and bushes, 25 yards west of shore, and 10 yards northeast of swamp. Cement monument marking reference station is 9.02 meters N  $87^{\circ} 33'$  W of observed station.

*Marks.*—Observed station is a spike in cement in a stovepipe 4 inches in diameter and 1 foot long placed on top of a cement post 6 inches square with a  $\frac{1}{4}$ -inch galvanized iron rod core. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cove Point Light" (S $41^{\circ} 57'$ E).....	0	00	00	6 $\frac{1}{4}$ miles.
Spike in blaze.....	10	48	40	13.56 meters.
Spike in blaze in cedar tree.....	131	36	40	14.88 meters.
REFERENCE STATION.....	134	23	30	9.02 meters.
Spike in blaze in cedar tree.....	162	27	--	18.48 meters.
Spike in blaze in cedar tree.....	269	43	50	8.80 meters.
Right edge of main woods.....	282	19	50	7 $\frac{1}{4}$ miles.
Left peak of house.....	302	07	50	7 $\frac{1}{4}$ miles.
Left peak of house with two dormer windows.....	318	18	--	8 $\frac{1}{2}$ miles.

## WILSON 2.

*General locality.*—Western shore of Chesapeake Bay, about 5 miles northwest of "Cove Point Light." (See Chart No. 18.)

*Immediate locality.*—Observed station is on a sand bluff about 80 feet above high water, 30 yards south from one edge of bank, 15 yards southwest of another edge of bank, 20 yards northwest from point where decline begins toward southeast, 3 yards south of cultivated land, about  $\frac{1}{4}$  mile north-northeast of house with two large chimneys on each end, and about  $\frac{1}{2}$  mile northeast of a barn. Cement monument marking reference station is 1.56 meters N  $88^{\circ} 28'$  E of observed station.

*Marks.*—Observed station is a  $\frac{1}{4}$ -inch galvanized wire set in center of cement post about 6 inches square with top about 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument with top 6 inches above ground.

*References.*—

	°	'	"	
"Sharps Island Light" (N $14^{\circ} 54'$ E).....	0	00	00	14 miles.
Left of main woods.....	18	23	--	15 $\frac{1}{4}$ miles.
REFERENCE STATION.....	73	34	20	1.56 meters.
Left peak of house.....	84	40	40	8 miles.
Near corner of near chimney of Wilson house.....	191	02	--	$\frac{1}{4}$ mile.
Peak of barn.....	225	25	--	$\frac{1}{2}$ mile.

## POINT OF ROCKS.

*General locality.*—Western shore of Chesapeake Bay, on Point of Rocks, about  $2\frac{3}{4}$  miles northwest of Cove Point Light. (See Chart No. 18.)

*Immediate locality.*—Observed station is in dense woods on a bluff about 90 feet high, 5 yards west of edge at extreme point, 8 yards south of edge of bluff, and 5 yards northwest of edge of bluff. Cement monument marking reference station is 9.42 meters S 66° 44' W of observed station.

*Marks.*—Observed station is nail in center of round stake 4 inches in diameter with top flush with ground driven into a 6-inch drain tile with top 6 inches below the surface. Subsurface mark was reported in 1898 as a 6-inch drain tile set just below upper tile. Reference station is center point of triangle on standard cement monument with top 4 inches above surface of ground.

*References.*—

	o	'	"	
"Cove Point Light" (S 43° 26' E).....	0	00	00	2¾ miles.
Center nail in blaze of tree (13 inches diameter).....	19	19	40	5.64 meters.
Center nail in blaze of tree (13 inches diameter).....	90	05	30	5.62 meters.
REFERENCE STATION.....	110	09	30	9.42 meters.
Nail in blaze in tree (9 inches diameter).....	126	35	40	4.16 meters.
Right tangent Governors Run Wharf.....	186	20	20	7¾ miles.
Tangent of main woods.....	249	57	--	8½ miles.
Left peak of large house.....	297	45	20	6 miles.
Northerly peak of large house.....	312	17	30	6¾ miles.

#### COVE POINT LIGHT.

*General locality.*—Western shore of Chesapeake Bay on Cove Point, which is about 5 miles to northward of entrance to Patuxent River. (See Charts Nos. 18 and 20.)

*Immediate locality.*—Observed station is on white tower known as "Cove Point Light" which is near white detached dwelling and white detached fog signal house.

*Marks.*—Observed station is center point of black lantern on white tower.

*References.*—

	o	'	"	
"Cedar Point Light" (S 7° 16' E).....	0	00	00	6 miles.

#### WHITE HOUSE (N. E. CHIMNEY).

*General locality.*—Western shore of Chesapeake Bay about 1 mile southwest of Cove Point Light and ¼ mile southwest of Cove Point Landing. (See Charts Nos. 18 and 20.)

*Immediate locality.*—Observed station is a chimney standing alone about 300 yards southwest of Cove Point Landing which was formerly the more northeasterly of two chimneys on a house that was destroyed by fire. This chimney is near a white house which was built to replace the destroyed house.

*Marks.*—A chimney standing apart from a small white house owned by Mrs. Hagland.

*References.*—

	o	'	"	
"Cove Point Light" (N 39° 54' E).....	0	00	00	1 mile.

#### TRIVERS 2.

*General locality.*—Eastern shore of Chesapeake Bay on western side of Taylors Island about 4 miles south of James Point. (See Chart No. 18.)

*Immediate locality.*—Observed station is about 4 feet above high water mark in a field which was once under cultivation but is now covered with water bushes, about 40 yards east of shore and 15 feet north of a wire fence which starts at the shore and runs east. A stone used as an old reference mark stands 9.41 meters N 26° 53' E of observed station and the cement monument marking new reference station is 9.52 meters N 77° 20' W of observed station.

*Marks.*—Observed station is a granite post projecting above the ground with cross lines running approximately north to south and east to west. New reference station is center point of triangle on standard cement monument. Old reference station is a cross on a granite post projecting above the ground with one of the cross lines running in the direction of Cove Point Light.

References.—	o	'	"	
"Cove Point Light" (S 26° 15' W)-----	0	00	00	6¼ miles.
Governors Run Wharf-----	77	12	--	9½ miles.
Tangent of woods at waters edge-----	123	40	--	½ mile.
Near peak of two-story house-----	173	23	--	¼ mile.
OLD REFERENCE STONE (granite post)-----	180	38	20	9.41 meters.
Chimney of 1½ story house-----	195	47	--	¼ mile.
NEW REFERENCE STATION (cement monu- ment)-----	256	24	50	9.52 meters.
Near corner of small cabin-----	271	32	--	¼ mile.
Near chimney of house among trees-----	300	54	--	½ mile.
Near peak of small house-----	304	54	--	¼ mile.

PRINCE.

*General locality.*—Western shore of Patuxent River about ¼ mile north of mouth of Swanson Creek. (See Chart No. 19.)

*Immediate locality.*—Observed station is in pasture about 20 feet above high water, 15 yards northwest of edge of bank, 7½ yards northeast of a grove of trees and 100 yards southwest of another grove of trees. Locust trees form a fringe along edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—	o	'	"	
"Leitch" (S 83° 01' E)-----	0	00	00	¾ mile.
Square chimney on house-----	0	02	--	¾ mile.
Chimney on store at Buena Vista-----	19	15	--	1¾ miles.
Chimney of Dr. Huggins house at Buena Vista-----	21	07	--	1¾ miles.
Nearest chimney on Gourley house on Hal- lowing Point-----	55	16	--	2½ miles.
Nail in blaze in locust tree (3 inches diameter)-----	79	38	30	15.94 meters.
Nail in blaze in locust tree (4 inches diameter)-----	110	13	30	14.55 meters.
Outside chimney on large house on hill-----	150	45	--	¾ mile.
Near end of peak of roof-----	226	02	--	¾ mile.
Middle of clump of trees-----	273	00	--	100 yards.
Chimney of house-----	311	04	--	1¾ miles.
Nail in blaze in crotch of locust tree (6 inches diameter)-----	350	39	10	19.27 meters.

LEITCH.

*General locality.*—Eastern shore of Patuxent River on prominent point opposite mouth of Swanson Creek given on chart as Gods Grace Point but known locally as Leitchs Point. (See Chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass land about 1 foot above high water and 3 yards north of straight line connecting two round points. It is about 13 yards northwest of the lower of these two points and 9 yards east of upper point. A creek 3 feet wide has its mouth about 19 yards east by south of the station. There are no permanent objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—	o	'	"	
"Prince" (N 83° 00' W)-----	0	00	00	¾ mile.
Near end of corner peak of roof of large house on hill-----	25	02	--	1¾ miles.
Near end of peak of wharf-house roof-----	77	46	--	¼ mile.
Right chimney of house-----	183	32	--	⅝ mile.

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	°	'	"	
Right chimney of Gourley house.....	253	58	--	2 miles.
Canning-house stack.....	277	22	00	2 miles.
"Catholic Church Cross".....	281	35	30	2 miles.
Chimney of small house.....	308	52	--	1 mile.
Right outside chimney of old house.....	328	43	--	1¼ miles.
Right outside chimney of old house.....	343	05	--	1½ miles.

## FODDER.

*General locality.*—Western shore of Patuxent River on the southern side of the mouth of Swanson Creek about 1 mile west-southwest of Leitch Wharf and ¾ mile west-northwest of Point Judith (locally known as Teague Point). (See Chart No. 19.)

*Immediate locality.*—Observed station is on the edge of cultivated land about 10 feet above high-water mark, 4 yards west of edge of bank, and 9 yards north of another edge. Cement monument marking reference station is 15.21 meters S 60° 52' W of observed station.

*Marks.*—Observed station is center point of triangle on standard cement monument with a top 9 inches square and 8 inches above surface of ground. Reference station is center point of triangle on standard cement monument with a top about 8 inches square and 5 inches above surface of ground.

*References.*—

	°	'	"	
"Prince" (N 25° 00' E).....	0	00	00	½ mile.
Near peak of large house on bluff.....	17	55	--	2 miles.
Right corner of house.....	24	08	--	1¾ miles.
Near peak of Leitch Wharf house.....	35	11	--	1¼ miles.
Left peak of Leitch house.....	48	37	--	1¼ miles.
Front peak of house at Buena Vista.....	75	00	--	1¼ miles.
Chimney outside left end of house on hill.....	87	16	--	2 miles.
Near peak of small house.....	101	33	--	¾ mile.
Large chimney on small house.....	174	43	--	1 mile.
Left side of left chimney outside Bowling house.....	211	47	--	¾ mile.
REFERENCE STATION.....	215	52	30	15.21 meters.
Left corner of house on top of hill.....	318	27	--	1 mile.

## BUENA.

*General locality.*—Eastern shore of Patuxent River about 1¾ miles northeast of Benedict at place known as Buena Vista. (See Chart No. 19.)

*Immediate locality.*—Observed station is in a field on land adjoining house owned by S. V. Smith and occupied by Doctor Huggins. It is about 10 feet above high water, 8 yards east of edge of bank, and 12 yards south of a rail fence. Cement monument marking reference station is 11.11 meters N 5° 42' E of observed station and near fence.

*Marks.*—Observed station is nail in stub with top 2 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Hallowing" (S 27° 22' W).....	0	00	00	1½ miles.
Center of red roof on square house near Benedict.....	18	05	--	2 miles.
Canning-house stack.....	21	30	--	1¾ miles.
"Catholic Church Cross".....	29	04	10	1¾ miles.
Nail in blaze in locust tree (4 inches diameter).....	31	48	40	8.58 meters.
Left chimney of old house.....	66	15	--	3 miles.
Left chimney of old house.....	72	52	--	3 miles.



	°	'	"	
Nail in blaze on cherry tree (2 inches diameter).....	99	05	--	9.70 meters.
Peak of roof of large house.....	99	15	--	4 miles.
Chimney of house near Leitch Wharf.....	108	52	--	1 mile.
Nail in blaze on fence post.....	143	33	50	11.18 meters.
REFERENCE STATION.....	158	20	20	11.11 meters.
Near corner of house.....	159	44	--	25 yards.
Cherry tree on fence line (15 inches diameter).....	221	25	--	35 yards.
Double apple tree (30 inches diameter).....	290	54	--	59 yards.

## TEAGUE.

*General locality.*—Western shore of Patuxent River on point on southern side of entrance to Swanon Creek, locally known as Teague Point, and given on chart as Point Judith. (See Chart No. 19.)

*Immediate locality.*—Observed station is on gravel and grass land about 3 feet above high water, about 11 yards from south side, 16 yards from north-northeast side, and 75 yards west by north of extreme end of point. Bushes stand between station and north side of point. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Buena" (N 85° 24' E).....	0	00	00	1½ miles.
Tangent of Teague Point.....	20	00	--	75 yards.
Near corner of right chimney of Gourley house near Hallowing Point.....	65	45	--	1¼ miles.
Canning-house stack.....	106	18	00	1¼ miles.
Near end of peak of hotel.....	108	12	--	1¼ miles.
Left one of two ivy-covered chimneys.....	110	25	--	1 mile.
"Catholic Church Cross".....	114	11	10	1 mile.
Chimney on Slye House.....	130	30	--	2 miles.
Left chimney of house on hill.....	144	57	--	2 miles.
Tangent of high-water mark.....	168	00	--	75 yards.
Near end of peak of roof.....	223	41	--	1 mile.
Chimney on large house on hill.....	243	20	--	3 miles.
Left chimney on house.....	301	17	--	1 mile.
Near end of peak of roof on store at Buena Vista.....	355	59	--	1¼ miles.

## CITY.

*General locality.*—Western shore of Patuxent River on Town Point about ¼ mile north-northeast of Benedict steamboat wharf. (See Chart No. 19.)

*Immediate locality.*—Observed station is on gravel and shell point about 4 feet above high water, 12 yards northwest of the shore, 63 yards west-southwest of a shanty, about 100 yards west-southwest of extreme end of point, and 11 yards southeast of a slough. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Hallowing" (S 51° 21' E).....	0	00	00	½ mile.
Windmill near Sheridan Point.....	21	39	00	3½ miles.
Two middle chimneys at Dowells.....	21	39	00	3½ miles.
Left tangent of peak of wharf-house roof.....	81	34	--	¼ mile.
Center of roof of square house.....	84	36	20	½ mile.
Canning-house stack.....	95	22	00	¼ mile.
Nearest ivy-covered chimney of old house.....	130	14	--	½ mile.
"Catholic Church Cross".....	142	58	50	¼ mile.

	o	'	"	
Left square chimney of house .....	245	42	--	1¾ miles.
Near end of peak of roof of Huggins house ..	280	54	--	1½ miles.
Near corner of shanty .....	300	44	--	63 yards.
Right chimney of Gourley house .....	339	20	--	¾ mile.
Chimney of old building behind wharf .....	352	01	--	¾ mile

## HALLOWING.

*General locality.*—Eastern shore of Patuxent River on point opposite Benedict known locally as Holland Point, but given on charts as Hallowing Point. (See Chart No. 19.)

*Immediate locality.*—Observed station is on a rounded gravel and grass point about 250 yards south of wharf on Holland Point, about 2 feet above high water, 10 yards north of shore, 8 yards east of shore and 15 yards outside of a group of locust trees, sugar-berry trees, and bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"City" (N 51° 21' W) .....	0	00	00	¾ mile.
Left end of peak of roof of wharf house on Holland Point .....	23	15	--	250 yards.
Chimney of store at Buena Vista .....	77	27	--	1¾ miles.
Nail in blaze in nearest one of group of four sugar-berry trees (each 8 inches diameter) ..	92	24	--	12.88 meters.
Nail in blaze in sugar-berry tree (10 inches diameter) .....	109	58	50	15.74 meters.
Nail in blaze in locust tree (4 inches diame- ter) .....	167	55	40	11.90 meters.
Smokepipe on Trent Hall Wharf building ..	227	35	--	2¾ miles.
Outside chimney of detached house at Soth- orons .....	309	54	--	1½ miles.
Center of roof on square house .....	314	15	--	¾ mile.
Canning-house stack .....	333	16	--	½ mile.
"Catholic Church Cross" .....	347	44	20	¾ mile.

## INDIAN.

*General locality.*—Western shore of Patuxent River on north side of entrance to Indian Creek and about one-fourth mile below Benedict steamboat wharf. (See Chart No. 19.)

*Immediate locality.*—Observed station is about 3 feet above high water, 7 yards west of shore, 16 yards northeast of a fence and a line of trees, 13 yards southwest of a lone locust tree, about 250 yards to the south-southeast of a large square house, and 125 yards east-northeast of another house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sothoron" (S 23° 11' E) .....	0	00	00	1 mile.
Nail in blaze in locust tree near fence (5 inches diameter) .....	33	48	50	15.57 meters.
Nail in blaze in middle branch of locust tree (6 inches diameter) .....	66	24	50	19.13 meters.
Square chimney on old house .....	137	23	--	1¼ miles.
Right chimney of square house .....	188	30	--	¾ mile.
Near end of peak of roof of hotel .....	206	26	--	¾ mile.
Canning-house stack .....	213	22	10	¾ mile.
Right tangent of Benedict Wharf .....	228	10	--	½ mile.
Chimney of house near "Buena Vista" .....	245	58	--	2¼ miles.
Chimney of Gourley house .....	270	28	--	1 mile.
Windmill at Dowell's on Sheridan Point ..	344	48	--	4¼ miles
Left of right chimney on Dowell house ..	344	48	--	4¼ miles.
Nail in blaze in left branch of locust tree (5 inches diameter) .....	225	28	--	12.90 meters.

DWARF.

*General locality.*—Eastern shore of Patuxent River about 2 miles north-northwest of Sheridan Point and about 1½ miles southeast of Benedict on a point of land opposite the mouth of Indian Creek. (See Chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass land about 1 foot above high-water mark, 6 yards northeast from extreme end of point, 4 yards east of one edge of shore and 6 yards north of another edge of shore. Point on which station is located has a sugar-berry tree, several small locust trees and water bushes, and a pond behind bushes and trees about 100 yards to the east.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	1	"	
"Sothoron" (S 42° 05' W)-----	0	00	00	¾ mile.
Nearest corner of top of nearest chimney on tenant house-----	80	31	--	2 miles.
Center of roof of square house-----	83	16	--	1 mile.
Nail in blaze in locust tree (4 inches diame- ter)-----	93	38	30	4.22 meters.
Canning-house stack-----	95	03	33	1¼ miles.
"Catholic Church Cross"-----	99	03	10	1¼ miles.
Left tangent of wharf-----	124	19	--	¾ mile.
Nail in sugar-berry tree (10 inches diameter)	152	38	30	8.94 meters.
Nail in blaze in locust tree (3 inches diam- eter)-----	196	22	20	2.68 meters.
Chimney on small house-----	258	48	--	2 miles.
Left point of peak of roof of Dowell's-----	287	30	--	2¼ miles.
Left end of peak of roof of Trent Hall Wharf.	315	35	--	1½ miles.
Middle cupola on stable-----	321	12	20	1½ miles.
Right pillar on Sothoron house porch-----	359	21	--	1 mile.

SOTHORON.

*General locality.*—Western shore of Patuxent River on Long Point between entrances to Indian and Trent Hall creeks. (See Chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass lowland about 1 foot above high-water mark among cedar trees, about 24 yards west by north of extreme end of point, 12 yards north of one edge of shore and 30 yards southwest of another edge of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	1	"	
"Hallowing" (N 13° 51' E)-----	0	00	00	1¼ miles.
Nearest chimney on Gourley house-----	3	55	--	1¼ miles.
Nail in blaze in locust tree (4 inches diame- ter)-----	30	49	--	3.35 meters.
Left end of peak of roof of Dowell house-----	120	35	--	2¼ miles.
Middle cupola on Trent Hall stable-----	150	25	00	1¼ miles.
Point of middle attic window on John Bul- linger house-----	187	42	--	1 mile.
Left pillar of porch of Sothoron house-----	206	23	--	½ mile.
Nail in blaze in cedar tree (12 inches diame- ter)-----	242	51	50	8.12 meters
Near corner of nearest chimney on Slye house-----	291	05	20	2 miles.
Nail in blaze in locust tree (4 inches diame- ter)-----	302	29	40	10.83 meters.
Right one of two outside chimneys on old house on hill on property of A. B. Slye-----	307	31	20	2 miles.
Center of roof on square house-----	323	39	10	1 mile.
Nail in blaze in locust tree (6 inches diame- ter)-----	350	24	10	12.81 meters.

## BUZZ.

*General locality.*—Northeast shore of Patuxent River on southwest side of Buzzards Island near mouth of Buzzards Island Creek. (See Chart No. 19.)

*Immediate locality.*—Observed station is on marsh, clay, and grass land on wooded island about 2 feet above high water, 5 yards northeast of river shore and 40 yards northwest of extreme point of island. Cement monument marking reference station is 8.97 meters N 42° 23' E of observed station.

*Marks.*—Observed station is nail in stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Morsel" (S 25° 23' E).....	0	00	00	¾ mile.
Smoke pipe on roof of storehouse.....	39	11	--	2 miles.
Near corner of near chimney.....	40	36	--	2 miles.
Chimney of Trent Hall.....	50	48	--	1¼ miles.
Nearest of three cupolas on stable.....	54	36	50	1¼ mile.
Left piazza post at Sothorons.....	102	41	--	1¼ miles.
Center of roof of square house.....	155	15	--	1¼ miles.
"Catholic Church Cross".....	164	56	--	2 miles.
Nail in blaze in oak tree (18 inches diameter).....	172	14	--	4.55 meters.
Nail in blaze in oak tree (18 inches diameter).....	198	36	40	13.16 meters.
Nail in blaze in oak tree (24 inches diameter).....	235	08	30	9.62 meters.
REFERENCE STATION.....	252	45	45	8.97 meters.
Nail in blaze in pine tree (5 inches diameter).....	255	43	--	6.52 meters.
Chimney on house across creek.....	313	23	--	¼ mile.

## BILLIARD.

*General locality.*—Southwest shore of Patuxent River about ¼ mile southeast of entrance to Trent Hall Creek. (See Chart No. 19.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high-water mark, 6 yards west of shore, 70 yards north of curve in shore and about 100 to 150 yards north to northwest of a fence which runs to water's edge. No permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Trent" (S 32° 53' E).....	0	00	00	¾ mile.
Middle cupola on Trent Hall stable.....	16	36	--	½ mile.
Chimney on Trent Hall.....	18	41	--	½ mile.
Two trees.....	31	47	--	200 yards.
Tangent of curve in water line.....	33	00	--	71 yards.
Chimney of 2½-story house.....	81	59	--	2 miles.
Right corner of Sothoron house.....	162	34	--	½ mile.
Near corner of chimney on Slye house.....	171	09	--	2 miles.
Right tangent of wharf.....	213	11	--	2 miles.
Middle of three chimneys on Gourley house.....	228	53	--	2 miles.
Chimney on house among trees.....	293	41	--	1½ miles.
Nearest end of peak roof of Dowell house at Dukes Wharf.....	333	42	--	1¼ miles.
Right tangent of Sheridan Point.....	341	34	--	1¼ miles.
Left tangent Trent Hall Wharf.....	348	49	--	¾ mile.
Smoke pipe on house at land end of Trent Hall Wharf.....	356	53	--	¾ mile.

MORSEL.

*General locality.*—Northeast shore of Patuxent River about 1 mile north by west of Sheridan Point. (See Chart No. 19.)

*Immediate locality.*—Observed station is in a wheat field on a cliff about 60 feet above high water, about 5 yards northeast of edge of bank, 110 yards north northwest of rail fence at woods, 103 yards west southwest of woods, and 167 yards west northwest of corner of field at creek and woods. Trees grow out of face of cliff below station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sheridan" (S 5° 27' E).....	0	00	00	7/8 mile.
Near corner of near chimney on brick end of Dowell house.....	37	12		2 miles.
Chimney beyond weeping willow at Trent Hall.....	62	58		1 mile.
Nearest chimney on Slye house.....	128	11		3 miles.
"Catholic Church Cross".....	148	44	00	2 3/4 miles.
Chimney on house with tin roof ell.....	172	17		1 mile.
Oak tree near creek (4 feet diameter).....	297	27		167 yards.
Large white-oak tree.....	330	50		110 yards.

TRENT.

*General locality.*—Southwest shore of Patuxent River on White Point about 50 yards west of Trent Hall Wharf. (See Chart No. 19.)

*Immediate locality.*—Observed station is 1 foot above high-water mark on sand and grass land between river and marsh, about 47 yards west of small house on land end of Trent Hall Wharf, about 64 yards northwest of extreme end of White Point, 5 yards southwest of high-water mark, about 428 yards north of Trent Hall and 105 yards south by east of mouth of creek. Cement monument marking reference station is 17.18 meters S 69° 40' W of observed station.

*Marks.*—Observed station is nail in stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sheridan" (S 57° 31' E).....	0	00	00	1 1/8 miles.
Tangent of point.....	32	17		1/2 mile.
Large lone tree.....	50	15		1/2 mile.
Right corner of Trent Hall.....	74	08		428 yards.
Right cupola of three on Trent Hall stable.....	99	40		300 yards.
Large lone tree.....	113	51		150 yards.
REFERENCE STATION.....	127	10	30	17.18 meters.
"Catholic Church Cross".....	219	22	20	2 3/4 miles.
Right end of peak of roof of Holland Point Wharf.....	233	05		2 1/4 miles.
Right chimney of smaller of two houses among trees.....	284	01		2 miles.
Right chimney of house.....	300	35		5 1/2 miles.
Right corner of shanty.....	300	36		47 yards.

COLLINS.

*General locality.*—Southwest shore of Patuxent River about 1/4 mile northeast of entrance to Washington Creek on point opposite Sheridan Point. (See Chart No. 19.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high-water mark, 16 yards west of shore, 20 yards northwest of shore, 21 yards southwest of shore, 300 yards northeast of a tall lone tree and 300 yards southeast of house known as Trent Hall.

## Survey of Oyster Bars, Calvert County, Md.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sheridan" (S 80° 59' E) .....	0	00	00	¾ mile.
Left end of peak of roof of De La Brooke Pier.....	52	12	--	2¼ miles.
Right side of right chimney of large painted brick house.....	60	23	--	2¼ miles.
Near corner of Thomas house (Cremona)....	73	22	--	1 mile.
Smoke pipe in chimney on store.....	98	23	--	½ mile.
Large lone tree.....	129	07	--	300 yards.
Small lone tree.....	175	10	--	130 yards.
Near corner of Trent Hall Wharf house.....	244	37	--	½ mile.
Chimney on end of roof of house among trees.....	287	41	--	2¼ miles.
Left corner of left chimney of Dowell house.....	354	11	--	1 mile.

## SHERIDAN.

*General locality.*—Northeast shore of Patuxent River on Sheridan Point. (See Chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass point near edge of the grass, about 2 feet above high-water mark, 6 yards east of extreme edge of grass on point, 8 yards north of grass edge and 7 yards south of grass edge. Cement monument marking reference station is 14.13 meters N 49° 56' E of observed station.

*Marks.*—Observed station is nail in stub with top 6 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Kitt" (S 66° 05' E).....	0	00	00	1¼ miles.
Right tangent of brick house.....	10	41	--	6 miles.
Left end of peak of roof of De La Brooke Pier.....	56	13	--	1¾ miles.
Left corner of left chimney of Thomas house (Cremona).....	102	38	--	1¼ miles.
Smoke pipe on several gable house.....	124	25	--	1¼ miles.
Right tangent of Trent Hall Wharf.....	192	00	--	1 mile.
Catholic Church at Benedict.....	216	56	--	3½ miles.
REFERENCE STATION.....	296	01	00	14.13 meters.
Near chimney of Dowell house.....	325	23	--	¼ mile.

## CREMONA.

*General locality.*—Southwest shore of Patuxent River about half way between Cremona and Persimmon creeks. (See Chart No. 19.)

*Immediate locality.*—Observed station is in orchard on farm known as Cremona, about 6 feet above high-water mark, 10 yards south of edge of river bank, 7 yards south of rail fence which runs west and east to door yard fence, 36 yards east of rail fence of cornfield, 75 yards north of rail fence at cornfield and 53 yards west of picket fence. Several mountain dwarf cherry trees stand between fence and river bank edge.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Kitt" (N 84° 13' E).....	0	00	00	2 miles.
Near end of peak of roof of Young Hance house.....	16	26	--	3 miles.
Nail in blaze in apple tree (24 inches diameter).....	37	38	20	24.55 meters.

Nail in blaze in apple tree (16 inches diameter).....	62	43	30	-----	13.12 meters.
Nail in blaze in apple tree (15 inches diameter).....	100	33	30	-----	16.11 meters.
Corner of field.....	181	55	--	-----	87 yards.
Corner of field.....	233	32	--	-----	38 yards.

KITT.

*General locality.*—Northeast shore of Patuxent River on Kitts Marsh Point, which is about half-way between Battle Creek and Sheridan Point. (See Chart No. 19.)

*Immediate locality.*—Observed station is on the point of a long marsh neck, about 15 yards north-east of extreme end of point, 13 yards north of edge of marsh, and 13 yards east of edge of marsh. There are no permanent reference objects near station. Cement monument marking reference station is 15.84 meters N 10° 23' E of observed station..

*Marks.*—Observed station is nail in stub flush with surface of marsh. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"		
"Battle" (S 39° 02' E).....	0	00	00	-----	1½ miles.
Right tangent of Long Marsh.....	7	53	--	-----	2 miles.
Near end of peak of roof of De La Brooke Pier.....	73	52	--	-----	1½ miles.
Near corner of near chimney of Thomas house.....	83	31	--	-----	1¾ miles.
Large house.....	167	38	--	-----	1 mile.
Square chimney of large house.....	185	23	--	-----	¾ mile.
REFERENCE STATION.....	229	24	40	-----	15.84 meters.
Left chimney of house.....	243	56	--	-----	2½ miles.
Hance house.....	299	13	--	-----	2 miles.
Right chimney of house among trees on hill.....	327	24	--	-----	4 miles.
Left chimney of house.....	336	59	--	-----	4 miles.

OPPKIT.

*General locality.*—Southwest shore of Patuxent River on Marsh Point. (See Chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass ridge between sand beach and marsh, about 1 foot above high water, 3 yards southwest of high water mark, 60 yards west-northwest of one point of the beach, 64 yards south of another point of the beach, and 85 yards north-northwest of an oyster watch house on piles. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"		
"Kitt" (N 56° 31' E).....	0	00	00	-----	1½ miles.
Near end of peak of roof of Williams Wharf house.....	36	46	--	-----	2½ miles.
Left corner of watch house.....	87	27	--	-----	85 yards
Left point of peak of roof of De La Brooke Pier.....	94	09	--	-----	1 mile.
Right corner of right chimney of brick house.....	126	42	--	-----	½ mile.
Chimney on house near trees.....	232	43	--	-----	¾ mile.
Highest chimney on Cremona House.....	254	49	--	-----	⅔ mile.
Point of roof of Dukes Wharf.....	310	09	--	-----	1½ miles.
Chimney on house with ell.....	330	49	--	-----	1½ miles.
Large square brick chimney on house with ell.....	334	08	--	-----	1½ miles.
Nearest chimney of pair on end of house.....	353	00	--	-----	1½ miles.

## BATTLE.

*General locality.*—Northeast shore of Patuxent River on west side of entrance to Battle Creek on Prison Point. (See Chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass land between marsh and river, about 1 foot above high water, 85 yards south of a field, 6 yards northeast of shore, 20 yards southwest of edge of a pool, 100 yards southwest by west of a lone tree, 200 yards west of a small house among trees, and 100 yards west to northwest of several dwarf trees between house and beach.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Forr" (S 3° 17' E).....	0	00	00	2¼ miles.
Chimney on middle of roof of house.....	1	52	--	2¼ miles.
Left corner of left chimney of very large house.....	8	36	--	2¼ miles.
Right chimney of large 2½-story brick house.....	82	00	--	1½ miles.
Tangent to Sheridan Point.....	129	20	--	2¼ miles.
Right end of peak of roof of 2½-story house.....	139	50	--	2¼ miles.
Chimney of 2½-story house on hill.....	155	19	--	2 miles.
Lone tree.....	254	41	--	80 yards.
Outside chimney of house on hill.....	264	11	--	3 miles.
House among trees.....	282	15	--	100 yards.
Tangent of Long Marsh.....	341	45	--	1½ miles.
Left chimney of 2½-story house.....	348	38	--	3 miles.
Chimney of 2½-story house.....	352	57	--	2 miles.
Right tangent of Forrest Wharf.....	357	59	--	1½ miles.

## PHOTO.

*General locality.*—Northeast side of Patuxent River on east side of entrance to Jacks Bay. (See Chart No. 19.)

*Immediate locality.*—Observed station is in a cultivated field, about 150 yards north-northeast of a marsh point, 10 feet above high-water mark, 49 yards east of shore, 110 yards north northwest of shore, and 68 yards northeast of right end of clump of trees at edge of field and beginning of marsh point.

*Marks.*—Observed station is nail in stub with top 2 inches above surface of ground. Subsurface mark is center point of triangle on standard cement monument with top 12 inches below surface.

*References.*—

	°	'	"	
"Slim" (S 52° 03' E).....	0	00	00	1½ miles.
Chimney on old house.....	51	21	--	2 miles.
Cedar trees.....	60	00	--	85 yards.
Left corner of house.....	73	03	--	2 miles.
Smoke pipe on house behind trees.....	78	08	00	2 miles.
Left tangent of Forrest Wharf.....	81	00	20	2¼ miles.
Tree.....	90	10	--	70 yards.
Watchhouse on point.....	118	52	--	½ mile.
Right chimney on 2½-story brick house.....	150	37	--	5 miles.
Locust tree (20 inches diameter).....	241	23	--	135 yards.
Left chimney of house.....	222	45	--	½ mile.
Willow tree.....	331	27	--	140 yards.

## FIGHT.

*General locality.*—Southwest shore of Patuxent River opposite mouth of Battle Creek on a prominent low point. (See Chart No. 19.)

*Immediate locality.*—Observed station is on land known as Horsehead Marsh, about 1 foot above ordinary high-water mark, 12 yards south-southwest of extreme end of point, 15 yards west-northwest of shore at small creek, 40 yards northeast of woods, and 110 yards east-southeast of a bluff 50 feet high.



*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Battle" (N 50° 45' E)-----	0	00	00	1¾ miles.
Outside chimney in center of group of buildings-----	13	30	--	2¼ miles.
Left chimney of house on top of hill-----	23	44	--	3¾ miles.
Left tangent of Forrest Wharf-----	82	06	10	2 miles.
Near end of peak of roof of 2½-story building-----	83	47	--	1¾ miles.
Large square chimney on large building-----	91	19	--	1 mile.
Left corner of left chimney of large house-----	262	40	--	1 mile.
Dowells windmill-----	300	28	--	2½ miles.
Left chimney on small house adjoining large house-----	321	41	--	2¼ miles.
Chimney of small house-----	325	38	--	2 miles.

SLIM.

*General locality.*—Northeast shore of Patuxent River about half way between Battle and Island creeks and ¼ mile west northwest of Parkers Wharf. (See Chart No. 19.)

*Immediate locality.*—Observed station is in a field on a sand bluff, about 40 feet above high water, 13 yards northeast of edge of bluff, 90 yards southeast of a point of woods at top of a ravine, about 189 yards southwest of another point of woods, 150 yards west-northwest of a rail fence, and 71 yards northwest by west of a large sycamore tree.

*Marks.*—Observed station is nail in round chestnut stub with top about 6 inches above the surface of the ground. Subsurface mark is center point of triangle on standard cement monument with top 10 inches below the surface of the ground.

*References.*—

	o	'	"	
"Island" (S 59° 31' E)-----	0	00	00	2½ miles.
Cedar in field-----	2	38	50	200 yards.
Large sycamore tree-----	29	20	--	71 yards.
Near end of peak of roof of Jones Wharf house-----	53	27	--	2½ miles.
Chimney on middle of roof of a long house-----	109	34	--	1¾ miles.
Outside chimney of house near Forrest Wharf-----	125	26	--	2 miles.
Nearest chimney on Thomas large brick house-----	166	16	--	4 miles.
Tangent of Long Point marsh-----	171	24	--	1½ miles.
Left tree on point-----	191	06	--	90 yards.
Two high trees close together near right edge of point of woods-----	284	27	--	189 yards.
Large walnut tree-----	298	20	--	¼ mile.
Near end of peak of roof of barn-----	304	23	--	½ mile.

FORR.

*General locality.*—Southwest shore of Patuxent River just below Forrest Wharf. (See Chart No. 19.)

*Immediate locality.*—Observed station is about 1 foot above high-water mark on sand and grass land, 7 yards south from extreme high-water mark, 45 yards southeast of land end of Forrest Wharf, 70 yards east by south of an old 2½-story building, and 65 yards northeast of a saloon.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Cole" (S 50° 07' E)-----	0	00	00	1¾ miles.
Near corner of house on hillside-----	9	59	--	180 yards.
Near corner of saloon-----	101	52	--	65 yards.

## Survey of Oyster Bars, Calvert County, Md.

	°	'	"	
Outside chimney on house on hill.....	115	22	--	1/4 mile.
Curve in road up hill.....	131	25	--	200 yards.
West corner of old 2 1/2-story building.....	139	52	--	70 yards.
Land end of wharf.....	169	15	--	45 yards.
Windmill.....	182	59	40	2 3/4 miles.
Left corner of left chimney brick house.....	183	05	--	3 miles.
Right tangent of Dukes Wharf.....	187	07	--	4 1/4 miles.
Near end of peak of roof of Forrest Wharf house.....	257	17	--	1/4 mile.
Chimney of house.....	272	35	--	3 or 4 miles.
Right tangent of roof.....	304	23	--	2 1/2 miles.
Tangent of trees.....	347	46	--	3 miles.

## SWEEP.

*General locality.*—Northeast shore of Patuxent River on northwest side of mouth of Island Creek near inner end of neck of land joining Broome Island to the mainland. (See Chart No. 19.)

*Immediate locality.*—Observed station is in a field about 4 feet above high water, 4 feet northwest of a wire fence, 24 yards south by west of a stable, 60 yards south-southwest of a house, and 100 yards south-southeast of a pine grove. Cement monument marking reference station is 21.70 meters N 59° 39' E of station and near fence line.

*Marks.*—Observed station is the center of an oblong wooden box 4 inches square with top 4 inches above the ground. Reference station is center point of triangle on a standard cement monument.

*References.*—

	°	'	"	
"Bars" (S 15° 10' E).....	0	00	00	2 miles.
Right chimney of house.....	14	48	--	3 miles.
Peak of roof of Gadden house.....	25	34	20	1 3/8 miles.
Tangent of Broome Island Point.....	43	21	--	1/2 mile.
Chimney on house on hill.....	51	57	--	3 miles.
Gilt ball on lightning rod.....	62	03	--	3/8 mile.
Chimney on house.....	96	06	--	1/4 mile.
Cut in woods.....	135	40	--	1 3/8 miles.
Chimney of house.....	186	34	--	150 yards.
Tile smoke pipe on house.....	203	24	--	140 yards.
Near corner of house.....	230	35	--	60 yards.
Near corner of barn.....	237	32	--	24 yards.
REFERENCE STATION.....	254	49	20	21.70 meters.
Right chimney of four on house.....	279	25	--	1/4 mile.
Top of tower of house.....	301	54	--	2 1/2 miles.

## ISLAND.

*General locality.*—Northeast shore of Patuxent River on the extreme southeast point of land about 1/2 mile to the east of the mouth of Island Creek. (See Chart No. 19.)

*Immediate locality.*—Observed station is on a marshy point at about extreme high-water mark, 30 yards north of extreme end of point, 25 yards east of one side of point, and 20 yards west of another side of point. Old tile pipe used as a reference station is 16.98 meters N 12° 39' E and cement monument marking new reference station is 30.93 meters N 2° 40' E of observed station.

*Marks.*—Observed station is nail in stub with top flush with marsh. Old reference station is center of 4-inch tile pipe set in cement with top projecting about 10 inches above ground. New reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Wheat" (S 53° 15' E).....	0	00	00	2 miles.
Left end of peak of roof of Sotterly Wharf house.....	46	07	--	2 miles.
Pinnacle of large house in trees.....	60	49	--	2 miles.

	°	'	"	
Left chimney of large house back on hill.....	67	54	--	2 miles.
Chimney on middle of large 2½-story house.....	109	59	--	1½ miles.
Middle of railing on top of roof of 2½-story house.....	120	00	--	3 miles.
Chimney of Broome house.....	143	41	--	¾ mile.
Weather vane on Broome house.....	148	33	30	¾ mile.
Right chimney of house.....	178	21	--	3 miles.
Right chimney of house.....	193	27	--	2 miles.
REFERENCE STATION (cement monument).....	235	55	00	30.93 meters.
REFERENCE STATION (tile pipe).....	245	54	20	16.98 meters.
Smoke pipe of watchhouse.....	333	29	--	1 mile.
Tower of Peterson house.....	356	08	--	2 miles.

## PEAK.

*General locality.*—Northeast shore of Patuxent River, about in middle of inner shore of a large bay between St. Leonard and Island creeks. (See Chart No. 19.)

*Immediate locality.*—Observed station is on Parran house, located near shore at extreme end of a road leading to Wallville.

*Marks.*—Observed station is ball on tip of tower.

*References.*—None necessary.

## COLE.

*General locality.*—Southwest shore of Patuxent River, about ¼ mile northwest of Cole Creek. (See Chart No. 19.)

*Immediate locality.*—Observed station is about 35 feet above high-water mark on a grass peninsula, 3 yards south-southwest of edge of a bluff which is washing rapidly, 8 yards west of extreme edge of bluff, where it turns inland and is not washing, but slopes gradually to the water, 8 yards north of another edge of the bluff, 10 yards northwest of trees on slope of bank, and 20 yards west of a cherry tree 2 feet in diameter. Cement monument marking reference station is 13.53 meters S 83° 10' W of observed station and nearly on line with large cherry tree.

*Marks.*—Observed station is nail in stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Hutchins" (S 67° 12' E).....	0	00	00	2 miles.
Left end of peak of roof on Jones Wharf house.....	6	25	--	1½ miles.
Nail in blaze on limb of oak tree (4 inches diameter).....	22	05	--	10.80 meters.
Screw in blaze in crotch of oak tree (15 inches diameter at base).....	38	18	--	12.67 meters.
Nail in blaze of cedar tree (6 inches diameter).....	63	40	40	8.43 meters.
Nail in blaze on cherry tree (24 inches diameter).....	147	11	--	18.65 meters.
REFERENCE STATION.....	150	22	00	13.53 meters.
Right chimney of house.....	179	11	--	¾ mile.
Right end of peak of roof of Forrest Wharf house.....	202	21	--	1½ miles.
Right end of house.....	251	03	--	3 miles.
Left end of peak of house.....	280	23	--	3 miles.
Gilt ball on Broome house.....	321	30	30	2 miles.
Right tangent of Broome Island.....	334	17	--	1¾ miles.

## HUTCHINS.

*General locality.*—Southwest shore of Patuxent River opposite Broome Island on Captain Point, about  $\frac{1}{4}$  mile northwest of mouth of Cole Creek. (See Chart No. 19.)

*Immediate locality.*—Observed station is in garden on point of a bluff 50 feet high on Hutchins estate near house occupied by Mr. Gadden, about 6 yards south by east of extreme point of bluff, 2 yards southwest of edge of bluff, 4 yards southeast of edge of bluff, 30 yards north by west from house, 30 yards west of a wire fence running north and south, and 15 yards east of another north-and-south wire fence. Cement monument marking reference station is  $7.57^{\circ} 39' W$  of observed station.

*Marks.*—Observed station is nail in a stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Bars" (S $68^{\circ} 07' E$ )	0	00	00	$\frac{7}{8}$ mile.
Left corner of extension of Gadden house	58	17	--	30.90 meters.
Right front corner of Gadden house	84	56	--	28.57 meters.
Near corner of well house	102	15	--	30.44 meters.
Near corner of shed	119	43	--	45 yards.
REFERENCE STATION	127	46	--	7.57 meters.
Nail in blaze in apple tree (22 inches diameter)	148	06	20	9.35 meters.
Right tangent of Parkers Wharf	228	12	--	$2\frac{1}{2}$ miles.
Gilt ball on Broome house on Broome Island	249	55	--	$1\frac{1}{2}$ miles.
Near end of peak of house	263	17	--	4 miles.
Tip of tower on Peterson house	332	52	--	$2\frac{1}{2}$ miles.

## WHEAT.

*General locality.*—Northeast shore of Patuxent River on westerly side of mouth of St. Leonard Creek. (See Charts Nos. 19 and 20.)

*Immediate locality.*—Observed station is on a bluff about 40 feet above high water, about 5 yards west of edge of bank, 7 yards south of another edge, and  $\frac{3}{8}$  mile west of Peterson house. Cement monument marking reference station is 12.80 meters N  $61^{\circ} 55' E$  of observed station and on line to Peterson house.

*Marks.*—Observed station is center of a 4-inch tile pipe set in cement with top projecting about 4 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Stump" (S $36^{\circ} 23' E$ )	0	00	00	$2\frac{1}{2}$ miles.
Left chimney of Judge Crane house	10	07	--	$4\frac{3}{4}$ miles.
Near end of peak of roof of Marburger house	15	05	--	$4\frac{1}{4}$ miles.
Left end of roof of St. Cuthbert Wharf	24	09	--	$2\frac{3}{4}$ miles.
Chimney on roof of house	60	05	--	$1\frac{1}{2}$ miles.
Chimney on store at Sotterly	93	41	--	$1\frac{1}{2}$ miles.
Left end of barn roof	193	27	--	2 miles.
REFERENCE STATION	278	17	30	12.80 meters.
Center chimney of Peterson house	281	22	--	$\frac{1}{4}$ mile.
Chimney of house	298	03	--	$\frac{1}{8}$ mile.
Chimney on house on Breeden estate	340	04	--	2 miles.

## MACKALL.

*General locality.*—Northwest shore of Patuxent River on west side of entrance to St. Leonard Creek on first point inside of Peterson Point. (See Charts Nos. 19 and 20.)

*Immediate locality.*—Observed station is about 50 feet above high water, 9 feet northwest of edge of bluff, 7 yards northeast of bushes, and 3 yards southwest of other bushes. Cement monument marking reference station is 3.80 meters N  $35^{\circ} 08' W$  of observed station.

*Marks.*—Observed station is the center of an oblong wooden box 4 inches square with top 3 inches above the ground. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Stock" (S 34° 38' W).....	0	00	00	1¾ miles.
Peak of front gable of Bond house.....	0	39	10	1¾ miles.
Chimney on negro house.....	54	31	--	¾ mile.
Chimney on Peterson house.....	66	25	--	¼ mile.
REFERENCE STATION.....	110	13	50	3.80 meters.
Chimney on negro house.....	135	49	--	¾ mile.
Chimney on ell of house on hill.....	153	46	--	½ mile.
Chimney on small house back of Sollers Wharf.....	229	40	--	1 mile.
Nearest outside chimney on 1½-story house.....	236	08	--	2 miles.
Large chimney on Sollers house.....	237	02	--	¾ mile.
Large chimney on Taylor house.....	285	27	--	½ mile.
Front peak of Briscoe house.....	334	30	--	2½ miles.

SOLLERS.

*General locality.*—Northeast shore of Patuxent River on east side of entrance to St. Leonard Creek. (See Charts Nos. 19 and 20.)

*Immediate locality.*—Observed station is about 50 feet above high water, 6 feet east of edge of bank, 20 yards north-northeast of a clump of trees, 14 yards and 8 yards south-southwest of other trees, and 75 yards north-northwest of a rail fence. Cement monument marking reference station is 13.68 meters S. 44° 00' E of observed station with top buried 12 inches below surface.

*Marks.*—Observed station is the center of an oblong wooden box 5 inches square with top 3 inches above ground. Reference station is center point of triangle on standard cement monument with top 12 inches below surface.

References.—

	°	'	"	
"Stock" (S 44° 24' W).....	0	00	00	1⅝ miles.
Middle of front gable of Bond house.....	0	34	--	1¾ miles.
Chimney of store at Sotterly Wharf.....	26	58	--	2½ miles.
Near corner of outside chimney on house.....	27	18	--	2½ miles.
Chimney on top of Gadden house.....	46	14	--	2⅞ miles.
Near corner of top chimney on Peterson house.....	78	27	--	½ mile.
Right end of peak of roof of Mackall house.....	150	16	--	½ mile.
REFERENCE STATION.....	271	35	30	13.68 meters.
Near corner of large chimney on Taylor house.....	272	35	--	⅜ mile.
Top of front gable on Briscoe house.....	331	36	--	1¾ miles.

BARS.

*General locality.*—Southwest shore of Patuxent River on Sotterly Point about ¼ mile northwest of Sotterly Wharf. (See Chart No. 19.)

*Immediate locality.*—Observed station is on a bluff about 30 feet above high water, 5 yards south of edge of bank at rail fence, and 2 yards east of this same fence. Cement monument marking reference station is 14.53 meters S 9° 54' W of observed station and near fence line.

*Marks.*—Observed station is center of a 3-inch tile pipe set in cement. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Wheat" (N 72° 06' E).....	0	00	00	1½ miles.
Chimney on middle of 2½-story house.....	17	29	--	6 miles.
Windmill.....	23	23	--	3 miles.
Chimney of house.....	41	50	--	4 miles.
REFERENCE STATION.....	117	48	00	14.53 meters.
Smoke pipe on right end of house.....	157	37	--	¼ mile.
Tangent of point of land.....	250	47	--	1½ miles.
Peterson house chimney.....	359	22	--	1¾ miles.

## LEND.

*General locality.*—Northeast shore of Patuxent River on a narrow strip of land or peninsula in mouth of Mears Creek about  $\frac{1}{2}$  mile southeast of St. Leonard Creek. (See Charts Nos. 19 and 20.)

*Immediate locality.*—Observed station is in the midst of many cherry, oak, and locust trees about 15 feet above high-water mark, 15 yards east-northeast of high ground, 5 yards west of edge and 17 yards north of extreme point of top of peninsula.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Wheat" (N 50° 51' W).....	0	00	00	1 $\frac{1}{4}$ miles.
Nail in blaze in cherry tree (4 inches diameter).....	118	28	30	3.58 meters.
Right chimney of house across creek.....	139	51	--	$\frac{1}{4}$ mile.
Nail in blaze in oak tree (8 inches diameter).....	229	51	--	6.68 meters.
Outside chimney on left end of Briscoe house.....	265	61	--	1 $\frac{1}{2}$ miles.
Near peak of Bond house.....	297	57	--	1 $\frac{3}{8}$ miles.
Chimney on storehouse at Sotterly.....	318	19	--	2 $\frac{1}{4}$ miles.
Near end of peak of roof of Sotterly Wharf house.....	319	07	--	2 $\frac{1}{4}$ miles.
Chimney on Gadden house.....	330	47	--	3 $\frac{1}{4}$ miles.
Nail in blaze in cherry tree (6 inches diameter).....	345	24	--	3.64 meters.

## STOCK.

*General locality.*—Southwest shore of Patuxent River about 1 mile southeast of Sotterly Point. (See Chart No. 19.)

*Immediate locality.*—Observed station is on a bluff, about 20 feet above high water, 3 yards southwest of edge of bluff, about 50 yards east by north of front door of the house of Mr. Bond, 30 yards west-northwest of extreme end of point of bluff, 35 yards northeast of detached house, and about 43 yards east by south of yard fence at edge of bluff.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Lend" (N 66° 48' E).....	0	00	00	1 $\frac{5}{8}$ miles.
Right chimney of house on Dickson place.....	1	35	--	1 $\frac{3}{4}$ miles.
Right chimney of old 1 $\frac{1}{2}$ -story house.....	19	00	--	2 miles.
Tangent of bluff.....	58	00	--	1 mile.
Chimney on house on point.....	59	03	--	1 mile.
Nail in blaze in locust tree (4 inches diameter).....	99	48	30	2.18 meters.
Nearest corner of outhouse, corner farthest from house.....	161	29	30	34.30 meters.
Left corner of house.....	180	31	30	31.13 meters.
Nail in blaze in cherry tree 1 foot above ground (4 feet diameter).....	183	39	30	20.58 meters.
Right corner of house.....	205	29	40	45.79 meters.
Locust tree (4 inches diameter).....	210	31	40	8.83 meters.
End of yard fence.....	230	31	--	43 yards.
Tree near edge of bank (no nail or blaze).....	237	39	20	34.27 meters.

## STUMP.

*General locality.*—Northeast shore of Patuxent River about  $\frac{1}{2}$  mile northwest of Hellen Creek. (See Chart No. 20.)

*Immediate locality.*—Observed station is on a bank about 20 feet above high water, 10 yards north-northeast of edge of bank at extreme end of point, about 20 yards southeast of edge of bank, and about

150 yards northwest of a clump of cedar and locust trees at edge of bank. Cement monument marking first reference station is 11.29 meters N 61° 51' E of observed station with top 10 inches below surface of field. Cement monument marking second reference station is 26.22 meters N 60° 42' E of observed station about on line with first reference station.

*Marks.*—Observed station is center of 4-inch tile pipe set in cement with top flush with ground. First reference station is center point of triangle on standard cement monument with top 10 inches below the surface of ground. Second reference station is center point of triangle on standard cement monument with top 6 inches above surface of ground.

*References.*—

	°	'	"	
"Wheat" (N 36° 23' W).....	0	00	00	2½ miles.
Chimney in center of house.....	15	09	--	¾ mile.
SECOND REFERENCE STATION.....	97	43	35	26.22 meters.
FIRST REFERENCE STATION.....	98	52	30	11.29 meters.
Apple tree.....	152	00	--	200 yards.
Left chimney of house.....	180	19	--	¾ mile.
Near end of peak of roof of Marburger house.....	209	27	--	2¼ miles.
Left chimney of house.....	269	21	--	1¼ miles.
Nail in blaze in stump (30 inches diameter).....	250	49	--	5.01 meters.
Nail in blaze in tree (8 inches diameter).....	352	30	--	17.52 meters.

## BRISCOE.

*General locality.*—Southeast shore of Patuxent River about ¼ mile northwest of St. Cuthbert Wharf. (See Chart No. 19.)

*Immediate locality.*—Observed station is in a cultivated field, about 20 feet above high water, 80 yards southwest of trees on bank, 50 yards southeast of a creek bed, 46 yards northwest of a clump of trees, 105 yards east of a corner of fence on road, and about 300 yards northeast of another fence with woods back of it. Cement monument marking reference station is 12.52 meters N 79° 35' W of observed station.

*Marks.*—Observed station is a nail in a stub with top flush with ground and a subsurface mark of a standard cement monument with top buried 11 inches below the surface. Reference station is center of triangle on standard cement monument with top 5 inches above surface of ground.

*References.*—

	°	'	"	
"Hellen" (S 71° 37' E).....	0	00	00	1½ miles.
Near corner of house.....	45	11	--	¾ mile.
Left end of peak of roof of barn.....	57	18	--	¾ mile.
Large two-forked tree.....	129	17	--	130 yards.
Corner of rail fence and tree.....	136	34	--	105 yards.
REFERENCE STATION.....	172	01	40	12.52 meters.
Large cherry tree other side of creek.....	195	00	--	68 yards.
Left chimney of house on opposite side with three dormer windows.....	304	54	--	1½ miles.
Cedar tree.....	308	59	--	80 yards.

## HELLEN.

*General locality.*—Northeast shore of Patuxent River on east side of mouth of Hellen Creek. (See Chart No. 20.)

*Immediate locality.*—Observed station is at high-water mark on edge of grass and bushes, about 16 yards west-southwest of a bluff 15 feet high, and about 40 yards north-northwest of bluff at edge of water. Cement monument marking reference station is 12.45 meters N 75° 14' E of observed station.

*Marks.*—Observed station was the center of a tile pipe with a subsurface mark of a green yeast-powder bottle but at date of publication these marks are reported to have been washed away. Reference station is center point of triangle on standard cement monument.

## Survey of Oyster Bars, Calvert County, Md.

## References.—

	°	'	"	
"Stump" (N 25° 42' W).....	0	00	00	¾ mile.
Left chimney of Barrett house.....	8	54	-----	¾ mile.
Nail in blaze in tree.....	100	01	40	14.74 meters.
REFERENCE STATION.....	100	56	20	12.45 meters.
Near end of peak of roof of Marburger house.....	209	54	-----	1½ miles.
Mouth of Cuckold Creek.....	261	00	-----	1½ miles.
Chimney of Peterson house.....	355	14	-----	3 miles.

## NAT.

*General locality.*—Southwest shore of Patuxent River about ½ mile above mouth of Cuckold Creek. (See Chart No. 20.)

*Immediate locality.*—Observed station is near edge of a cultivated field on a bluff of sand and gravel about 20 feet above high water, 4 feet east of edge of bluff, and 150 yards north of a rail fence. Cement monument marking reference station is 18.44 meters S 29° 47' W of observed station with top 8 inches below surface of ground.

*Marks.*—Observed station is center of 3-inch tile pipe embedded in cement. Reference station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
"Hellen" (N 69° 29' E).....	0	00	00	1¼ miles.
Near end of peak of roof of Marburger house on Point Patience.....	68	01	-----	1½ miles.
REFERENCE STATION.....	140	18	00	18.44 meters.
Large chimney on house.....	281	58	-----	3 miles.
Right chimney of house with two gable roofs.....	309	01	-----	2 miles.

## TON.

*General locality.*—Eastern shore of Patuxent River about 1 mile northeast of Point Patience. (See Chart No. 20.)

*Immediate locality.*—Observed station is on a bluff about 15 feet above high water, 10 yards east from edge of bluff, 50 yards south-southwest of edge of a gully and a clump of trees, and about 220 yards west-northwest of a cherry tree 3½ feet in diameter. Cement monument marking reference station is 13.64 meters S 62° 29' E of observed station.

*Marks.*—Observed station is a spike set in cement. Reference station is center point of triangle on standard cement monument buried below surface 10 inches.

## References.—

	°	'	"	
"Mill" (S 65° 00' W).....	0	00	00	1¼ miles.
Chimney on far end of Wallace house.....	53	28	-----	1¾ miles.
Chimney on middle of roof on McCorry store.....	60	09	-----	2 miles.
Near end of peak of St. Cuthbert Wharf house.....	62	10	-----	2 miles.
Near end of peak of roof of Parran oyster watch house.....	83	03	-----	5½ miles.
Chimney on Peterson house.....	85	39	-----	3¾ miles.
Cemented chimney on near end of George old house.....	94	59	-----	1 mile.
Left chimney of Costen house.....	117	59	-----	½ miles.
Nail in blaze in tree.....	137	35	20	47.60 meters.
REFERENCE STATION.....	232	31	00	13.64 meters.
Left chimney of Marburger house.....	329	11	-----	¾ mile.



## MILL.

*General locality.*—Southwest shore of Patuxent River about  $\frac{1}{2}$  mile southeast of mouth of Cuckold Creek and  $\frac{1}{2}$  mile northwest of Point Patience. (See Chart No. 20.)

*Immediate locality.*—Observed station is on a sand bluff about 20 feet above high water, 7 yards southwest of the edge of the bluff, 40 yards southeast of a fence and a line of cedar trees, and about 100 yards northwest of another fence at bottom of hill. Cement monument marking reference station is 13.76 meters S  $28^{\circ} 14'$  W of observed station.

*Marks.*—Observed station is center point of 3-inch tile pipe embedded in cement. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Ton" (N $64^{\circ} 59'$ E)-----	0	00	00	----- $1\frac{1}{4}$ miles.
Nearest chimney of Marburger house on Point Patience-----	39	01	--	----- $\frac{3}{4}$ mile.
"Catholic Church Cross"-----	43	03	40	----- 2 miles.
"Methodist Episcopal Church Spire"-----	49	23	30	----- 2 miles.
Middle of portico of Judge Crane house-----	82	22	--	----- 1 mile.
Windmill near Dent house-----	136	47	--	----- $\frac{1}{2}$ mile.
REFERENCE STATION-----	143	14	40	----- 13.76 meters.
Chimney on house among farm buildings--	293	28	40	----- $4\frac{1}{4}$ miles.
Left chimney on house with piazza-----	304	02	--	----- $2\frac{3}{4}$ miles.
End of peak of roof of $2\frac{1}{2}$ -story house-----	323	31	--	----- $1\frac{3}{4}$ miles.
Nearest chimney of cottage-----	338	17	--	----- 2 miles.
Left chimney of house-----	340	19	--	----- 2 miles.

## BUR.

*General locality.*—East shore of Patuxent River, on northwest side of Point Patience, about  $\frac{1}{4}$  mile northeast of its extreme end. (See Chart No. 20.)

*Immediate locality.*—Observed station is on sand and grass land, about 1 foot above high water, 12 yards southeast of high-water mark on one side of point, 36 yards northwest of high-water mark on other side of point, and about 300 yards northeast of extreme end of point. Cement monument marking reference station is 12.15 meters N  $85^{\circ} 20'$  E of observed station.

*Marks.*—Observed station is a 3-inch tile pipe set in cement with top about 1 inch above the surface of the ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Ton" (N $37^{\circ} 56'$ E)-----	0	00	00	----- 1 mile.
Left chimney of Marburger house-----	16	08	--	----- $\frac{1}{4}$ mile.
REFERENCE STATION-----	47	24	30	----- 12.15 meters.
"Methodist Episcopal Church Spire"-----	75	32	10	----- $1\frac{3}{8}$ miles.
Middle gable of Judge Crane house-----	139	09	--	----- $\frac{1}{2}$ mile.
Nail in blaze in pine tree (8 inches diameter)-----	162	40	10	----- 25.94 meters.
Square chimney on Dent house-----	228	30	--	----- $\frac{3}{4}$ mile.
Chimney on house-----	268	52	--	----- $1\frac{5}{8}$ miles.
Left chimney of house-----	346	39	--	----- $1\frac{1}{2}$ miles.
Right chimney of house-----	358	31	--	----- $1\frac{1}{2}$ miles.

## NEW.

*General locality.*—Northeast side of Patuxent River, about  $\frac{3}{4}$  mile east of Point Patience and about  $1\frac{1}{4}$  miles northwest of Sandy Point. (See Chart No. 20.)

*Immediate locality.*—Observed station is about 20 feet above high-water mark in the middle of a cultivated field on Strathmore farm, about 230 yards northeast of shore of Patuxent River, about 82 yards southeast of a creek, about 162 yards northwest of a small creek or ditch, 230 yards northeast of a large oak tree, and 250 yards north of another large oak tree.

*Marks.*—Observed station is center point of triangle on standard cement monument with top 11 inches below the surface of the ground.

<i>References.</i> —	o	'	"	
"Ben" (S 2° 10' E)-----	0	00	00	2 miles.
Chimney on flat-roof house-----	6	59	--	1 3/4 miles.
Chimney on main part of a house on Town Creek-----	27	11	--	1 1/4 miles.
Oak tree about 18 inches diameter on edge of field-----	43	54	--	227 yards.
Right tangent of Spencers wharf-----	56	04	--	1 mile.
Corner of field-----	67	00	--	310 yards.
Exposed chimney on left of house-----	67	36	--	1 1/2 miles.
Left chimney on house-----	88	57	--	1 1/2 miles.
Corner of field-----	206	00	--	240 yards.
Corner of field-----	258	00	--	300 yards.
Silver-tipped tower on Philip Vale house--	307	08	20	1/2 mile.
Oak at edge of field-----	343	35	--	300 yards.

#### CATHOLIC CHURCH CROSS.

*General locality.*—Southeast side of Patuxent River, about halfway to Back Creek and 3/4 mile northwest of Solomons wharf. (See Chart No. 20.)

*Immediate locality.*—Observed station is on Catholic Church, known as St. Marys Star of the Sea, located in small village of Johnstown on mainland near Solomons Island, and about 250 yards north of causeway to Solomons Island.

*Marks.*—Observed station is center of cross on bell cupola.

*References.*—None necessary.

#### CABLE.

*General locality.*—Southwest shore of Patuxent River, on east side of entrance to Kings Creek, and about 3/4 mile west of Town Point. (See Chart No. 20.)

*Immediate locality.*—Observed station is on pasture land near the end of high land at the beginning of a long, low peninsula which almost closes the mouth of Kings Creek, about 30 feet above high-water mark, about 20 yards south of edge of bank on river side, about 15 yards east northeast of edge of bank on creek side, 38 yards southeast of extreme edge of top of bank, and 30 yards west of a persimmon tree.

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 10 inches below the surface of ground.

<i>References.</i> —	o	'	"	
"Bur" (N 35° 17' E)-----	0	00	00	3/4 mile.
Left chimney of Marburger house near Point Patience-----	3	25	--	3/4 mile.
"Catholic Church Cross"-----	43	59	--	1 3/4 miles.
"Methodist Episcopal Church Spire"-----	52	29	--	1 3/4 miles.
Left chimney of Judge Crane house-----	55	44	--	1/2 mile.
Nail in blaze of tree (18 inches diameter) --	179	22	20	19.24 meters.
Nail in blaze in red cedar tree (3 inches diameter)-----	236	25	--	16.80 meters.
Nail in blaze in persimmon tree-----	283	52	10	26.22 meters.
Right chimney on Fenner Lee house-----	284	14	--	3/8 mile.
Left chimney of house-----	302	24	--	1/2 mile.

#### TOWN.

*General locality.*—Southwestern shore of Patuxent River, on Town Point, about 3/4 mile southeast of Point Patience. (See Chart No. 20.)

*Immediate locality.*—Observed station is about 20 feet above high-water mark, 9 yards west of edge of bluff, 3 yards south of edge of bluff, 10 yards southeast of extreme edge of high land, 3 yards south of a rail fence, and 2 yards north of cultivated land.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Back"-----	0	00	00	1/4 mile.
"Catholic Church Cross"-----	8	58	20	1 mile.
"Methodist Church Spire"-----	25	41	20	3/4 mile.
Cupola on Files store-----	29	11	--	3/4 mile.
Nearest chimney on Webster house-----	43	06	--	1 1/4 miles.
Right end of roof of 2 1/2-story building at Pearsons-----	67	56	--	3 miles.
Near corner of tower on Hodgdon house---	93	01	--	2 3/8 miles.
Chimney on old house-----	108	18	--	1 3/8 miles.
Chimney on house-----	142	53	--	1 mile.
Left chimney on Lee house-----	227	04	--	1 1/2 miles.
Marburger house-----	281	00	--	3/4 mile.

CRANE.

General locality.—Southwest side of Patuxent River, on northeast side of Town Creek, about 1/4 mile southwest of Town Point. (See Chart No. 20.)

Immediate locality.—Observed station is in a cultivated field on Judge Crane farm, about 8 feet above high-water mark, 58 yards east northeast of Town Creek, 105 yards west of a fence, 115 yards west-northwest of a large cherry tree, 200 yards southeast of several detached buildings, and 20 yards east of top of a ravine.

Marks.—Observed station is center point of triangle on standard cement monument with top 10 inches below ground.

References.—

	o	'	"	
"New" (N 36° 51' E)-----	0	00	00	1 mile.
"Catholic Church Cross"-----	29	25	--	1 1/4 miles.
Stack on ice plant-----	37	25	--	1 1/4 miles.
Methodist Episcopal Church Tower-----	42	15	--	1 1/4 miles.
Cherry tree (4 feet diameter)-----	71	26	--	115 yards.
Canning-house stack-----	157	27	--	1/4 mile.
House on point-----	185	20	--	1/4 mile.
Chimney on house-----	244	30	--	3/4 mile.
Lightning rod on cupola of Judge Crane barn-----	277	01	30	1/4 mile.
Right tangent to St. Cuthbert wharf-----	300	08	--	2 3/4 miles.
Near end of peak of roof of Marburger house-----	320	49	--	7/8 mile.
Middle of gateway-----	355	23	--	1/8 mile.
Oak tree on opposite shore of Patuxent River-----	359	16	50	1 mile.

M. E. CHURCH (SOLOMONS).

General locality.—Northeastern shore of Patuxent River, on upper end of Solomons Island, about 1/2 mile northwest of Sandy Point. (See Chart No. 20.)

Immediate locality.—Observed station is on Methodist Church at upper end of Solomons Island near beginning of causeway to mainland.

Marks.—Observed station is tip of pyramidal tower on Methodist Church.

References.—None necessary.

K. OF P. FLAGSTAFF (SOLOMONS).

General locality.—Northeastern side of Patuxent River, on Solomons Island, in the town of Solomons. (See Chart No. 20.)

Immediate locality.—Observed station is on flagstaff in front of Knights of Pythias Building.

## Survey of Oyster Bars, Calvert County, Md.

*Marks.*—Observed station is center of flagstaff at about the same height as roof of the K. of P. Hall.  
*References.*—None necessary.

## SAND.

*General locality.*—Northeastern side of Patuxent River on Sandy Point on extreme southern point of Solomons Island. (See Chart No. 20.)

*Immediate locality.*—Observed station is on pasture land about 5 feet above high water, 30 yards north of extreme point of planking protecting the shore from washing, 15 yards northeast of the extreme edge of sand and grass line, and about 13 yards east of top of bank. Cement monument marking reference station is 13.64 meters N 2° 19' E of observed station.

*Marks.*—Observed station is nail in southwest side of a 6-inch pile driven into ground with top 6 inches above the surface. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Drum Point Light" (N 83° 57' E)-----	0	00	00	2 miles.
Right tangent of woods on Hog Point-----	14	36	--	3 miles.
Left end of peak of roof on 2½-story building at Pearsons-----	51	03	--	2 miles.
Chimney on storehouse at Millstone-----	74	18	--	1¾ miles.
Near point of gable of Hodgdon large house with square tower-----	93	54	--	1½ miles.
Near end of peak of roof of Marburger house-----	225	22	--	1¾ miles.
Warren house opposite Johnson store-----	261	22	--	¼ mile.
REFERENCE STATION-----	278	22	10	13.64 meters.
"K. of P. Flagstaff"-----	291	58	--	¼ mile.
Right chimney of Dr. Marsh house-----	320	38	--	⅓ mile.
"Bareda House Cupola"-----	347	48	30	1½ miles.

## FISHSTACK.

*General locality.*—Northeastern side of Patuxent River on northeastern side of entrance to Mill and Back creeks. (See Chart No. 20.)

*Immediate locality.*—Observed station is on mainland on fish fertilizer factory located on opposite side of creek from Solomons Island.

*Marks.*—Observed station is center of smokestack on fish factory.

*References.*—None necessary.

## BON.

*General locality.*—North shore of Patuxent River about 1¼ miles west-northwest of Drum Point Light and about ½ mile east-northeast of Solomons Island. (See Chart No. 20.)

*Immediate locality.*—Observed station is on cultivated land, about 5 feet above high water, about 7 yards north of shore, about 90 yards southeast of a 1½-story house on land 10 feet higher than station, and about 75 yards south of a 1½-story brick house. Cement monument marking reference station is 0.67 meters N 45° 29' E of observed station.

*Marks.*—Observed station is an inverted nail in center of cement in a 6-inch tile pipe with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Drum Point Light" (S 73° 43' E)-----	0	00	00	1¾ miles.
Smoke pipe on oyster watch house-----	33	32	--	½ mile.
Left end of peak of roof on 2½-story building at Pearsons-----	52	06	--	2¾ miles.
Left end of peak of roof on house with piazza-----	82	29	--	2½ miles.

Near point of roof of Hodgdon house with square tower.....	89	14	-----	2¼ miles.
Chimney on end of house.....	133	57	-----	¾ mile.
Left chimney on Weems house.....	159	37	-----	¾ mile.
Right chimney on wooden house.....	224	01	-----	90 yards.
Left side of chimney on brick house.....	249	54	-----	75 yards.
REFERENCE STATION.....	299	12	00	0.67 meters.
Near end of peak of house on bluff between trees.....	336	50	-----	½ mile.
"Bareda House Cupola".....	347	06	-----	¾ mile.

BAREDA HOUSE CUPOLA.

*General locality.*—North side of Patuxent River about ½ mile northwest of Drum Point Light. (See Chart No. 20.)

*Immediate locality.*—Observed station is on Bareda House which is a large 3-story square mansion with square cupola with three windows on each side and a porch all around ground floor, located about 100 yards back from shore on high land.

*Marks.*—Observed station is center of ornamental design of four brackets on center of cupola.

*References.*—None necessary.

DRUM POINT LIGHT.

*General locality.*—Northeastern side of entrance of Patuxent River and a short distance off shore from Drum Point. (See Chart No. 20.)

*Immediate locality.*—Observed station is on a screw pile structure known as Drum Point Light-House.

*Marks.*—Observed station is center of black lantern on Drum Point Light-House.

*Reference.*—

"Cedar Point Light" (S 64° 33' E).....	0	00	00	-----	3¼ miles.
--	---	----	----	-------	-----------

BEN.

*General locality.*—Southwestern shore of Patuxent River about 1 mile south-southwest of Sandy Point and 1¼ miles south-southeast of Town Point. (See Chart No. 20.)

*Immediate locality.*—Observed station is on a clay and sand bluff in a cultivated field, about 20 feet above high-water mark, about 10 feet west of edge of bank, 3 feet south of point covered with scrub pines, about 15 yards northeast of one edge of plateau, 10 yards southeast of another edge of plateau, about 65 yards north of point of woods, and 10 yards south of cut in bank which is washing rapidly. Cement monument marking reference station is 8.42 meters S 56° 15' W of station.

*Marks.*—Observed station is nail in cement in 6-inch tile pipe with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

"Drum Point Light" (N 68° 07' E).....	0	00	00	-----	2¾ miles.
Left tangent of trees on Hog Point.....	16	21	-----	3¾ miles.	
Near end of peak of roof of large 2¼-story building at Pearsons.....	39	36	-----	2¼ miles.	
Near piazza post of Millstone Hotel.....	56	11	-----	1¾ miles.	
Chimney of Craddock house.....	60	28	-----	1¾ miles.	
Chimney on end of cabin.....	97	24	-----	200 yards.	
Tall pine tree.....	138	35	-----	50 yards.	
REFERENCE STATION.....	168	08	00	-----	8.42 meters.
Nail in blaze in pine tree (4 inches diameter).....	176	33	50	-----	7.79 meters.
Nail in blaze in pine tree (4 inches diameter).....	223	40	40	-----	8.77 meters.

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Nail in blaze in pine tree (4 inches diameter)-----	236	39	-----	2.07 meters.	
Near end of peak of roof of Marburger house-----	272	12	-----	2 miles.	
"Catholic Church Cross"-----	304	54	40	-----	1½ miles.
"Bareda House Cupola"-----	350	34	40	-----	2½ miles.

## CRADDOCK.

*General locality.*—Southern shore of Patuxent River, about 2¾ miles south-southeast of Drum Point Light and ¼ mile west of Millstone Landing. (See Chart No. 20.)

*Immediate locality.*—Observed station is on lawn about 15 feet above high-water mark, about 10 yards south from top edge of bank, 15 yards from bottom edge of bank and fence, 30 yards east of extreme edge of point, 30 yards northeast of trees along shore of pond, about 110 yards northwest of Craddock house and several outbuildings among poplar trees, 50 yards east of fence, and 70 yards west of driveway to house.

*Marks.*—Observed station is center point of triangle on standard cement monument, with top flush with lawn.

*References.*—

"Drum Point Light" (N 37° 15' E)-----	0	00	00	-----	2¼ miles.
Left tangent of woods on Carroll Point-----	21	52	-----	1¾ miles.	
Near end of peak of roof of 2½-story building at Pearsons-----	42	25	-----	1¼ miles.	
Chimney on hotel at Millstone-----	64	56	-----	½ mile.	
Cottonwood tree (14 inches diameter)-----	68	54	-----	80 yards.	
Chimney on roof of Craddock 2½-story house-----	95	27	-----	110 yards.	
Nail in stump (14 inches diameter)-----	309	25	50	-----	5.35 meters.
"Fishstack"-----	317	30	50	-----	2 miles.

## CARROLL 2.

*General locality.*—South side of Patuxent River, about 1 mile south-southwest of Hog Point and about 1 mile south of Drum Point Light. (See Chart No. 20.)

*Immediate locality.*—Observed station is on a sandy clay bluff in a cultivated field, about 50 feet above high-water mark, 4 feet south of top edge of bluff, 180 yards east of trees and ravine beyond cultivated field, 60 yards west of trees and ravine beyond cultivated field, 300 yards north of large square chimney on old-fashioned farmhouse, and 250 yards north of large tree to right of farmhouse. Cement monument marking reference station is 13.32 meters S 54° 30' W of observed station. Another reference station is a nail in the east side of cement in a 6-inch tile pipe 14.64 meters S 13° 20' E of observed station and on range with Drum Point Light.

*Marks.*—Observed station is center of 5-inch tile pipe with top 8 inches below surface of ground. Reference station is nail in cement on east side of a 6-inch tile pipe with top 6 inches below surface of ground. Another reference station is center point of triangle on standard cement monument with top 9 inches below surface of ground.

*References.*—

"Drum Point Light" (N 13° 20' W)-----	0	00	00	-----	1 mile.
Left tree on Hog Point-----	81	59	40	-----	1 mile.
Right of bushes at edge of ravine-----	142	00	-----	75 yards	
Tree (12 inches diameter)-----	164	48	-----	½ mile.	
REFERENCE STATION (tile)-----	179	59	45	-----	14.64 meters
Tree (20 inches diameter)-----	183	25	-----	½ mile.	
Chimney of Susquehanna farmhouse-----	192	10	-----	300 yards.	
Large tree-----	199	08	-----	250 yards.	
REFERENCE STATION (monument)-----	247	50	00	-----	13.32 meters.
Right chimney of Fenner Lee house-----	302	45	-----	4½ miles.	

	°	'	"	
Center of four-sided roof on Doctor Marsh house.....	307	58	--	2¼ miles.
"Catholic Church Cross".....	315	32	00	2¾ miles.
Silver tip on tower of Vale house.....	316	15	30	3 miles.
Chimney of Bowen house.....	327	16	--	2 miles.
"Bareda House Cupola".....	348	44	00	1½ miles.

HOG 2.

*General locality.*—Southern shore of entrance to Patuxent River on Hog Point, about 1¾ miles west-northwest of Cedar Point Light. (See Chart No. 20.)

*Immediate locality.*—Observed station is on a sand beach at high-water mark, 30 yards northwest of point of woods, and 200 yards north-northeast of nearest shore of Parsons Creek. Cement monument marking reference station is 33.35 meters S 42° 22' E of observed station on a point of high land.

*Marks.*—Observed station is nail set in cement in a 6-inch tile pipe, with top 1 foot below the surface. Reference station is center point of triangle on standard cement monument.

	°	'	"	
<i>References.</i> —				
"Drum Point Light" (N 60° 44' W).....	0	00	00	1¼ miles.
"Bareda House Cupola".....	2	44	50	1½ miles.
Chimney of cabin on opposite shore.....	22	20	--	1½ miles.
Tangent of Little Cove Point.....	71	56	--	3½ miles.
"Cedar Point Light".....	173	31	40	2 miles.
REFERENCE STATION.....	198	21	50	33.35 meters.
Nail in blaze in pine tree.....	201	03	--	29.58 meters.
Cabin on opposite side of Parsons Creek.....	243	05	--	¾ mile.
Chimney on Susquehanna farmhouse.....	301	04	--	1 mile.
"M. E. Church" (Solomons).....	346	16	40	3½ miles.
Steeple of Vale house at Avondale.....	350	55	--	3½ miles.

PAT.

*General locality.*—Western shore of Chesapeake Bay on Little Cove Point, about 1¼ miles south by west of Cove Point Light. (See Chart No. 20.)

*Immediate locality.*—Observed station is on the highest point of a thickly wooded bluff, about 75 feet above high-water mark, 4 yards west of edge of bluff, and 15 yards southwest of extreme point. Cement monument marking reference station is 24.57 meters S 71° 26' W of observed station.

*Marks.*—Observed station is a 3-inch round stake set in cement, with top about 4 inches above surface of ground. Reference station is center point of triangle on standard cement monument.

	°	'	"	
<i>References.</i> —				
"Cedar Point Light" (S 13° 54' E).....	0	00	00	4½ miles.
Near piazza post of house.....	14	52	--	4 miles.
REFERENCE STATION.....	85	20	00	24.57 meters.
Spike in blaze in tree (5 inches diameter).....	94	51	--	6.54 meters.
Spike in blaze in tree (5 inches diameter).....	114	10	--	3.42 meters.
Spike in blaze in tree (17 inches diameter).....	138	54	--	12.26 meters.
Spike in blaze in tree (13 inches diameter).....	181	46	--	5.50 meters.
"Cove Point Light".....	203	25	30	1¾ miles.
"Hoopers Island Light".....	327	58	10	10¼ miles.

CEDAR POINT LIGHT.

*General locality.*—Western shore of Chesapeake Bay on Cedar Point, ¾ miles east-southeast of Drum Point Light and 6 miles south by east of Cove Point Light. (See Chart No. 20.)

*Immediate locality.*—Observed station is on a brick dwelling known as Cedar Point Light-House.

*Marks.*—Observed station is center point of lantern on Cedar Point Light-House.

	°	'	"	
<i>Reference.</i> —				
"Cove Point Light" (N 7° 16' W).....	0	00	00	6 miles.

## CAIN.

*General locality.*—Western shore of Chesapeake Bay, about  $1\frac{5}{8}$  miles southwest of Cedar Point Light. (See Chart No. 20.)

*Immediate locality.*—Observed station is on a bank about 5 feet above high-water mark, about 20 yards northwest of ordinary high water, 5 yards northwest of extreme high water, 100 yards southwest of old-fashioned house among several large trees, and about 250 yards below small wharf and canning house. Cement monument marking reference station is 6.45 meters N  $16^{\circ} 56'$  E of observed station.

*Marks.*—Observed station is a nail set in cement in a 3-inch pipe with top about 2 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cedar Point Light" (N $46^{\circ} 45'$ E)-----	0	00	00	1 $\frac{5}{8}$ miles.
Steeple on church-----	28	26	--	9 $\frac{1}{2}$ miles.
"Hoopers Island Light"-----	56	28	40	7 $\frac{3}{4}$ miles.
"Point No Point Light"-----	106	05	--	11 $\frac{3}{4}$ miles.
Right chimney on Tarleton house-----	135	12	--	3 $\frac{1}{4}$ miles.
Near end of peak of 2-story house-----	148	41	--	1 $\frac{3}{4}$ miles.
REFERENCE STATION-----	330	10	40	6.45 meters.
Near corner of house-----	335	13	--	100 yards.
Aspen tree in house yard-----	339	35	50	100 yards.

## DESERT.

*General locality.*—Western shore of Chesapeake Bay, about 3 miles south-southwest of Cedar Point Light. (See Chart No. 20.)

*Immediate locality.*—Observed station is on sand and grass land, about 25 yards west from ordinary high-water mark, about at level of extreme high-water mark, 40 yards south of a fence, 10 yards east of a fence, 45 yards south of a creek, about 50 yards north of point of pine woods, and about 300 yards east of woods across marsh. Cement monument marking reference station is 5.29 meters N  $31^{\circ} 24'$  W of observed station.

*Marks.*—Observed station is a 4-inch tile pipe projecting about 2 inches above surface of sand. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cedar Point Light" (N $34^{\circ} 05'$ E)-----	0	00	00	3 miles.
Steeple on church-----	34	19	40	10 $\frac{1}{2}$ miles.
"Hoopers Island Light"-----	59	08	40	8 miles.
"Point No Point Light"-----	113	27	30	11 miles.
Near end of peak of roof of Tarleton house-----	135	09	--	2 miles.
Point of woods-----	146	00	--	50 yards.
Nail in blaze in pine tree (14 inches diameter)-----	294	30	40	7.62 meters.
REFERENCE STATION-----	294	30	40	5.29 meters
Chimney on near end of house-----	336	38	--	$\frac{1}{2}$ mile.
Large square chimney on larger of two houses-----	344	48	--	1 mile.



## BOUNDARIES OF OYSTER BARS.

### EXPLANATION.

The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the designation and employment by the Department of Commerce and Labor of such officers, experts, and other technically qualified persons "as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland." The oyster laws of Maryland provide that the Maryland Shell Fish Commissioners, with the aid of such persons as may be designated by the Government, shall proceed "to have laid out, surveyed, and designated on the said charts the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts." The oyster laws of Maryland also provide in another section that there shall "be made a true and accurate survey of the natural oyster beds, bars, and rocks \* \* \* with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey."

Under the provisions of the laws quoted above the State of Maryland, in cooperation with the Department of Commerce and Labor, must define the boundaries of the natural oyster bars "as accurately as practicable" and also "with reference to fixed and permanent objects on the shore, giving courses and distances." The requirement of "as accurately as practicable" is easily fulfilled by definition of the location of the corners of the oyster bars by latitude and longitude. In fact, this method is probably the most satisfactory and accurate one that could be used for all purposes of legal definition or for relocation of the oyster-bar boundaries by competent engineers. Therefore the additional requirement of "giving courses and distances" is superfluous and is only fulfilled in the published definitions on account of the specific provisions of the law making it compulsory. This part of the description of boundaries has involved an immense amount of extra computations in order to prevent technical discrepancies between the latitude and longitude of a corner of an oyster bar and its distance and bearing from objects on shore of known latitude and longitude without adding anything to the accuracy and very little to the convenience of practical use of the descriptions of the oyster-bar boundaries.

As provided by law the boundaries of the oyster bars are all straight lines, but in the work already completed they have inclosed areas of all shapes from triangles to complicated 14-sided figures, and of all sizes from 4 acres to 7,548 acres. The sides have varied in length from 93 to 7,529 yards, and in some cases the corners of the boundaries have been practically at the triangulation stations from which they are located, while in other instances they were over 13,600 yards from the landmarks most available for the purpose of fixing their position.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made and the magnitude of the work with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and great importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the Commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and future.

#### METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in each county.

*Title.*—At the top of each tabular form is given the legal name of the oyster bar to be described, and the one by which it is known and designated in the published oyster records and on the oyster charts. The adopted name of the oyster bar is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission; and when there was no local name in common use a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the oyster bar was located.

Underneath the name, in parenthesis, is given the general locality of the oyster bar and the serial number of the "Maryland Oyster Chart" on which its legal boundaries are shown.<sup>a</sup>

*First column.*—This column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar; but where a corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars only the number of the corner of the oyster bar being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the Commission as the primary technical definition of the location of the corners, and should be considered as final in case of a dispute arising from discrep-

<sup>a</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

ancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations of the Survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>a</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>b</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars: One, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

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<sup>a</sup> The mean magnetic variation for Calvert County was 5° 50' west of north in 1909 and increasing at the rate of 3' yearly.

<sup>b</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D. C.

(1) *Triangulation*.—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the Commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant, the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "Hog Point" bar, which is the first one described in this publication, and assume that "Corner No. 1" is to be examined as to its position. The angle between the two landmarks "Hog Point" and "Beach," as determined from right to left from the forward bearings from this corner is  $67^{\circ} 35'$  and the angle between "Beach" and "Ill 2" is  $17^{\circ} 16'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor ("position finder"), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the

point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant, then the other, until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic locations of points are attained; in fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the Commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass, and will be of special use to the State Fishery Force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer takes compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>a</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks for which the bearings are published have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used by getting their bearings directly from the chart by parallel rulers or a protractor and then applying them in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column

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<sup>a</sup> The mean magnetic variation for Calvert County is  $5^{\circ} 50'$  west of north in 1909 and increasing at the rate of  $3'$  yearly.

opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fifth column of the tables opposite the "corner" in question, and the direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range-lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parenthesis alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit, and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

## BOUNDARIES OF NATURAL OYSTER BARS.

## HOG POINT.

(Chesapeake Bay—Chart No. 16.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	$^{\circ} \quad ' \quad ''$	$^{\circ} \quad ' \quad ''$	$^{\circ} \quad ' \quad ''$	$^{\circ} \quad ' \quad ''$	Yards.	
1	38 42 00.00	76 29 42.57	N 65 49 W S 46 36 W S 29 20 W	S 65 50 E N 46 35 E N 29 19 E	3489 4709 6294	Hog Point (Holland 3). Beach. Ill 2.
2	38 42 00.00	76 30 38.41	N 50 04 W S 31 01 W S 16 19 W	S 50 04 E N 31 00 E N 16 19 E	2227 3776 5717	Hog Point (Holland 3). Beach. Ill 2.
3	38 42 39.59	76 30 41.04	N 86 42 W S 22 19 W S 12 42 W	S 86 43 E N 22 18 E N 12 41 E	1640 4941 6994	Hog Point (Holland 3). Beach. Ill 2.
4	38 42 30.67	76 29 56.13	N 82 02 W S 35 39 W S 22 41 W	S 82 03 E N 35 38 E N 22 40 E	2852 5255 7068	Hog Point (Holland 3). Beach. Ill 2.

Survey of Oyster Bars, Calvert County, Md.

UPPER STEPS.

(Chesapeake Bay—Chart No. 16.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 40 31.72	76 31 22.80	N 6 56 W	S 6 56 E	Yards.	Hog Point (Holland 3) Beach. Ill 2.
			S 71 26 W	N 71 26 E	4429	
			S 9 47 W	N 9 47 E	815	
2	38 41 07.90	76 31 23.42	N 9 14 W	S 9 14 E	3228	Hog Point (Holland 3). Beach. Ill 2.
			S 27 03 W	N 27 03 E	1661	
			S 6 22 W	N 6 22 E	3753	
3	38 41 07.81	76 30 43.13	N 26 23 W	S 26 24 E	3561	Hog Point (Holland 3). Beach. Ill 2.
			S 50 58 W	N 50 58 E	2344	
			S 21 41 W	N 21 40 E	4011	
4	38 40 32.14	76 30 41.83	N 20 13 W	S 20 13 E	4681	Hog Point (Holland 3). Beach. Ill 2.
			S 81 37 W	N 81 36 E	1876	
			S 30 59 W	N 30 59 E	2945	

LOWER STEPS.

(Chesapeake Bay—Chart No. 16.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 37 54.20	76 30 09.22	N 40 20 W	S 40 21 E	3676	Ill 2. Plum 3. Pier.
			S 47 33 W	N 47 33 E	1590	
			S 9 30 W	N 9 30 E	2967	
2	38 38 22.74	76 31 01.84	N 17 58 W	S 17 58 E	4299	Beach. Ill 2. Plum 3.
			N 28 13 W	S 28 14 E	2088	
			S 6 09 E	N 6 08 W	2047	
3	38 39 03.00	76 31 10.50	N 21 53 W	S 21 53 E	2944	Beach. Ill 2. Plum 3.
			N 57 35 W	S 57 35 E	898	
			S 7 31 E	N 7 31 W	3422	
4	38 39 03.40	76 30 40.60	N 34 46 W	S 34 47 E	3310	Beach. Ill 2. Plum 3.
			N 73 11 W	S 73 12 E	1619	
			S 5 53 W	N 5 53 E	3346	
5	38 38 00.00	76 29 21.95	N 54 19 W	S 54 20 E	4467	Ill 2. Plum 3. Pier.
			S 62 23 W	N 62 22 E	2735	
			S 29 09 W	N 29 08 E	3574	

## Survey of Oyster Bars, Calvert County, Md.

## PLUM POINT.

(Chesapeake Bay—Charts Nos. 16 and 17.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 35 08.99	76 29 30.18	N 29 56 W	S 29 56 E	3052	Pier. Pen. Patch.
			S 36 34 W	N 36 33 E	2896	
			S 28 09 W	N 28 08 E	5177	
2	38 35 23.36	76 30 13.24	N 10 03 W	S 10 04 E	2194	Pier. Patch. Pen.
			S 14 27 W	N 14 27 E	5214	
			S 11 45 W	N 11 45 E	2871	
3	38 37 54.20	76 30 09.22	N 40 20 W	S 40 21 E	3676	Ill 2. Plum 3. Pier.
			S 47 33 W	N 47 33 E	1590	
			S 9 30 W	N 9 30 E	2967	
4	38 38 00.00	76 29 21.95	N 54 19 W	S 54 20 E	4467	Ill 2. Plum 3. Pier.
			S 62 23 W	N 62 22 E	2735	
			S 29 09 W	N 29 08 E	3574	
5	38 37 25.92	76 28 39.97	N 51 36 W	S 51 38 E	6048	Ill 2. Plum 3. Pier.
			S 88 05 W	N 88 03 E	3536	
			S 55 20 W	N 55 19 E	3467	
6	38 35 46.04	76 28 39.80	N 63 57 W	S 63 58 E	3178	Pier. Pen. Patch.
			S 40 33 W	N 40 32 E	4705	
			S 33 00 W	N 32 59 E	6932	

## DADDIE DARE.

(Chesapeake Bay—Chart No. 17.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 33 16.42	76 30 01.31	N 31 30 W	S 31 30 E	1724	Pen. Patch. Parker.
			S 64 35 W	N 64 34 E	1791	
			S 24 08 W	N 24 08 E	3575	
2	38 34 14.52	76 30 39.37	S 12 36 W	N 12 36 E	2795	Patch. Pen. Pier.
			S 12 22 E	N 12 22 W	501	
			N 3 56 E	S 3 56 W	4493	
3	38 34 54.39	76 30 39.16	S 8 36 W	N 8 35 E	4118	Patch. Pen. Pier.
			S 3 10 E	N 3 10 W	1836	
			N 5 38 E	S 5 38 W	3153	
4	38 34 33.11	76 29 58.02	N 11 31 W	S 11 32 E	3935	Pier. Pen. Patch.
			S 41 30 W	N 41 30 E	1491	
			S 26 57 W	N 26 56 E	3762	
5	38 33 40.94	76 29 34.95	N 68 05 W	S 68 06 E	1722	Pen. Patch. Parker.
			S 55 26 W	N 55 25 E	2812	
			S 27 51 W	N 27 50 E	4625	



Survey of Oyster Bars, Calvert County, Md.

GOVERNORS RUN.

(Chesapeake Bay—Charts Nos. 17 and 18.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 30 13.36	76 29 52.52	N 30 13 W S 35 28 W S 18 47 E	S 30 13 E N 35 28 E N 18 46 W	3368 328 3657	Parker. Run. Poplar.
2	38 31 58.17	76 29 50.96	N 45 20 W S 70 15 W S 3 29 W	S 45 21 E N 70 14 E N 3 29 E	2660 1845 3808	Patch. Parker. Run.
3	38 31 58.03	76 29 13.54	N 56 58 W S 77 13 W S 17 51 W	S 56 59 E N 77 12 E N 17 51 E	3439 2796 3988	Patch. Parker. Run.
4	38 31 16.41	76 29 02.58	N 44 04 W N 75 25 W S 32 19 W	S 44 05 E S 75 27 E N 32 18 E	4563 3118 2831	Patch. Parker. Run.
5	38 31 01.16	76 29 38.60	N 30 20 W N 57 49 W S 16 34 W	S 30 20 E S 57 49 E N 16 34 E	4394 2439 1955	Patch. Parker. Run.
6	38 30 18.02	76 29 40.77	N 36 04 W S 49 47 W S 13 27 E	S 36 05 E N 49 47 E N 13 29 W	3407 656 3722	Parker. Run. Poplar.

EMANUEL.

(Chesapeake Bay—Charts Nos. 17 and 18.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 28 19.22	76 28 25.90	N 34 45 W N 70 56 W S 32 20 E	S 34 46 E S 70 56 E N 32 20 W	4360 1184 2596	Run. Poplar. Flag Pond.
2	38 30 13.36	76 29 52.52	N 30 13 W S 35 28 W S 18 47 E	S 30 13 E N 35 28 E N 18 46 W	3368 328 3657	Parker. Run. Poplar.
3	38 30 18.02	76 29 40.77	N 36 04 W S 49 47 W S 13 27 E	S 36 05 E N 49 47 E N 13 29 W	3407 656 3722	Parker. Run. Poplar.
4	38 30 35.16	76 29 01.32	N 54 30 W S 57 04 W S 2 27 W	S 54 31 E N 57 04 E N 2 27 E	3748 1843 4202	Parker. Run. Poplar.
5	38 28 53.66	76 28 01.74	N 52 14 W S 66 15 W S 12 34 E	S 52 15 E N 66 14 E N 12 34 W	3953 1923 3437	Run. Poplar. Flag Pond.

## Survey of Oyster Bars, Calvert County, Md.

## FLAG POND.

(Chesapeake Bay—Chart No. 18.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 24 51.50	76 24 49.59	N 45 57 W	S 45 59 E	4058	Wilson 2. Point of Rocks. Cove Point Light.
			N 85 35 W	S 85 35 E	210	
			S 41 39 E	N 41 41 W	4564	
2	38 25 18.03	76 25 24.78	S 39 30 E	N 39 30 W	1138	Point of Rocks. Travers 2. Wilson 2.
			N 56 55 E	S 56 58 W	10684	
			N 45 50 W	S 45 51 E	2766	
3	38 25 33.97	76 25 40.16	S 38 39 E	N 38 38 W	1813	Point of Rocks. Travers 2. Wilson 2.
			N 60 30 E	S 60 33 W	10755	
			N 48 37 W	S 48 37 E	2101	
4	38 26 04.98	76 26 19.20	S 41 22 E	N 41 22 W	3280	Point of Rocks. Travers 2. Wilson 2.
			N 67 45 E	S 67 49 W	11230	
			N 57 35 W	S 57 35 E	641	
5	38 26 23.49	76 26 48.62	S 40 29 E	N 40 29 W	370	Wilson 2. Travers 2. Flag Pond.
			N 72 01 E	S 72 05 W	11749	
			N 34 52 W	S 34 53 E	2082	
6	38 26 53.57	76 26 51.50	N 58 04 W	S 58 05 E	1312	Flag Pond. Wilson 2. Point of Rocks.
			S 13 41 E	N 13 41 W	1333	
			S 36 25 E	N 36 24 W	5095	
7	38 27 01.36	76 26 35.34	N 74 22 W	S 74 23 E	1600	Flag Pond. Wilson 2. Point of Rocks.
			S 4 08 W	N 4 08 E	1562	
			S 30 45 E	N 30 44 W	5076	
8	38 26 32.14	76 25 46.03	N 63 34 W	S 63 35 E	3183	Flag Pond. Wilson 2. Point of Rocks.
			S 68 03 W	N 68 02 E	1531	
			S 20 52 E	N 20 53 W	3614	
9	38 26 06.70	76 25 54.97	N 48 57 W	S 48 58 E	3465	Flag Pond. Wilson 2. Point of Rocks.
			N 76 27 W	S 76 27 E	1217	
			S 31 11 E	N 31 11 W	2945	
10	38 24 54.58	76 24 44.12	N 48 24 W	S 48 25 E	4094	Wilson 2. Point of Rocks. Cove Point Light.
			S 76 07 W	N 76 07 E	365	
			S 39 25 E	N 39 24 W	4548	

Survey of Oyster Bars, Calvert County, Md.

SPOUT.

(Upper Patuxent River—Chart No. 19.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 30 42.61	76 39 57.79	N 69 04 W	S 69 04 E	792	City. Indian. Hallowing.
			S 60 58 W	N 60 57 E	1391	
			S 7 32 E	N 7 32 W	348	
2	38 30 45.02	76 40 05.13	N 69 42 W	S 69 42 E	581	City. Indian. Hallowing.
			S 53 28 W	N 53 28 E	1269	
			S 29 23 E	N 29 23 W	489	
3	38 30 53.38	76 39 57.79	N 26 50 W	S 26 51 E	1594	Teague. City. Hallowing.
			S 83 48 W	N 83 48 E	744	
			S 3 51 E	N 3 51 W	710	
4	38 30 50.86	76 39 49.62	N 31 54 W	S 31 54 E	1772	Teague. City. Hallowing.
			N 89 43 W	S 89 44 E	956	
			S 15 20 W	N 15 20 E	646	

HOLLAND POINT (CALVERT COUNTY).

(Upper Patuxent River—Chart No. 19.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 30 12.18	76 40 15.63	S 52 45 E	N 52 45 W	943	Dwarf. Hallowing. Indian.
			N 37 20 E	S 37 20 W	856	
			N 64 34 W	S 64 34 E	820	
2	38 30 29.62	76 40 20.02	N 81 39 E	S 81 40 W	641	Hallowing. City. Indian.
			N 11 47 W	S 11 48 E	736	
			S 69 19 W	N 69 19 E	667	
3	38 30 45.02	76 40 05.13	N 69 42 W	S 69 42 E	581	City. Indian. Hallowing.
			S 53 28 W	N 53 28 E	1269	
			S 29 23 E	N 29 23 W	489	
4	38 30 15.20	76 39 56.94	N 2 17 E	S 2 17 W	580	Hallowing. Indian. Dwarf.
			N 78 33 W	S 78 33 E	1262	
			S 20 46 E	N 20 46 W	720	

## Survey of Oyster Bars, Calvert County, Md

## BUZZARD ISLAND.

(Upper Patuxent River—Chart No. 19.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 28 55.15	76 39 26.67	N 18 46 E	S 18 46 W	1135	Buzz.
			S 81 44 W	N 81 44 E	933	Billiard.
			S 39 30 W	N 39 30 E	888	Trent.
Thence along county boundary as delineated on Chart No. 19 to corner No. 2.						
2	38 29 34.74	76 39 54.78	N 15 53 E	S 15 53 W	720	Dwarf.
			S 76 27 W	N 76 27 E	561	Sothoron.
			S 6 50 W	N 6 50 E	1479	Billiard.
3	38 29 43.62	76 39 49.40	N 7 58 E	S 7 58 W	396	Dwarf.
			S 57 50 W	N 57 50 E	809	Sothoron.
			S 10 13 W	N 10 13 E	1792	Billiard.
4	38 29 02.08	76 39 12.63	S 45 34 W	N 45 33 E	1312	Trent.
			S 58 59 E	N 58 58 W	643	Morsel.
			N 0 27 W	S 0 27 E	844	Buzz.

## MACKS HOLLOW.

(Upper Patuxent River—Chart No. 19.)

	Latitude	Longitude	Forward	Back	Yards.	
1	36 28 36.57	76 39 11.00	N 43 51 E	S 43 51 W	733	Morsel.
			S 86 34 W	N 86 34 E	982	Trent.
			S 33 48 W	N 33 47 E	1088	Collins.
2	38 28 47.06	76 39 18.24	S 62 23 W	N 62 23 E	890	Trent.
			S 18 11 W	N 18 11 E	1324	Collins.
			N 75 58 E	S 75 58 W	722	Morsel.
3	38 28 49.60	76 39 12.42	S 62 09 W	N 62 09 E	1066	Trent.
			S 22 54 W	N 22 54 E	1459	Collins.
			N 80 42 E	S 80 42 W	553	Morsel.
4	38 28 39.34	76 39 05.24	N 39 13 E	S 39 13 W	562	Morsel.
			S 82 21 W	N 82 21 E	1143	Trent.
			S 37 08 W	N 37 07 E	1255	Collins.

Survey of Oyster Bars, Calvert County, Md.

BROAD NECK (CALVERT COUNTY).

(Upper Patuxent River—Chart No. 19.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 27 41.18	76 39 00.00	N 26 03 E	S 26 03 W	848	Sheridan. Collins. Cremona.
			N 42 57 W	S 42 57 E	1317	
			S 54 49 W	N 54 49 E	952	
Thence along county boundary as delineated on Chart No. 19 to corner No. 2.						
2	38 28 00.34	76 39 09.64	N 63 40 W	S 63 41 E	715	Collins. Cremona. Sheridan.
			S 23 40 W	N 23 40 E	1304	
			N 79 34 E	S 79 34 W	639	
3	38 28 03.12	76 38 52.86	N 78 22 W	S 78 23 E	1109	Collins. Cremona. Sheridan.
			S 36 56 W	N 36 56 E	1611	
			N 83 10 E	S 83 10 W	184	
4	38 27 45.22	76 38 51.22	N 12 36 E	S 12 36 W	640	Sheridan. Collins. Cremona.
			N 53 47 W	S 53 48 E	1400	
			S 55 56 W	N 55 56 E	1222	

THOMAS (CALVERT COUNTY).

(Upper Patuxent River—Chart No. 19.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	
			Forward	Back		
			° ' "	° ' "		
1	38 27 12.58	76 38 14.84	N 61 07 E	S 61 07 W	1561	Kitt. Sheridan. Oppkit.
			N 25 33 W	S 25 33 E	1914	
			S 49 29 W	N 49 29 E	1018	
Thence along county boundary as delineated on Chart No. 19 to corner No. 2.						
2	38 27 41.18	76 39 00.00	N 26 03 E	S 26 03 W	848	Sheridan. Collins. Cremona.
			N 42 57 W	S 42 57 E	1317	
			S 54 49 W	N 54 49 E	952	
3	38 27 45.22	76 38 51.22	N 12 36 E	S 12 36 W	640	Sheridan. Collins. Cremona.
			N 53 47 W	S 53 48 E	1400	
			S 55 56 W	N 55 56 E	1222	

KITTS MARSH.

(Upper Patuxent River—Chart No. 19.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	
			Forward	Back		
			° ' "	° ' "		
1	38 26 48.30	76 37 38.66	N 88 44 E	S 88 44 W	1652	Battle. Kitt. Oppkit.
			N 14 31 E	S 14 31 W	1625	
			N 84 48 W	S 84 49 E	1740	
2	38 27 33.80	76 37 50.40	N 55 33 W	S 55 33 E	1786	Sheridan. Oppkit. Kitt.
			S 45 55 W	N 45 55 E	1979	
			N 86 56 E	S 86 57 W	720	
3	38 27 28.23	76 37 03.40	N 66 47 W	S 66 48 E	574	Kitt. Oppkit. Battle.
			S 65 59 W	N 65 58 E	2921	
			S 28 42 E	N 28 42 W	1493	
4	38 27 06.60	76 37 07.58	N 23 34 W	S 23 34 E	1042	Kitt. Oppkit. Battle.
			S 79 49 W	N 79 48 E	2598	
			S 54 58 E	N 54 58 W	1010	

## Survey of Oyster Bars, Calvert County, Md.

## PRISON POINT.

(Upper Patuxent River—Chart No. 19.)

Corner of bar	Latitude ° ' "	Longitude ° ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 26 06.26	76 36 55.93	S 89 58 E	N 89 57 W	2229	Photo. Battle. Fight.
			N 19 38 E	S 19 39 W	1544	
			S 77 55 W	N 77 55 E	1749	
2	38 26 48.30	76 37 38.66	N 88 44 E	S 88 44 W	1652	Battle. Kitt. Oppkit.
			N 14 31 E	S 14 31 W	1625	
			N 84 48 W	S 84 49 E	1740	
3	38 27 06.60	76 37 07.58	N 23 34 W	S 23 34 E	1042	Kitt. Oppkit. Battle.
			S 79 49 W	N 79 48 E	2598	
			S 54 58 E	N 54 58 W	1010	
4	38 26 25.18	76 36 32.36	S 68 15 E	N 68 15 W	1727	Photo. Battle. Fight.
			N 7 24 W	S 7 24 E	823	
			S 66 44 W	N 66 43 E	2542	

## JACKS MARSH.

(Middle Patuxent River—Chart No. 19.)

Corner of bar	Latitude ° ' "	Longitude ° ' "	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 25 46.60	76 36 35.83	N 68 42 E	S 68 43 W	1820	Photo. Battle. Fight.
			N 0 23 W	S 0 23 E	2116	
			N 82 27 W	S 82 26 E	2263	
2	38 26 06.26	76 36 55.93	S 89 58 E	N 89 57 W	2229	Photo. Battle. Fight.
			N 19 38 E	S 19 39 W	1544	
			S 77 55 W	N 77 55 E	1749	
3	38 26 25.18	76 36 32.36	S 68 15 E	N 68 15 W	1727	Photo. Battle. Fight.
			N 7 24 W	S 7 24 E	823	
			S 66 44 W	N 66 43 E	2542	
4	38 26 11.08	76 36 20.38	S 82 43 E	N 82 43 W	1297	Photo. Battle. Fight.
			N 18 10 W	S 18 10 E	1359	
			S 78 44 W	N 78 43 E	2704	

JACKS BAY.

(Middle Patuxent River—Chart No. 19.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 24 44.96	76 34 54.62	N 23 28 E	S 23 28 W	Yards. 1603	Slim. Photo.
			N 19 50 W	S 19 51 E	2912	
			N 87 57 W	S 87 58 E	2465	
2	38 25 33.46	76 36 05.82	S 20 22 W	N 20 22 E	1650	Forr. Slim. Photo.
			S 86 17 E	N 86 16 W	2533	
			N 39 11 E	S 39 11 W	1425	
3	38 25 46.40	76 35 49.42	S 26 59 W	N 26 58 E	2225	Forr. Slim. Photo.
			S 73 59 E	N 73 58 W	2177	
			N 34 50 E	S 34 51 W	814	
4	38 25 04.79	76 34 41.18	N 19 22 E	S 19 22 W	851	Slim. Photo.
			N 33 00 W	S 33 01 E	2469	
			S 78 23 W	N 78 22 E	2879	

PARKERS WHARF.

(Middle Patuxent River—Chart No. 19.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 24 21.25	76 34 00.40	N 19 24 W	S 19 25 E	2407	Slim. Cole. Hutchins.
			S 70 07 W	N 70 06 E	2108	
			S 33 17 E	N 33 17 W	2561	
2	38 24 44.96	76 34 54.62	N 23 28 E	S 23 28 W	1603	Slim. Photo. Forr.
			N 19 50 W	S 19 51 E	2912	
			N 87 57 W	S 87 58 E	2465	
3	38 25 04.79	76 34 41.18	N 19 22 E	S 19 22 W	851	Slim. Photo. Forr.
			N 33 00 W	S 33 01 E	2469	
			S 78 23 W	N 78 22 E	2879	
4	38 24 31.32	76 33 54.75	N 26 11 W	S 26 12 E	2152	Slim. Cole. Hutchins.
			S 63 35 W	N 63 35 E	2381	
			S 26 51 E	N 26 51 W	2781	

## Survey of Oyster Bars, Calvert County, Md.

## BROOME ISLAND.

(Middle Patuxent River—Chart No. 19.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 24 06.73	76 33 44.00	N 24 06 W	S 24 07 E	Yards. 3024 2428 1916	Slim. Cole. Hutchins.
			S 84 38 W	N 84 37 E		
			S 30 26 E	N 30 26 W		
2	38 24 21.25	76 34 00.40	N 19 24 W	S 19 25 E	2407 2108 2561	Slim. Cole. Hutchins.
			S 70 07 W	N 70 06 E		
			S 33 17 E	N 33 17 W		
3	38 24 31.32	76 33 54.75	N 26 11 W	S 26 12 E	2152 2381 2781	Slim. Cole. Hutchins.
			S 63 35 W	N 63 35 E		
			S 26 51 E	N 26 51 W		
4	38 24 43.90	76 33 17.78	N 52 01 W	S 52 02 E	2449 3447 2918	Slim. Cole. Hutchins.
			S 64 34 W	N 64 33 E		
			S 5 24 E	N 5 24 W		
5	38 24 15.43	76 33 22.44	N 36 13 W	S 36 14 E	3058 3035 1985	Slim. Cole. Hutchins.
			S 80 06 W	N 80 05 E		
			S 11 35 E	N 11 34 W		

## ISLAND CREEK.

(Middle Patuxent River—Chart No. 19.)

1	38 24 00.18	76 32 37.18	N 36 43 E	S 36 43 W	Yards. 1048 1407 1640	Island. Sweep. Hutchins.
			N 11 45 W	S 11 46 E		
			S 29 18 W	N 29 18 E		
2	38 24 21.82	76 32 54.59	S 8 58 W	N 8 58 E	2192 1089 671	Hutchins. Island. Sweep.
			N 84 13 E	S 84 13 W		
			N 15 07 E	S 15 07 W		
3	38 24 24.58	76 32 49.20	S 12 07 W	N 12 07 E	2305 946 557	Hutchins. Island. Sweep.
			N 88 57 E	S 88 58 W		
			N 3 14 E	S 3 14 W		
4	38 24 03.25	76 32 31.28	N 32 32 E	S 32 32 W	874 1349 1810	Island. Sweep. Hutchins.
			N 19 12 W	S 19 12 E		
			S 32 01 W	N 32 01 E		



PETERSON (CALVERT COUNTY).

(Middle Patuxent River—Chart No. 19.)

Corner of bar	Latitude ° ' "	Longitude ° ' "	True bearing		Distance  Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 22 56.90	76 30 33.78	N 88 53 E	S 88 54 W	1920	Lend. Sollers. Wheat.
			N 55 05 E	S 55 05 W	1587	
			N 13 16 E	S 13 16 W	1313.	
2	38 23 12.22	76 31 11.86	S 76 36 W	N 76 35 E	1669	Bars. Stock. Wheat.
			S 0 30 W	N 0 30 E	1989	
			N 65 25 E	S 65 24 W	1126	
Thence along county boundary as delineated on Chart No. 19 to corner No. 3.						
3	38 23 44.44	76 31 50.08	N 30 01 E	S 30 01 W	1818	Peak. Island. Bars.
			N 24 27 W	S 24 27 E	1506	
			S 22 47 W	N 22 47 E	1601	
4	38 24 08.86	76 31 20.50	S 41 01 E	N 41 01 W	1909	Wheat. Peak. Island.
			N 9 26 E	S 9 26 W	759	
			N 68 46 W	S 68 46 E	1511	
5	38 24 00.00	76 31 04.40	N 16 06 W	S 16 06 E	1093	Peak. Bars. Wheat.
			S 42 29 W	N 42 29 E	2713	
			S 35 52 E	N 35 52 W	1410	

MEARS (CALVERT COUNTY).

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude ° ' "	Longitude ° ' "	True bearing		Distance  Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 22 10.64	76 29 40.84	S 43 10 W	N 43 10 E	1491	Briscoe. Stump. Lend.
			S 58 24 E	N 58 24 W	1042	
			N 10 28 E	S 10 28 W	1251	
2	38 22 13.42	76 30 03.46	N 36 08 E	S 36 09 W	1403	Lend. Stock. Briscoe.
			S 89 59 W	N 89 59 E	1833	
			S 19 34 W	N 19 34 E	1251	
Thence along county boundary as delineated on Chart No. 20 to corner No. 3.						
3	38 22 48.14	76 30 44.62	N 88 53 E	S 88 54 W	1920	Lend. Sollers. Wheat.
			N 55 05 E	S 55 05 W	1587	
			N 13 16 E	S 13 16 W	1313	
4	38 22 56.90	76 30 33.78	S 78 29 E	N 78 29 W	1666	Lend. Sollers. Wheat.
			N 58 50 E	S 58 50 W	1184	
			N 0 47 E	S 0 47 W	985	
5	38 22 24.02	76 29 34.47	N 4 17 E	S 4 17 W	779	Lend. Briscoe. Stump.
			S 37 42 W	N 37 42 E	1943	
			S 35 47 E	N 35 47 W	1229	
6	38 22 11.06	76 29 32.03	N 0 19 W	S 0 19 E	1213	Lend. Briscoe. Stump.
			S 48 42 W	N 48 42 E	1668	
			S 49 25 E	N 49 25 W	862	

## Survey of Oyster Bars, Calvert County, Md.

## HELLEN.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 21 13.82	76 29 19.73	S 88 22 E	N 88 21 W	1001	Hellen.
			N 13 27 E	S 13 27 W	1409	Stump.
			S 50 43 W	N 50 43 E	1172	Nat.
Thence along county boundary as delineated on Chart No. 20 to corner No. 2.						
2	38 21 28.78	76 29 27.51	S 29 21 W	N 29 20 E	1430	Nat.
			S 66 10 E	N 66 10 W	1320	Hellen.
			N 31 41 E	S 31 42 W	1017	Stump.
3	38 21 43.02	76 29 17.82	S 29 02 W	N 29 01 E	1975	Nat.
			S 43 09 E	N 43 09 W	1389	Hellen.
			N 35 43 E	S 35 43 W	475	Stump.
4	38 22 10.64	76 29 40.84	S 43 10 W	N 43 10 E	1491	Briscoe.
			S 58 24 E	N 58 24 W	1042	Stump.
			N 10 28 E	S 10 28 W	1251	Lend.
5	38 22 11.06	76 29 32.03	N 0 19 W	S 0 19 E	1213	Lend.
			S 48 42 W	N 48 42 E	1668	Briscoe.
			S 49 25 E	N 49 25 W	862	Stump.
6	38 22 12.02	76 29 22.46	N 12 27 W	S 12 27 E	1208	Lend.
			S 53 04 W	N 53 03 E	1886	Briscoe.
			S 34 01 E	N 34 01 W	715	Stump.
7	38 21 35.98	76 28 55.14	N 27 35 W	S 27 35 E	702	Stump.
			S 46 20 W	N 46 19 E	2158	Nat.
			S 24 08 E	N 24 08 W	850	Hellen.
8	38 21 33.41	76 29 04.07	N 7 05 W	S 7 05 E	714	Stump.
			S 43 19 W	N 43 19 E	1929	Nat.
			S 40 19 E	N 40 18 W	903	Hellen.
9	38 21 16.78	76 28 52.37	N 17 26 W	S 17 26 E	1331	Stump.
			S 62 44 W	N 62 43 E	1838	Nat.
			S 64 53 E	N 64 53 W	303	Hellen.

## HUNGERFORD HOLLOW.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 20 03.38	76 28 46.62	N 38 28 E	S 38 29 W	1247	Ton.
			N 87 57 W	S 87 57 E	1223	Mill.
			S 36 39 W	N 36 39 E	514	Bur.
2	38 20 05.82	76 28 58.74	N 50 51 E	S 50 51 W	1415	Ton.
			S 87 33 W	N 87 33 E	901	Mill.
			S 1 47 E	N 1 47 W	494	Bur.
3	38 20 33.14	76 28 48.62	S 50 37 W	N 50 37 E	1512	Mill.
			S 10 09 W	N 10 09 E	1438	Bur.
			S 88 05 E	N 88 06 W	829	Ton.
4	38 20 30.18	76 28 36.35	S 60 06 W	N 60 05 E	1725	Mill.
			S 23 46 W	N 23 46 E	1437	Bur.
			N 81 50 E	S 81 50 W	507	Ton.

Survey of Oyster Bars, Calvert County, Md.

BARN GATES.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 19 31.80	76 28 19.14	N 21 38 E	S 21 38 W	775	New. Bur. Town.
			N 57 48 W	S 57 48 E	1225	
			S 37 50 W	N 37 50 E	547	
			Thence along county boundary as delineated on Chart No. 20 to corner No. 2.			
2	38 19 32.82	76 29 15.02	S 34 21 W	N 34 21 E	518	Cable. Town. Bur.
			S 67 53 E	N 67 53 W	1240	
			N 35 55 E	S 35 55 W	763	
			Thence along county boundary as delineated on Chart No. 20 to corner No. 3.			
3	38 19 52.74	76 29 15.14	N 49 06 W	S 49 06 E	614	Mill. Cable. Bur.
			S 14 48 W	N 14 48 E	1137	
			S 83 16 E	N 83 16 W	454	
4	38 19 49.38	76 29 08.36	N 51 20 W	S 51 21 E	826	Mill. Cable. Bur.
			S 25 27 W	N 25 27 E	1093	
			N 78 19 E	S 78 19 W	277	
5	38 19 38.36	76 29 05.73	N 24 59 E	S 24 59 W	476	Bur. Mill. Cable.
			N 38 51 W	S 38 51 E	1140	
			S 41 16 W	N 41 15 E	818	
6	38 19 50.62	76 28 52.41	N 83 12 W	S 83 12 E	154	Bur. Town. New.
			S 27 12 E	N 27 12 W	1198	
			N 85 48 E	S 85 48 W	1173	
7	38 19 49.33	76 28 27.26	N 85 42 W	S 85 42 E	823	Bur. Town. New.
			S 6 42 W	N 6 41 E	1030	
			N 75 31 E	S 75 32 W	516	
8	38 19 44.56	76 28 13.36	N 24 30 E	S 24 30 W	319	New. Bur. Town.
			N 79 24 W	S 79 25 E	1211	
			S 29 34 W	N 29 34 E	992	
9	38 19 36.50	76 28 08.41	S 62 03 W	N 62 02 E	938	M. E. Church. Catholic Church Cross. New.
			S 88 20 E	N 88 20 W	743	
			N 0 05 E	S 0 05 W	562	

## Survey of Oyster Bars, Calvert County, Md.

## BACK OF ISLAND.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 18 37.46	76 27 22.28	N 2 47 E	S 2 47 W	Yards. 733 1601 1309	Sand. M. E. Church. Ben.
			N 14 20 W	S 14 20 E		
			S 57 21 W	N 57 21 E		
2	38 19 14.98	76 27 45.78	S 51 03 E	N 51 03 W	849 365 718	Sand. M. E. Church. Catholic Church Cross.
			N 38 36 E	S 38 36 W		
			N 11 22 E	S 11 22 W		
3	38 19 31.80	76 28 19.14	N 21 38 E	S 21 38 W	775 1225 547	New. Bur. Town.
			N 57 48 W	S 57 48 E		
			S 37 50 W	N 37 50 E		
4	38 19 36.50	76 28 08.41	S 62 03 W	N 62 02 E	938 743 562	M. E. Church. Catholic Church Cross. New.
			S 88 20 E	N 88 20 W		
			N 0 05 E	S 0 05 W		
5	38 19 17.36	76 27 40.64	S 40 27 E	N 40 27 W	807 224 1359	Sand. M. E. Church. Town.
			N 23 59 E	S 23 59 W		
			N 87 42 W	S 87 42 E		
6	38 18 43.78	76 27 17.52	N 9 56 W	S 9 56 E	526 2302 1534	Sand. Town. Ben.
			N 58 57 W	S 58 58 E		
			S 53 12 W	N 53 11 E		

## SHELL PILE.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 19 14.10	76 27 16.86	N 44 23 E	S 44 24 W	Yards. 479 626 156	Fishstack. M. E. Church. K. of P. Flagstaff.
			N 59 44 W	S 59 44 E		
			S 3 19 W	N 3 19 E		
2	38 19 15.60	76 27 18.42	N 52 15 E	S 52 15 W	475 564 209	Fishstack. M. E. Church. K. of P. Flagstaff.
			N 62 03 W	S 62 03 E		
			S 8 56 E	N 8 56 W		
3	38 19 21.22	76 27 09.38	N 53 11 E	S 53 11 W	169 743 447	Fishstack. M. E. Church. K. of P. Flagstaff.
			N 84 11 W	S 84 12 E		
			S 27 40 W	N 27 40 E		
4	38 19 19.90	76 27 07.84	N 33 01 E	S 33 01 W	175 789 431	Fishstack. M. E. Church. K. of P. Flagstaff.
			N 81 16 W	S 81 16 E		
			S 35 12 W	N 35 12 E		

Survey of Oyster Bars, Calvert County, Md.

CHERRY TREE.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 19 01.06	76 27 05.07	N 1 34 E	S 1 34 W	Yards. 782 430 426	Fishstack. K. of P. Flagstaff. Sand.
			N 48 40 W	S 48 40 E		
			S 81 22 W	N 81 21 E		
2	38 19 09.49	76 27 01.33	N 8 54 W	S 8 54 E.	503 422 627	Fishstack. K. of P. Flagstaff. Sand.
			N 89 55 W	S 89 55 E		
			S 56 14 W	N 56 13 E		
3	38 19 16.62	76 27 07.84	N 20 18 E	S 20 18 W	273 814 347	Fishstack. M. E. Church. K. of P. Flagstaff.
			N 73 33 W	S 73 34 E		
			S 45 53 W	N 45 53 E		
4	38 19 19.66	76 27 06.41	N 20 17 E	S 20 17 W	165 828 447	Fishstack. M. E. Church. K. of P. Flagstaff.
			N 81 08 W	S 81 08 E		
			S 39 50 W	N 39 50 E		
5	38 19 07.48	76 26 50.48	N 32 56 W	S 32 56 E	674 713 856	Fishstack. K. of P. Flagstaff. Sand.
			N 84 36 W	S 84 36 E		
			S 70 53 W	N 70 52 E		
6	38 19 03.43	76 26 59.69	N 9 49 W	S 9 49 E	712 507 583	Fishstack. K. of P. Flagstaff. Sand.
			N 66 21 W	S 66 21 E		
			S 75 42 W	N 75 41 E		

## Survey of Oyster Bars, Calvert County, Md.

SWASH.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 19 14.46	76 26 42.80	N 22 31 E N 59 57 W S 63 01 W	S 22 31 W S 59 57 E N 63 01 E	492 658 1134	Bon. Fishstack. Sand.
2	38 19 18.38	76 26 46.80	N 42 30 E N 66 34 W S 54 27 W	S 42 30 W S 66 35 E N 54 27 E	435 505 1114	Bon. Fishstack. Sand.
3	38 19 16.23	76 26 50.63	N 45 14 E N 53 55 W S 54 27 W	S 45 14 W S 53 55 E N 54 26 E	558 458 990	Bon. Fishstack. Sand.
4	38 19 19.66	76 26 53.64	N 59 43 E N 61 18 W S 61 14 W	S 59 43 W S 61 18 E N 61 14 E	551 322 714	Bon. Fishstack. K. of P. Flagstaff.
5	38 19 20.62	76 26 46.83	N 50 13 E N 75 14 W S 65 01 W	S 50 13 W S 75 14 E N 65 01 E	383 479 890	Bon. Fishstack. K. of P. Flagstaff.
6	38 19 24.62	76 26 40.42	N 48 24 E S 88 50 W S 62 24 W	S 48 24 W N 88 50 E N 62 24 E	166 633 1102	Bon. Fishstack. K. of P. Flagstaff.
7	38 19 15.46	76 26 35.24	N 77 13 E N 1 47 W N 69 00 W	S 77 13 W S 1 47 E S 69 00 E	1500 420 826	Bareda House Cupola. Bon. Fishstack.

## SANDY POINT LUMPS.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 18 32.95	76 26 56.30	N 65 07 E N 6 58 W N 36 32 W	S 65 08 W S 6 58 E S 36 32 E	2935 1742 1100	Drum Point Light. Fishstack. Sand.
2	38 19 01.06	76 27 05.07	N 1 34 E N 48 40 W S 81 22 W	S 1 34 W S 48 40 E N 81 21 E	782 430 426	Fishstack. K. of P. Flagstaff. Sand.
3	38 19 03.43	76 26 59.69	N 9 49 W N 66 21 W S 75 42 W	S 9 49 E S 66 21 E N 75 41 E	712 507 583	Fishstack. K. of P. Flagstaff. Sand.
4	38 18 38.82	76 26 36.60	N 64 08 E N 25 38 W N 59 48 W	S 64 09 W S 25 38 E S 59 48 E	2377 1698 1363	Drum Point Light. Fishstack. Sand.

Survey of Oyster Bars, Calvert County, Md.

SOUTHEAST MIDDLE-GROUND.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 18 36.88	76 26 17.61	N 56 01 E N 15 38 W N 65 56 W	S 56 01 W S 15 38 E S 65 57 E	1972 1787 1843	Drum Point Light. Bon. Sand.
2	38 18 54.83	76 26 44.86	N 78 06 E N 12 16 E N 81 20 W	S 78 07 W S 12 16 W S 81 21 E	2410 1141 970	Drum Point Light. Bon. Sand.
3	38 19 03.18	76 26 40.68	N 84 31 E N 8 58 E S 83 53 W	S 84 32 W S 8 58 W N 83 53 E	2258 845 1076	Drum Point Light. Bon. Sand.
4	38 18 59.63	76 26 25.20	N 79 39 E N 16 21 W S 89 23 W	S 79 39 W S 16 21 E N 89 23 E	1867 993 1481	Drum Point Light. Bon. Sand.
5	38 19 07.06	76 26 07.32	N 86 27 E N 49 33 E N 47 03 W	S 86 27 W S 49 33 W S 47 03 E	1365 948 1031	Drum Point Light. Bareda House Cupola. Bon.
6	38 19 15.48	76 26 06.76	S 81 35 E N 64 53 E N 61 27 W	N 81 34 W S 64 53 W S 61 27 E	1362 781 876	Drum Point Light. Bareda House Cupola. Bon.
7	38 19 14.40	76 26 14.82	S 84 03 E N 67 52 E N 50 40 W	N 84 02 W S 67 52 W S 50 40 E	1569 994 718	Drum Point Light. Bareda House Cupola. Bon.
8	38 19 14.76	76 26 22.18	S 84 19 E N 71 57 E N 39 05 W	N 84 20 W S 71 57 W S 39 06 E	1765 1175 571	Drum Point Light. Bareda House Cupola. Bon.
9	38 19 23.38	76 26 16.02	S 73 42 E N 86 06 E N 73 46 W	N 73 42 W S 86 06 W S 73 46 E	1659 954 546	Drum Point Light. Bareda House Cupola. Bon.
10	38 19 23.77	76 25 52.60	S 63 44 E N 81 05 E N 83 05 W	N 63 44 W S 81 05 W S 83 06 E	1083 335 1154	Drum Point Light. Bareda House Cupola. Bon.
11	38 18 40.96	76 25 49.21	S 57 34 E N 42 23 E N 9 08 E	N 57 33 W S 42 23 W S 9 08 W	1547 1306 1516	Carroll 2. Drum Point Light. Bareda House Cupola.

## Survey of Oyster Bars, Calvert County, Md.

## LIGHT HOUSE LUMP.

(Lower Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 18 50.42	76 25 42.82	S 44 41 E	N 44 40 W	Yards.	Carroll 2. Drum Point Light. Bareda House Cupola
			N 47 44 E	S 47 45 W	1616	
			N 3 27 E	S 3 27 W	960 1179	
2	38 19 00.00	76 25 36.78	S 33 32 E	N 33 32 W	1766	Carroll 2. Drum Point Light. Bareda House Cupola.
			N 59 36 E	S 59 36 W	638	
			N 5 59 W	S 5 59 E	858	
3	38 19 00.00	76 25 21.67	S 21 19 E	N 21 19 W	1580	Carroll 2. Drum Point Light. Bareda House Cupola.
			N 24 45 E	S 24 45 W	355	
			N 29 54 W	S 29 55 E	984	
4	38 18 50.60	76 25 15.98	S 20 07 E	N 20 07 W	1230	Carroll 2. Drum Point Light. Bareda House Cupola.
			N 0 13 W	S 0 13 E	640	
			N 28 45 W	S 28 45 E	1335	

## OLD LUMP.

(Entrance Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 18 58.36	76 25 10.00	S 10 34 E	N 10 34 W	Yards.	Carroll 2. Hog 2. Drum Point Light.
			S 67 54 E	N 67 53 W	1441	
			N 23 46 W	S 23 46 E	2014 411	
2	38 19 09.57	76 25 16.07	S 60 45 E	N 60 44 W	2324	Hog 2. Carroll 2. Sand.
			S 13 21 E	N 13 20 W	1844	
			S 83 58 W	N 83 57 E	3335	
3	38 19 10.57	76 25 02.48	S 84 40 W	N 84 39 E	363	Drum Point Light. Carroll 2. Hog 2.
			S 2 01 E	N 2 01 W	1830	
			S 54 56 E	N 54 56 W	2036	

## CARROLL MUDS (CALVERT COUNTY).

(Entrance Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 18 45.42	76 25 04.36	S 6 40 E	N 6 40 W	Yards.	Carroll 2. Hog 2. Drum Point Light.
			S 79 23 E	N 79 23 W	988	
			N 20 54 W	S 20 55 E	1746 874	
2	38 18 52.28	76 25 04.30	S 5 19 E	N 5 19 W	1220	Carroll 2. Hog 2. Drum Point Light.
			S 72 08 E	N 72 08 W	1802	
			N 27 23 W	S 27 23 E	656	
3	38 19 07.56	76 24 21.07	N 87 21 W	S 87 21 E	1462	Drum Point Light. Carroll 2. Hog 2.
			S 30 57 W	N 30 57 E	2013	
			S 27 56 E	N 27 56 W	1210	
4	38 19 03.80	76 24 17.62	N 82 51 W	S 82 52 E	1565	Drum Point Light. Carroll 2. Hog 2.
			S 35 10 W	N 35 09 E	1958	
			S 26 46 E	N 26 46 W	1054	

Thence along county boundary as delineated on Chart No. 20 to corner No. 1.



SIMMONS.

(Entrance Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 19 29.40	76 24 22.40	S 64 52 W S 22 06 W S 18 27 E	N 64 52 E N 22 06 E N 18 26 W	1575 2059 1903	Drum Point Light. Carroll 2. Hog 2.
2	38 19 36.67	76 24 29.70	S 53 26 W S 16 35 W S 21 13 E	N 53 25 E N 16 34 E N 21 13 W	1534 2826 2199	Drum Point Light. Carroll 2. Hog 2.
3	38 19 43.80	76 24 15.42	S 54 19 W S 21 54 W S 10 18 E	N 54 19 E N 21 54 E N 10 18 W	1984 3179 2327	Drum Point Light. Carroll 2. Hog 2.
4	38 19 36.56	76 24 08.78	S 63 01 W S 26 44 W S 6 41 E	N 63 00 E N 26 43 E N 6 40 W	2006 3036 2060	Drum Point Light. Carroll 2. Hog 2.

CHINESE MUDDS (CALVERT COUNTY).

(Entrance Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 19 17.14	76 23 47.02	S 83 51 W S 13 40 W S 45 24 E	N 83 50 E N 13 40 E N 45 23 W	2380 1432 3820	Drum Point Light. Hog 2. Cedar Point Light.
2	38 19 47.84	76 23 39.57	S 63 17 W S 12 28 W S 34 15 E	N 63 16 E N 12 27 E N 34 14 W	2863 2485 4479	Drum Point Light. Hog 2. Cedar Point Light.
3	38 20 39.76	76 23 17.16	N 1 58 E S 46 06 W S 19 25 E	S 1 58 W N 46 04 E N 19 25 W	2035 4384 5792	Pat. Drum Point Light. Cedar Point Light.
4	38 21 01.14	76 22 41.20	N 33 59 W S 47 34 W S 8 55 E	S 34 00 E N 47 32 E N 8 55 W	1584 5574 6259	Pat. Drum Point Light. Cedar Point Light.
5	38 20 46.06	76 22 13.08	N 41 55 W S 56 13 W S 2 15 E	S 41 56 E N 56 11 E N 2 15 W	2449 5849 5679	Pat. Drum Point Light. Cedar Point Light.
6	38 19 37.58	76 21 34.27	N 32 48 W S 80 55 W S 13 30 W	S 32 49 E N 80 52 E N 13 30 E	4915 5968 3461	Pat. Drum Point Light. Cedar Point Light.

Thence along county boundary as delineated on Chart No. 20 to corner No. 1.

## Survey of Oyster Bars, Calvert County, Md.

PARKER MOORE.

(Entrance Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 19 47.84	76 23 39.57	S 63 17 W	N 63 16 E	2863	Drum Point Light. Hog 2. Cedar Point Light.
			S 12 28 W	N 12 27 E	2485	
			S 34 15 E	N 34 14 W	4479	
2	38 20 51.48	76 23 50.23	S 33 34 W	N 33 33 E	4124	Drum Point Light. Hog 2. Cedar Point Light.
			S 3 10 W	N 3 10 E	4579	
			S 25 35 E	N 25 34 W	6494	
3	38 20 59.42	76 23 38.88	N 25 14 E	S 25 14 W	1516	Pat. Drum Point Light. Hog 2.
			S 34 53 W	N 34 53 E	4815	
			S 6 32 W	N 6 32 E	4872	
4	38 20 39.76	76 23 17.16	N 1 58 E	S 1 58 W	2035	Pat. Drum Point Light. Cedar Point Light.
			S 46 06 W	N 46 04 E	4384	
			S 19 25 E	N 19 25 W	5792	

## UNDER THE CLIFFS.

(Entrance Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 20 11.66	76 24 25.40	S 32 44 W	N 32 44 E	2489	Drum Point Light. Carroll 2. Hog 2.
			S 13 19 W	N 13 19 E	3996	
			S 11 55 E	N 11 55 W	3300	
2	38 20 13.98	76 24 29.06	S 29 54 W	N 29 54 E	2505	Drum Point Light. Carroll 2. Hog 2.
			S 11 44 W	N 11 44 E	4061	
			S 13 15 E	N 13 15 W	3399	
3	38 20 53.46	76 23 53.58	N 32 02 W	S 32 02 E	4133	Drum Point Light. Hog 2. Cedar Point Light.
			S 2 01 W	N 2 01 E	4642	
			S 26 02 E	N 26 01 W	6593	
4	38 20 51.48	76 23 50.23	S 33 34 W	N 33 33 E	4124	Drum Point Light. Hog 2. Cedar Point Light.
			S 3 10 W	N 3 10 E	4579	
			S 25 35 E	N 25 34 W	6494	

LITTLE COVE POINT.

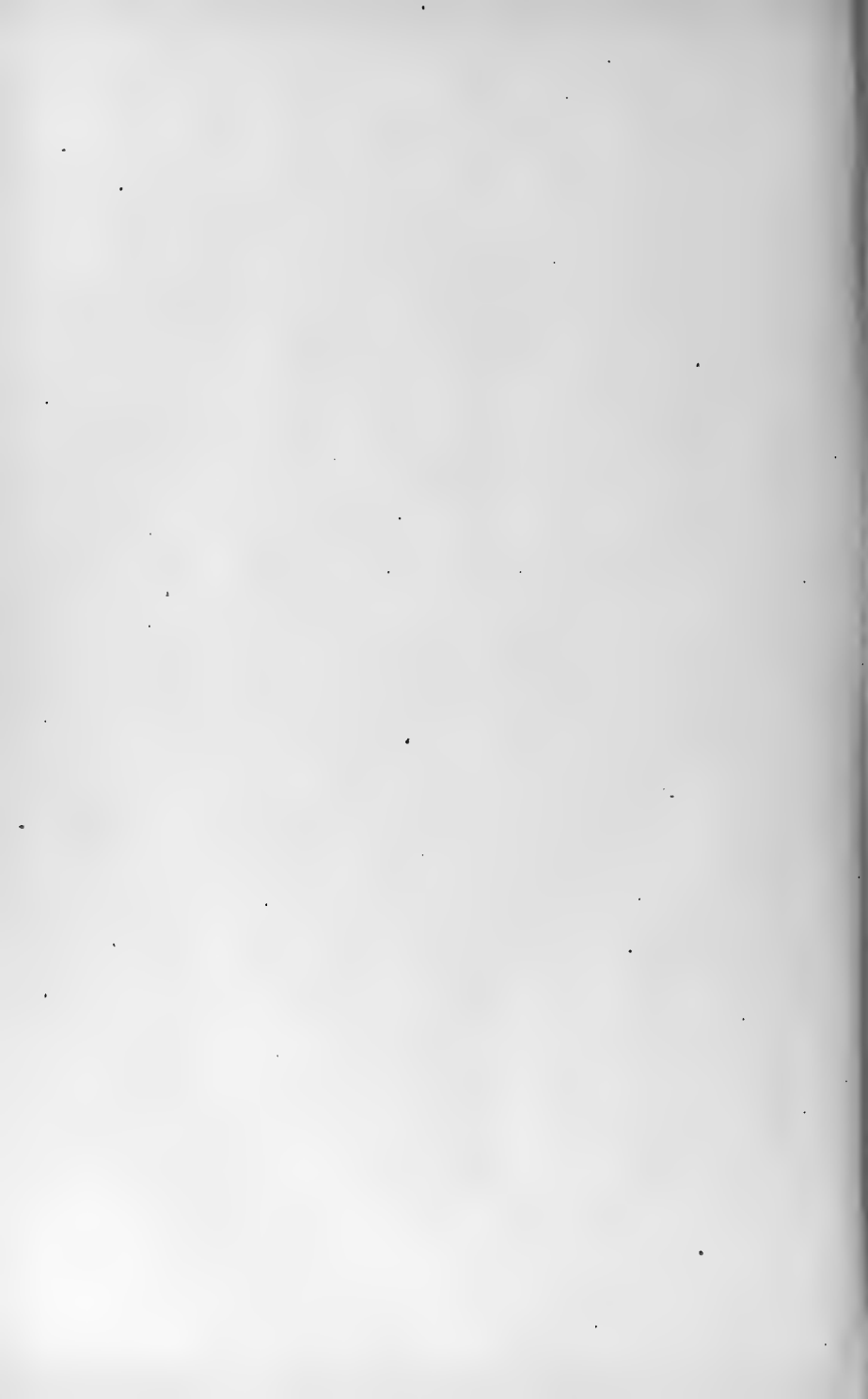
(Entrance Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 20 39.76	76 23 17.16	N 1 58 E	S 1 58 W	Yards. 2035 4384 5792	Pat. Drum Point Light. Cedar Point Light.
			S 46 06 W	N 46 04 E		
			S 19 25 E	N 19 25 W		
2	38 20 59.42	76 23 38.88	N 25 14 E	S 25 14 W	1516 4515 4872	Pat. Drum Point Light. Hog 2.
			S 34 53 W	N 34 53 E		
			S 6 32 W	N 6 32 E		
3	38 21 20.38	76 23 16.98	N 5 34 E	S 5 34 W	667 5428 5663	Pat. Drum Point Light. Hog 2.
			S 35 39 W	N 35 38 E		
			S 11 35 W	N 11 34 E		
4	38 21 01.14	76 22 41.20	N 33 59 W	S 34 00 E	1584 5574 6259	Pat. Drum Point Light. Cedar Point Light.
			S 47 34 W	N 47 32 E		
			S 8 55 E	N 8 55 W		

COVE POINT BIGHT.

(Entrance Patuxent River—Chart No. 20.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 21 26.96	76 22 07.02	N 20 11 W	S 20 12 E	3715 1846 7055	Cove Point Light. Pat. Cedar Point Light.
			N 76 09 W	S 76 10 E		
			S 0 30 E	N 0 30 W		
2	38 22 20.98	76 23 03.09	N 7 03 E	S 7 03 W	1682 934	Cove Point Light. White House (N. E. chimney).
			N 62 59 W	S 62 59 E		
			S 12 26 W	N 12 26 E		
3	38 22 30.21	76 22 47.66	N 8 32 W	S 8 32 E	1369 1247	Cove Point Light. White House (N. E. chimney). Pat.
			N 84 48 W	S 84 49 E		
			S 22 53 W	N 22 53 E		
4	38 21 34.40	76 21 56.12	N 25 54 W	S 25 54 E	3598 2091 7309	Cove Point Light. Pat. Cedar Point Light.
			N 84 44 W	S 84 45 E		
			S 1 47 W	N 1 47 E		



## APPENDIXES.

### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*

SEC. 4. That this act shall take effect from the date of its passage.

[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects herein-after expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

*Survey of Oyster Bars, Calvert County, Md.*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven. \* \* \*

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[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

---

[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of Congress approved March 4, 1909.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and ten, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and ten, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of the legislature of Maryland approved April 2, 1906.]

AN ACT To establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to Article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and

charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis; and the said commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie. \* \* \*

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

\* \* \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey, and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable, the limits and boundaries of the natural beds, bars and rocks, as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the same to the clerks of the Circuit Court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks shall be construed in all the courts of the State to be barren bottoms, and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act; provided, that the said survey and report shall not be construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the Survey, is as follows:

AN ACT Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or levelling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>a</sup> *And be it enacted,* That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the

<sup>a</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses, (to be by them sworn or affirmed and examined) shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid; ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted*, That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

#### APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from Second Report of Shell Fish Commission.]

##### OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland had a twofold object in view:

1. To encourage an industry in oyster culture upon the *barren bottoms* beneath the tidewaters of the State.

2. To prevent the leasing of *natural oyster bars* for the purpose of oyster culture."

##### SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."



## DEFINITION OF A NATURAL OYSTER BAR.

## NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, charting and buoying them, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the Commission."

## DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturists, may be made to yield a greater number of oysters than they now produce."

"It should be evident to every one that neither of these definitions could be adopted by the Commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

## THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by *oystermen* on one hand and by *oyster culturists* on the other is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd v. Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed and is as follows:

What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them; and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters, within the meaning of the Act of Assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the Act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and can not be located or appropriated by any individual.

## APPLICATION OF DEFINITION.

Before this definition may be of use in determining, accurately and scientifically, the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors, and these factors must be combined into a practical scheme of investigating the condition of the ground under consideration.

Stated briefly, a *livelihood* is represented by a *sum of money* obtained from the sale, at a fixed *price*, of a certain *quantity of oysters* gathered in a given *time* from an allotted *area* of ground.

Knowing the value of each of these factors it becomes possible to calculate the number of oysters an oyster ground must produce per square yard in order that oystermen may secure a livelihood by working upon it.

NOTE.—The factors into which the Commission resolved the livelihood problem, the value assigned to each factor, and the scheme devised for practical use in examining and applying the definition to oyster bottoms are given in outline in their Second Report under the heading of the preceding extract, and in detail in their First Report on pages 32 to 69.

#### APPENDIX C.—SUMMARY OF THE PARTICULAR SURVEYING OPERATIONS WHICH CONSTITUTE AN "OYSTER SURVEY" AS NOW BEING CARRIED ON IN MARYLAND.

*Explanation.*—A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest practical accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

*Triangulation survey.*—Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a frame work or foundation. Therefore, a triangulation survey including the permanent marking of the positions of landmarks with monuments and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

*Topographic survey.*—The technical records which establish the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the leasable bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore, a topographic survey is a necessary operation of a complete oyster survey.

*Hydrographic survey.*—In the settlement of the important question of what is, or what is not, a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore, a hydrographic survey is a necessary operation of a complete oyster survey.

*Necessary foundation for an oyster survey.*—Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

*Special surveys and investigations pertaining to oysters.*—Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>a</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding boat party in addition to the usual hydrographic work.<sup>b</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells or absence of shells.

<sup>a</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>b</sup> See pages 104 to 123 of "First Annual Report of Maryland Shell Fish Commission."

The special oyster investigations <sup>a</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affect the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

*Preparation of results.*—The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described. <sup>b</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for publication by the Government, the preparation of that part of the annual report of the Commission covering the special oyster surveys and investigations, the making of the leasing charts and finished projections, and finally the filing of the oyster charts and records with the courts and the Commission, thus opening a county for oyster culture.

*Summary.*—From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

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<sup>a</sup> See pages 30 to 67 and 129 to 199 of "First Annual Report of Maryland Shell Fish Commission."

<sup>b</sup> No mention is made here of the large amount of administrative work of the Commission, which is greatly complicated and increased by the effect of the oyster-survey operations on many thousands of people whose interests are more or less involved; or of the large amount of survey work involved in the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

## Survey of Oyster Bars, Calvert County, Md.

APPENDIX D.—STATISTICS OF RESULTS OF THE COMBINED OYSTER SURVEY OPERATIONS OF THE GOVERNMENT AND STATE.<sup>a</sup>

Operations.	Anne Arundel County.	Somerset County.	Wicomico County.	Worcester County.	Calvert County.	Total. <sup>b</sup>
Beginning of field work.....	June 29, 1906	May 2, 1907	Aug. 27, 1907	Nov. 8, 1907	May 2, 1908	-----
Filing of certified charts and reports.....	June 20, 1907	July 1, 1908	Dec. 1, 1908	Apr. 12, 1909	Dec. 14, 1909	-----
Natural oyster bars surveyed and delineated.....	91	37	15	28	41	212
Acres of natural oyster bars.....	33,666	27,566	2,038	1,655	12,303	c 77,228
Crab bottoms surveyed and delineated.....		54				54
Acres of crab bottoms.....		32,108				32,108
Clam beds surveyed and delineated.....		3				3
Acres of clam beds.....		506				506
Boundary buoys located and planted.....	362	154	53	108	149	826
Triangulation landmarks established.....	123	86	30	48	78	334
Miles of shore line covered by triangulation.....	110	125	46	95	95	455
Square miles of water covered by triangulation.....	220	375	44	110	157	887
Miles of examination of shell bottom with chain apparatus.....	369	296	58	63	250	1,036
Oyster investigation stations occupied.....	440	679	102	147	667	2,095
Tide stations established.....	4	3	1	1	2	11
Number of soundings over shell bottoms. Square miles covered by soundings and chain apparatus.....	37,049	17,904	3,387	3,649	11,202	73,281
Projections prepared and plotted.....	58	47	3	3	30	131
Leasing charts prepared.....	9	13	2	5	8	36
Oyster charts published.....	13	12	2	3	5	35
Reports published.....	4	6	2	3	5	20
Progress maps published.....	2	2	2	2	2	7
	2	2	2	2	2	7

<sup>a</sup> These statistics do not include the large amount of triangulation, topography, and hydrography resulting from previous work of the Coast and Geodetic Survey, which was utilized in the preparation of the published oyster charts and records. Work in St. Marys and Charles counties has been finished, but final statistics of results will not be published until these counties are opened for oyster culture.

<sup>b</sup> Less quantities covered by statistics of more than one county.

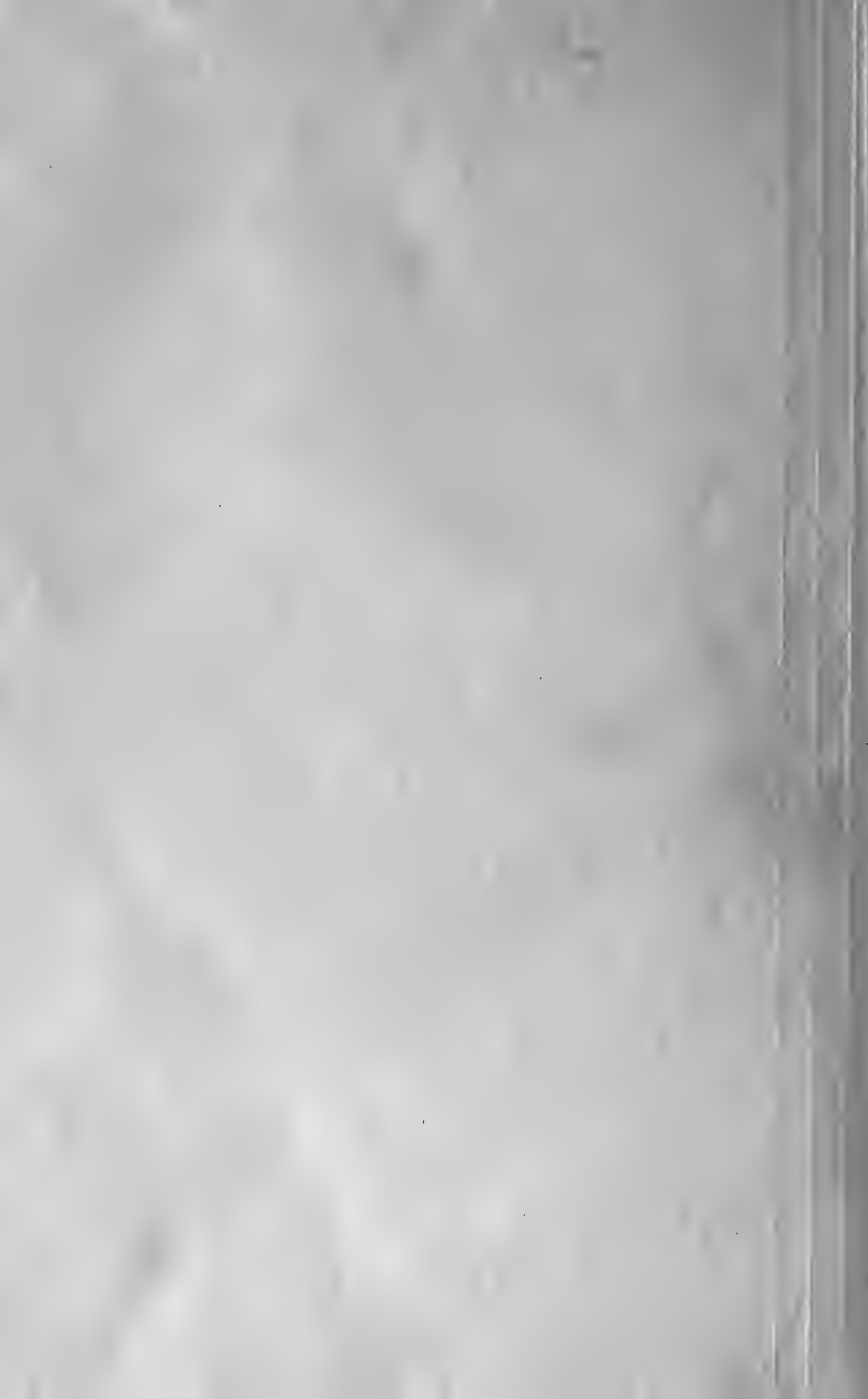
<sup>c</sup> Total area of natural oyster bars of Connecticut is 5,770 acres.

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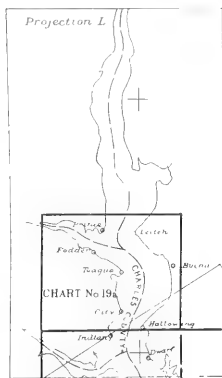
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COAST AND GEODETIC SURVEY  
 PROGRESS MAP  
 CALVERT COUNTY  
 MARYLAND

To accompany report of work of United States  
 Coast and Geodetic Survey in cooperation  
 with the Maryland Shell Fish Commission

1908



Note - Area covered by  
 Chart No. 19 is printed  
 on this section of  
 Chart No. 19

- Landmarks (Coast Survey Triangulation Stations)
- Waters contiguous to county
- - - Limits of projections on file at Washington
- Limits of charts published by Coast and Geodetic Survey

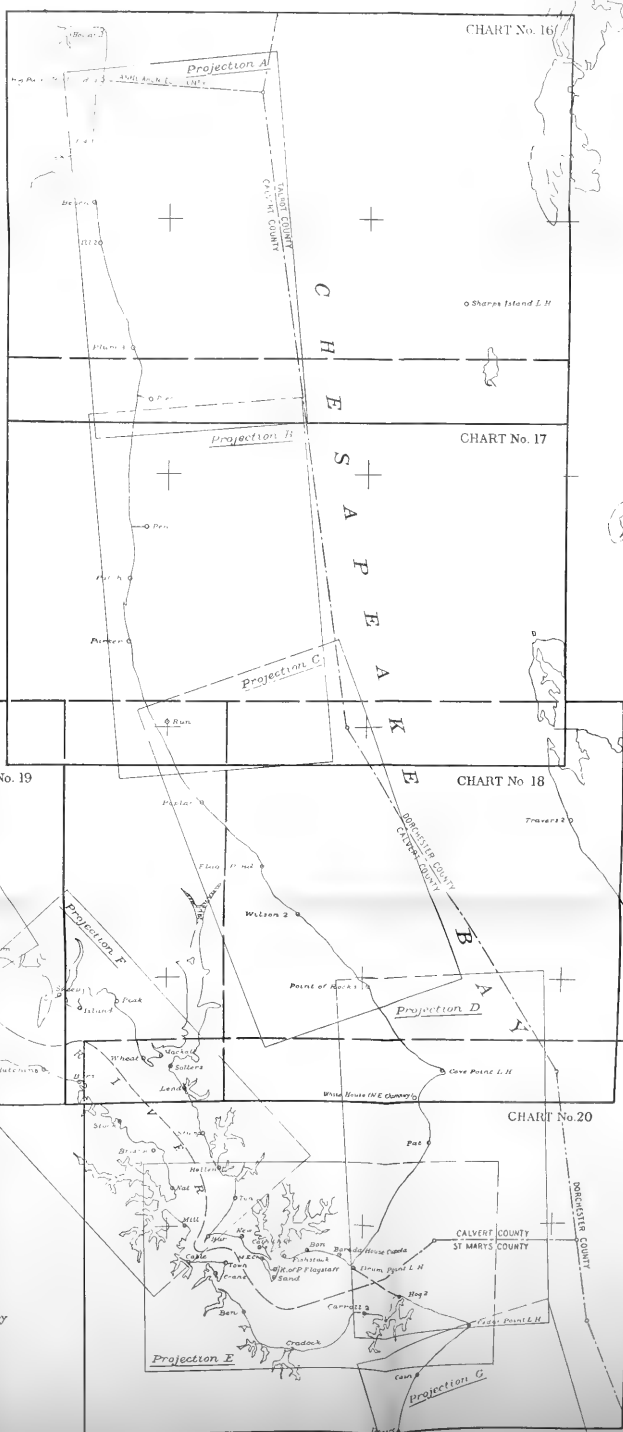
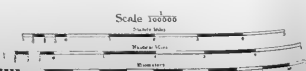


CHART No. 16

CHART No. 17

CHART No. 19

CHART No. 18

CHART No. 20

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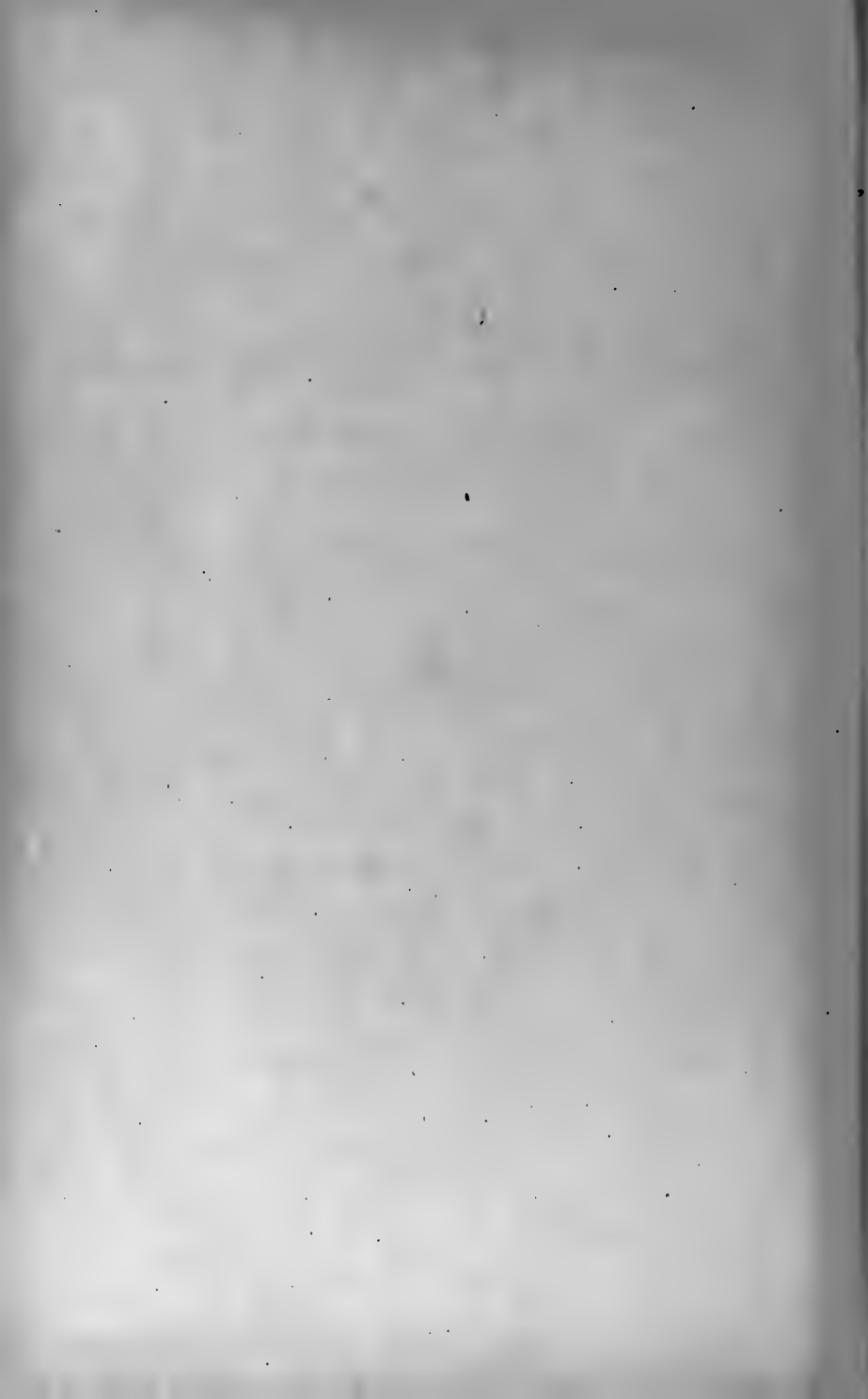
CALVERT COUNTY  
 ST. MARY'S COUNTY

Copyright 1914, by  
and are their authors or

prints of charts published by Coast and Geodetic Survey  
prints of projections on file at Washington  
prints within territorial limits of country  
prints contained in country







DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY  
O. H. TITTMANN, Superintendent

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# SURVEY OF OYSTER BARS

## CHARLES COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND  
REPORT OF WORK OF UNITED STATES COAST  
AND GEODETIC SURVEY IN COOPERATION  
WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND  
SHELL FISH COMMISSION

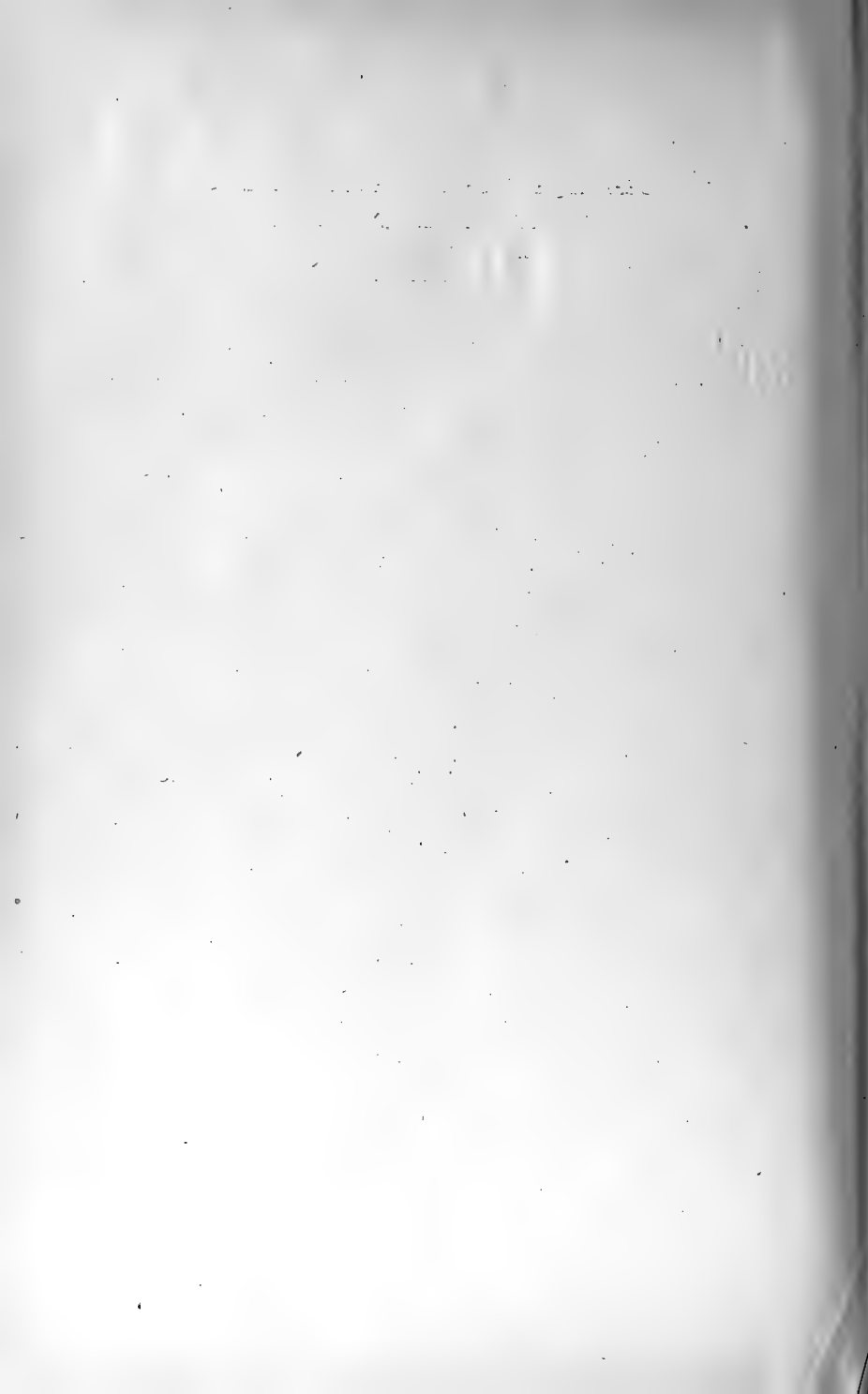
By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE

1911



## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, January 27, 1911.*

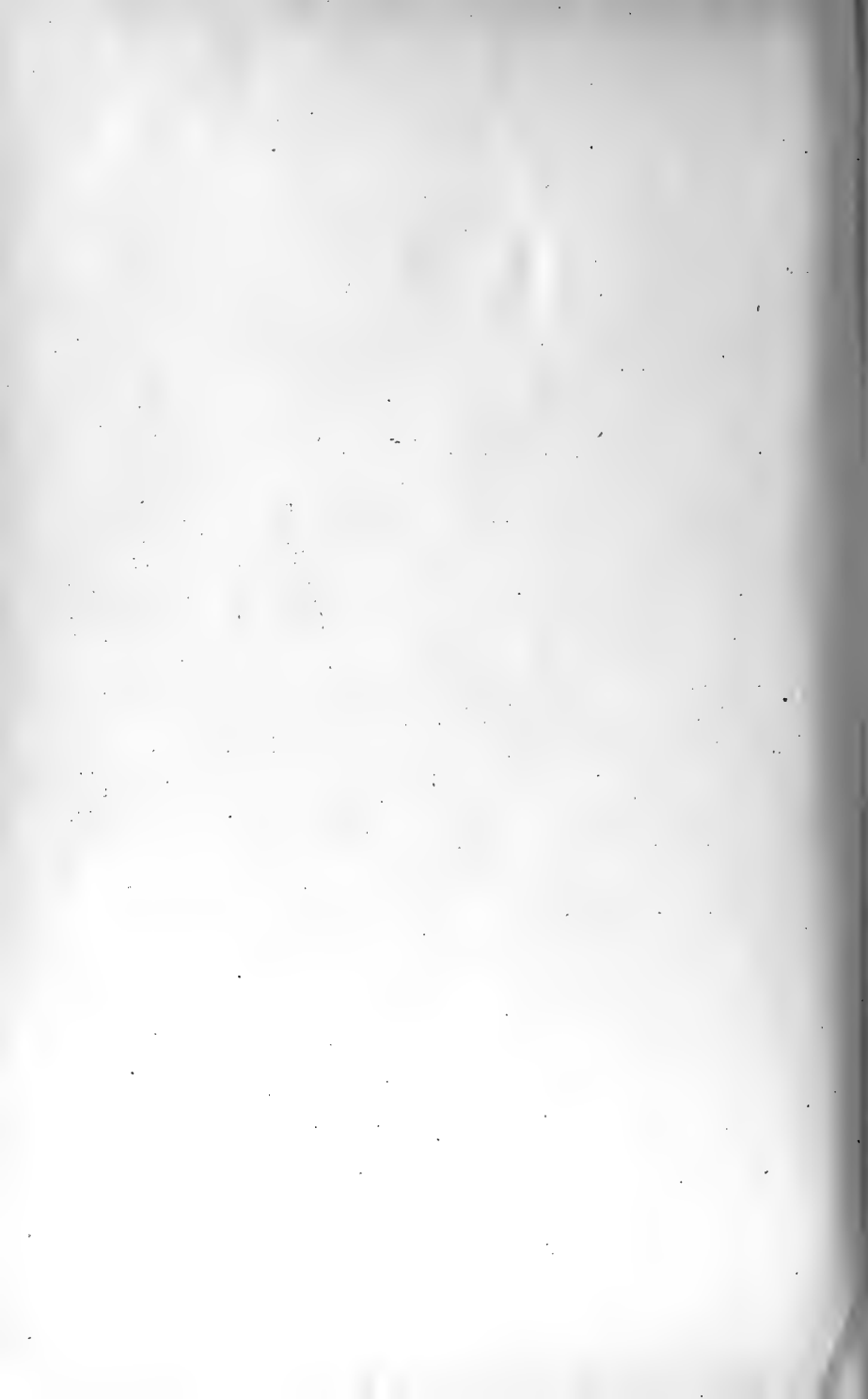
SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, together with certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shell fish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908; 1909, and 1910.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To HON. CHARLES NAGEL,  
*Secretary of Commerce and Labor.*



## CERTIFICATION.

---

BALTIMORE, MD., *January 25, 1911.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in Charles County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,  
*Chief of Coast and Geodetic Survey Party,  
Assistant, Coast and Geodetic Survey.*

---

BALTIMORE, MD., *January 25, 1911.*

Examined and certified to be correct.

WALTER J. MITCHELL,  
CASWELL GRAVE,  
BENJAMIN K. GREEN,  
*Maryland Shell Fish Commission.*  
SWEPSON EARLE,  
*Hydrographic Engineer.*

NOTE.—Certified copies of this publication and of the charts of the natural oyster bars of Charles County were filed in the office of the clerk of the circuit court of Charles County and in the office of the Board of Shell Fish Commissioners on January 27, 1911.

1870

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<sup>a</sup> See also subchart on Chart No. 19.<sup>b</sup> See separate publications for boundaries of natural bars in adjacent counties.

# SURVEY OF OYSTER BARS, CHARLES COUNTY, MD.

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## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws <sup>a</sup> authorizing the work and the natural division of the surveying operations <sup>b</sup> of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consist of a series of charts and a technical report for each county surveyed.<sup>c</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey in charge of the work of that service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.<sup>d</sup>

The publications prepared and issued by the State under the direction of the Shell Fish Commission consist of annual reports<sup>e</sup> of all the operations of the Commission

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<sup>a</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>b</sup> See Appendix C for a summary of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland.

<sup>c</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C. The publications now ready for issue are those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, and Charles counties.

<sup>d</sup> The technical records and charts for each county are published separately on account of the requirements of the oyster-culture laws of the State and the practical considerations which make it desirable to have each county "opened up" for oyster culture as soon as practicable after the completion of its survey. For these reasons and the fact that these reports are each arranged for distribution and use in one county only without reference to other published records, much of the text of this publication is of necessity identical with similar previous publications for other counties.

<sup>e</sup> These reports can be obtained by application to the Shell Fish Commission, Marine Bank Building, Baltimore, Md. They are issued annually in October, and the first and second reports are now available for distribution.

performed under the provisions of the laws of Maryland,<sup>a</sup> including results of biological and economic oyster investigations, methods and results of the hydrographic survey of the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.<sup>b</sup>

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential as a foundation for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>c</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the Bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL STATEMENT OF WORK OF COAST AND GEODETIC SURVEY.<sup>d</sup>

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need very

<sup>a</sup> See Appendix B for an extract from the "Second Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman Oyster Culture Law."

<sup>b</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>c</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, Assistant, Bureau of Fisheries.

<sup>d</sup> For a detail statement of the very large amount of excellent oyster survey work of the Maryland Shell Fish Commission see the "Annual Reports of the Maryland Shell Fish Commission."

little other summary than is indicated by the published "Charts of Natural Oyster Bars" and the index of hydrographic projections and triangulation stations shown on the county progress maps attached to each report.

The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars, but also to the Government for any future work it may do in the regions covered by the oyster-survey operations.

The hydrographic projections and published charts are prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various shell-fish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to and permanently fixed by published technical descriptions which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way, and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County":

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last 65 years.

REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY IN CHARLES COUNTY.

INSTRUCTIONS.

The following letters, together with the laws<sup>a</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the survey at Washington, have proved very beneficial to the work and are greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

LAWRENCE O. MURRAY, *Assistant Secretary.*

His Excellency HON. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the Commissioners, prepare a programme of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. and G. S. Steamer Endeavor, Baltimore, Md.*

<sup>a</sup> For these laws see Appendix A.

ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the field and the preparation for publication of oyster charts and technical records in the office at Washington.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster*, the Coast and Geodetic Survey party has had the constant use of the large steam launch *Inspector* and several other boats furnished by its own service, and the occasional use of the Bureau of Fisheries launch *Canvasback*<sup>a</sup> and the steamer *Governor McLane*<sup>b</sup> of the State fishery force.

The greater part of the equipment of instruments for the operations of both the Government and State has been furnished by the Coast and Geodetic Survey and consists of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

CRONOLOGICAL STATEMENT OF WORK.

The field work of the Coast and Geodetic Survey in Charles County<sup>c</sup> dates from August 18, 1908, when the house boat *Oyster* was moved from St. Leonards Creek to an anchorage in Battle Creek which is located about 5 miles to the south of that small portion of Charles County bordering on the Patuxent River. The headquarters of the surveying operations remained at this harbor until the completion of that part of the field work which naturally included all of the Patuxent River waters of Calvert and St. Marys counties as well as those of Charles County, although the results are published separately.

On September 3, 1908, the house boat finally left the Patuxent River for a new anchorage in one of the tributaries of Potomac River in St. Marys County, and the field work in Charles County was dropped from that date for a period of nearly two months.

On October 28, 1908, the house boat *Oyster* was towed by the *Governor McLane* to an anchorage in the lower part of Wicomico River off Rock Point in Charles County. From this anchorage as a headquarters the surveying operations for the Wicomico waters of both Charles and St. Marys counties were carried on until practically completed on November 25, 1909, when the house boat was towed to Bretons Bay off Leonardtown in St. Marys County.

On December 2, 1909, it was found necessary to obtain additional triangulation information for the publication of the technical report for Calvert County, which inci-

<sup>a</sup> By courtesy of Dr. H. F. Moore, United States Bureau of Fisheries.

<sup>b</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>c</sup> The field work of Charles, Calvert, and St. Marys counties was so intermixed in the Patuxent River that the chronological statement of work for any one of these counties necessarily includes a considerable part of the work of the other counties.

dentally involved new work required for the report for Charles County, and field work was carried on for that purpose from that date to December 8, 1909.

Again from July 20 to August 11, 1910, while the house boat *Oyster* was anchored in the mouth of the Patuxent River for the purpose of carrying on the oyster survey operations in the bay shore waters of Dorchester County, a number of days when work could not be done in the open bay were employed in checking up deficiencies in the description of stations required for the forthcoming publications of both Charles and St. Marys counties.

The large amount of office work connected with the "oyster survey" of Charles County, including computations and drafting necessary for the preparation for publication of the oyster charts and the technical records, was continued intermittently with the office work of other counties from the beginning of the field work in Charles County to the time of filing of the certified oyster charts and technical reports in the archives of the Commission and with the clerk of the circuit court of Charles County on January 27, 1911.

#### STATISTICS.<sup>a</sup>

Landmarks and triangulation signals erected.....	37
Monuments planted to mark triangulation stations.....	37
Triangulation stations occupied for observations of horizontal angles.....	35
Old triangulation stations recovered.....	3
New triangulation stations established.....	39
Total old and new triangulation stations marked and described.....	42
Linear miles of shore line covered by triangulation (approximate).....	32
Square miles covered by triangulation (approximate).....	20
Hydrographic projections prepared and completed as records of oyster boundaries.....	3
Triangles computed.....	80
Geographic positions computed.....	40
Corners of oyster boundaries established by computation.....	78
Back azimuths and distances computed from corners of boundaries to triangulation stations.....	234
Descriptions of triangulation stations prepared for publication.....	42
Descriptions of oyster boundaries prepared for publication.....	15
"Charts of Natural Oyster Bars" prepared for publication.....	1
Progress map prepared for publication.....	1

#### GENERAL REMARKS.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore, of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

<sup>a</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of Charles County, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the Commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland. See Appendix D of this publication for "Statistics of results of combined operations of the Government and the State."



To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unflinching tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the Commission, who, as editor of the Commission's annual report and Commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Mr. Benjamin K. Green, treasurer of the Commission, who has looked after the equipment and commissary of the house boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Mr. Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

To Mr. Thomas H. Robinson, counsel to the Commission, for courteously furnishing valuable information relating to county boundaries.

And to the many others connected with the Commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

## CHARTS AND MAPS.

### CHARTS OF NATURAL OYSTER BARS.

The charts <sup>a</sup> of the natural oyster bars of Charles County, published by the Coast and Geodetic Survey from results of surveys of the Government in cooperation with the Maryland Shell Fish Commission, are grouped on one sheet covering a portion of the waters of the upper Patuxent River and all of the waters of the Wicomico River; including all oyster-producing bottoms in Charles County. They are published on a scale of 1 part in 20,000 (approximately  $3\frac{1}{6}$  inches to a statute mile) and are constructed on polyconic projections and based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars and other boundaries established by the Commission, and are certified for the purpose of filing in the office of the clerk of the Circuit Court of Charles County and in the office of the Commission at Annapolis, as required by the oyster laws of Maryland.

In addition to the oyster bar and other boundaries, the charts show the location and name of all landmarks (U. S. Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography <sup>b</sup> necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the heading "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a particular

<sup>a</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>b</sup> Much of the detail of the inshore topography was obtained from the excellent map of Charles County, prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the U. S. Geological Survey.

oyster bar or landmark which is only known by name, consult the "Contents" and the desired chart and general location will be indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shell fish industries. The 1-fathom contour (6 feet) and the 5-fathom curve (30 feet) correspond in a general way to the inner and outer limits of all the oyster bars surveyed. The 3-fathom contour (18 feet) furnishes the curve of about the average depth of water on the oyster bars and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" and the boundaries of the "waters contiguous to the county" opened up for the leasing with Charles County are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart within the boundaries of the different shell fish bottoms.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Charles County, like those for Anne Arundel, Somerset, Wicomico, Worcester, and Calvert counties, have been prepared under the direction of the hydrographic engineer of the Commission. These charts are constructed on polyconic projections and are based on the United States standard datum of the Coast and Geodetic Survey. They are made on the scales of 1 part in 5,000 or 1 part in 10,000, as the needs of oyster culture may require. Anne Arundel County required 13 leasing charts; Somerset County, 12 charts; Wicomico County, 2 charts; Worcester County, 3 charts; Calvert County, 5 charts; and Charles County, 2 charts, to cover their oyster bottoms.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts

have been divided by parallels of latitude and meridians of longitude into small rectangles of 1 acre or 5 acres, as may be best suited to the area under consideration, and prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as possible.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in the Marine Bank Building at Baltimore.

#### PROJECTIONS.

The polyconic projections<sup>a</sup> covering Charles County waters are 3 in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, but the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission were plotted by the draftsman of the Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the archives of the Shell Fish Commission.

#### PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the United States Coast and Geodetic Survey in Charles County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress maps<sup>b</sup> accompanying the first and second annual reports of the Maryland Shell Fish Commission were prepared under the direction of the hydrographic engineer of the Commission. They are on the scale of 1 part in 400,000, and show the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey.

<sup>a</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>b</sup> These maps and reports can be obtained by application to Maryland Shell Fish Commission, Marine Bank Building, Baltimore, Md.

## BOUNDARIES OF THE COUNTY WATERS.<sup>a</sup>

### WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>b</sup> between the waters "within the territorial limits" of Charles County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the "oyster" charts and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:

*Patuxent River waters of Charles County.*—Following the boundary line between Charles County and Prince Georges County along the middle of Swanson Creek as laid down on "Chart No. 26, Natural Oyster Bars, Maryland," to a point defined by the intersection of this boundary line with the boundary line of Calvert County in Patuxent River; thence along the boundary line between Calvert and Charles counties in Patuxent River as laid down on "Chart No. 26, Natural Oyster Bars, Maryland," to a point defined by the intersection of this boundary line with the boundary line between Charles and St. Marys counties off the entrance to Indian Creek; thence along the boundary line between Charles and St. Marys counties in the middle of Indian Creek as laid down on "Chart No. 26, Natural Oyster Bars, Maryland."

*Wicomico River waters of Charles County.*—Following the boundary line between Charles County and St. Marys County along the middle of Wicomico River as laid down on "Chart No. 26, Natural Oyster Bars, Maryland," from the upper end of Wicomico River, as shown on said chart, to a point at the mouth of Wicomico River defined by the intersection of this boundary line with the straight line between the center point of Cobb Point Bar Light defined by latitude  $38^{\circ} 14' 33.3''$  and longitude  $76^{\circ} 49' 36.9''$  and a point on the northwest end of St. Catherine Island defined by latitude  $38^{\circ} 14' 28.9''$  and longitude  $76^{\circ} 48' 10.9''$ ; thence along a straight line dividing the "waters within territorial limits of county" and the "waters of Potomac River under joint jurisdiction of Maryland and Virginia as to fisheries" to the center point of Cobb Point Bar Light defined by latitude  $38^{\circ} 14' 33.3''$  and longitude  $76^{\circ} 49' 36.9''$ ; thence along a line following Cobb Point Bar, as laid down on "Chart No. 26, Natural Oyster Bars, Maryland," to a point located on Cobb Point defined by latitude  $38^{\circ} 15' 17.5''$  and longitude  $76^{\circ} 50' 33.4''$ ; thence along the mean low water line of the Maryland shore of Potomac River or a line across the mouth of all inlets less than 100 yards in width, as the case may be, and then continuing along the Maryland shore of Potomac River, crossing the mouth of Potomac River entrances of Neals Sound, around Swan Point, and crossing the mouth of Cuckold Creek and all other creeks, bays, and inlets of Potomac River under the sole jurisdiction of Maryland, to the intersection of this line with the boundary line between Charles County and Prince Georges County.<sup>c</sup>

<sup>a</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, Superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>b</sup> See "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and the progress map at the end of this publication.

<sup>c</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.

## WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the United States Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners in the city of Baltimore," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county and the waters contiguous to but not within the territorial limits of adjacent counties.

This boundary line has been delineated on the "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and is technically described and defined as follows:

Commencing at a point located at the mouth and near the middle of Wicomico River defined by the intersection of the boundary line between Charles County and St. Marys County as laid down on "Chart No. 26, Natural Oyster Bars, Maryland," and the straight line between the center point of Cobb Point Bar Light defined by latitude  $38^{\circ} 14' 33.3''$  and longitude  $76^{\circ} 49' 36.9''$  and a point on the northwest end of St. Catherine Island defined by latitude  $38^{\circ} 14' 28.9''$  and longitude  $76^{\circ} 48' 10.9''$ ; thence along a straight line dividing the "waters within territorial limits of county" and the "waters of Potomac River under joint jurisdiction of Maryland and Virginia as to fisheries" to the center point of Cobb Point Bar Light defined by latitude  $38^{\circ} 14' 33.3''$  and longitude  $76^{\circ} 49' 36.9''$ ; thence along a line following Cobb Point Bar as laid down on "Chart No. 26, Natural Oyster Bars, Maryland," to a point located on Cobb Point defined by latitude  $38^{\circ} 15' 17.5''$  and longitude  $76^{\circ} 50' 33.4''$ ; thence along the Maryland shore of the Potomac River across the entrances to Neals Sound, Cuckold Creek, and all other sounds, bays, creeks, or inlets under the sole jurisdiction of Maryland as to fisheries, to the intersection of this line with the boundary line between Charles County and Prince Georges County.<sup>c</sup>

<sup>a</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.

## LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION.

The oyster laws of Maryland authorizing the survey to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of location and character of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking a landmark has only an indefinite idea of its location. They gradually proceed from description of the general locality of a landmark to the descriptions of its immediate surroundings. This is followed by specific details of the character of the center and reference marks and a "round" of reference angles and distances which in themselves frequently contain enough information to furnish an independent and reliable location of the triangulation station.

### METHOD OF DESCRIBING TRIANGULATION STATIONS.

*The separate descriptions of triangulation stations should not be used without reading the following explanation of the method of describing the triangulation stations, as it contains certain details that are common to all the landmarks described in this publication and which are omitted in the separate descriptions as being needless repetitions:*

*Name.*—The title at the top of each separate description is the name by which the landmark or triangulation station is known and designated in all work and published oyster records or oyster charts of both the Government and State. The selection of the name is usually left to the triangulator establishing the station, and it may or may not have geographic or other significance in reference to the locality.

*General locality.*—Under this heading is given the general locality of the landmark in reference to well-known and prominent natural or artificial features, such as the nearest body of water, town, river, steamer wharf, well-defined point of land, church, or any other feature that is likely to remain both permanent and prominent.

This heading also covers a reference to the published chart or map which shows the location of the station most clearly. Nearly all the triangulation stations described in this publication are plainly indicated by name and a triangulation symbol on the published charts of oyster bars of Maryland. In this case they are referred to by serial number only, the words "charts of oyster bars of Maryland" being omitted to avoid needless repetition. These published oyster charts are on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{6}$  inches to a statute mile) and show the location of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

*Immediate locality.*—Under this heading is given the description of the "observed station" in reference to its immediate surroundings. This is supposed to include a statement of the station's estimated elevation above high water or some other well-defined level of the locality, such as a road or house; the character of the ground on which it is located, such as marsh land, sand beach, cultivated field, or meadow; estimated bearings in points of the compass and estimated distances in yards *from* (not *to*) easily recognized features, such as extreme end of point, edge of bluff, bank of creek, line of telephone poles, shore line, barn, house, fence, ditch, trees, or any other definite detail, such as being on range with the tangent of an island and a church; and so forth.

When a standard monument has been established near the station as a "reference station," this heading also covers a statement of the true bearing of the monument in degrees and minutes and its measured distance in meters, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached and might be mistaken for the center mark of the "observed station" unless special attention is called to it.

The distinction between the "observed station" and "reference station" should be carefully noted by anyone making use of the description of stations for any future surveying operations.

The "observed station" is located at the particular triangulation point covered by the description of stations, and is the one whose geographic position is first computed, as it is the point which was "occupied" and "observed on" for horizontal angles. However, in spite of the primary importance of the location of the "observed station," it will be noted from the description of stations that frequently it is not marked as well as the "reference station," and in many instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate "observed stations" on edges of banks and ends of points of land, which in the tide-water section of Maryland generally means they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the great need of "reference stations," if the frequent reestablishment of a new framework of triangulation is to be avoided.

The chief reason and need for the establishment of the "reference station," or secondary station, as it might be well named, is explained in the preceding paragraph, but in several instances other reasons, such as the location of the "observed station"



on an unstable sand dune, in a cultivated field, in front of a residence, or other places objectionable to the landowner, have led to establishment of "reference stations." The location of the "reference station" in relation to the "observed station" is fixed for plotting on charts or for computation of its geographic position by checked measurements of its distances and azimuth from the "observed station."<sup>a</sup>

*Marks.*—Under this heading is given a description of the character of the permanent monuments or other marks of the location of the "observed station," and of the "reference station" where one has been established.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground, unless otherwise stated.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

*References.*—Under this heading are given the "rounds" of directions and distances to all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described, this, if possible, being a light-house, church spire, or other permanent and prominent point. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>b</sup> of the initial object is always given in parentheses alongside its name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by horizontal angles or for the relocation of corner buoys of oyster-bar boundaries by the method of compass directions described in this publication under the heading of "Boundaries of oyster bars."

<sup>a</sup> Geographic coordinates (latitude, longitude, distance, and azimuth) relating to any of the "observed stations" or of the "reference stations" described in this publication can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>b</sup> The mean magnetic variation for Charles County was  $5^{\circ} 20'$  west of north in 1910 and increasing at the rate of  $4'$  yearly.

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters," however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner the accuracy of the directions are indicated by the refinement of angular measure with which they are recorded.

## DESCRIPTIONS OF TRIANGULATION STATIONS.

## BARBER.

*General locality.*—Northeastern shore of Wicomico River about  $\frac{3}{4}$  mile north-northeast of Stoddard Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is on grass land about 2 feet above high-water mark, 3 yards north of shore, 20 yards west of trees which extend inland along creek, 4 yards southwest by west of a corner of a fence and 15 yards southeast of another corner of a fence.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Stoddard" (S $0^{\circ} 46'$ W) . . . . .	0	00	00	1 $\frac{1}{8}$ miles.
Left chimney of Stoddard house . . . . .	3	27		1 $\frac{1}{8}$ miles.
Near peak of roof between two chimneys . . . . .	45	15		1 $\frac{1}{2}$ miles.
Chimney on left end of small house . . . . .	62	54		1 $\frac{1}{2}$ miles.
Nail in blaze in top fence rail . . . . .	136	06		10.62 meters.
Nail in blaze in cedar tree (5 inches diameter) . . . . .	155	29		10.75 meters.
Nail in blaze in top of chestnut fence post . . . . .	245	24		3.43 meters.
Nail in blaze in persimmon tree (5 inches diameter) . . . . .	259	16		13.94 meters.
Tangent of point . . . . .	299	13		$\frac{1}{4}$ mile.
Near large chimney of negro quarters . . . . .	302	07		1 $\frac{1}{8}$ miles.

## UPPER.

*General locality.*—Southwestern shore of Wicomico River on Stoddard Point (upper point) about  $2\frac{1}{4}$  miles north-northwest of Mills Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is on a long narrow point about 2 feet above high-water mark, 5 yards south of side of point, 8 yards northwest of side of point, 38 yards west of high-water mark on middle of point and 138 yards west by north of high-water mark on extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Stoddard" (S $27^{\circ} 38'$ E) . . . . .	0	00	00	$\frac{1}{2}$ mile.
Right chimney of Stoddard house . . . . .	9	12		$\frac{1}{2}$ mile.
Left peak of roof of barn . . . . .	33	02		$\frac{1}{2}$ mile.
Left chimney of old house . . . . .	49	29		$\frac{1}{2}$ mile.
Tangent of next point . . . . .	141	07		$\frac{3}{8}$ mile.
Right chimney of house on ridge . . . . .	179	15		3 miles.
Chimney outside small house on opposite shore . . . . .	213	28		1 $\frac{1}{4}$ miles.
Near corner post of piazza of large house . . . . .	247	47		1 $\frac{3}{8}$ miles.
Chimney top of Key house . . . . .	296	04		1 $\frac{1}{2}$ miles.

## KEY.

*General locality.*—Northeastern shore of Wicomico River on a high bluff about 1 mile north of Cohouck Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is about 30 feet above high-water mark in an orchard, about 24 yards northeast of edge of bank, 49 yards north of edge of bank, 15 yards east of edge of bank, 130 yards south-southwest of negro quarters and 130 yards west of fence which incloses an orchard.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	o	/	''	
"Stoddard" (S 70° 48' W).....	0	00	00	1½ miles.
Near corner of near chimney on Stoddard house.....	0	29	..	1¼ miles.
Near corner of near chimney of small house....	15	05	..	1¾ miles.
Peak of roof between two chimneys on house....	17	13	..	2 miles.
Peak of roof of very large barn.....	56	52	..	3 miles.
Chimney on middle of roof on two-story house..	62	06	..	3 miles.
Near corner of near chimney of negro's quarters.	116	54	..	130 yards.
Nail in blaze in apple tree (12 inches diameter)..	135	58	..	22.15 meters.
Chimney of Key house.....	164	37	..	¼ mile.
Nail in blaze in apple tree (14 inches diameter)..	168	57	..	13.39 meters.
Peak of roof of large barn.....	259	16	..	½ mile.
Nail in blaze in apple tree (12 inches diameter)..	281	25	..	7.94 meters.
Peak of roof of house on piles.....	347	23	..	1¾ miles.
Between two chimneys of large brick house on hill.....	357	45	..	2½ miles.

STODDARD.

General locality.—Western shore of Wicomico River about ½ mile south-southeast of Stoddard Point and 1 mile west-northwest of Cohouck Point. (See Chart No. 26.)

Immediate locality.—Observed station is on gravel, grass, and shell point, near a lone gum tree, about 2 feet above high-water mark, 6 yards south-southwest of side of point, 6 yards north of side of point, 10 yards west of extreme end of point and 158 yards east-northeast of Stoddard house.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	o	/	''	
"Upper" (N 26° 37' W).....	0	00	00	½ mile.
Outside chimney of small house.....	23	08	..	1½ miles.
Peak of front gable of large house on ridge....	52	54	..	1¾ miles.
Chimney on top of Key house.....	94	47	..	1½ miles.
Chimney outside of two and a half story house..	153	58	..	2¾ miles.
Right chimney of large house.....	172	38	..	2 miles.
Peak of roof of house on Chaptico Wharf.....	180	19	..	2¾ miles.
Chimney top of house on piles.....	228	37	..	½ mile.
Near corner of chimney on Stoddard house....	284	44	..	158 yards.
Nail in blaze in pear tree (24 inches diameter)..	315	29	..	4.58 meters.
Nail in blaze in pear tree (4 inches diameter)..	349	47	..	9.41 meters.

COHOUCK.

General locality.—Eastern shore of Wicomico River on Cohouck Point on the northern side of entrance to Chaptico Bay. (See Chart No. 26.)

Immediate locality.—Observed station is on Cohouck Point, about 6 feet above high-water mark, 12 yards east of edge of bank, 35 yards south of edge of bank, 85 yards northeast of extreme point and about 25 yards north of marsh.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	o	/	''	
"Key" (N 3° 29' E).....	0	00	00	7¾ mile.
Nearest chimney on negro quarters.....	0	27	..	1 mile.
Near peak of roof of barn.....	26	38	..	1 mile.
Chimney outside near end of two and a half story house.....	128	58	..	¾ mile.
Right chimney of Lyon house near Mills Point..	171	29	..	1¾ miles.
Chimney on flat roof house near mouth of Bowmans Creek.....	226	56	..	2 miles.
Chimney on far end of house.....	261	43	..	1¾ miles.
Chimney on house on piles.....	270	53	..	1¾ miles.
Peak of front gable of house on ridge.....	352	51	..	2¾ miles.

## HAYDEN.

*General locality.*—Western shore of the Wicomico River about  $1\frac{3}{8}$  miles west of Cohouck Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is surrounded by water bushes on marshy land, about 1 foot above high water, 5 yards northwest of shore and 17 yards southeast of line of trees on top of bank. Cement monument marking reference station is 11.50 meters N  $54^{\circ} 34'$  W of observed station.

*Marks.*—Observed station is nail in stub with top 3 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Fact" (S $41^{\circ} 35'$ E).....	0	00	00	1 $\frac{3}{8}$ miles.
Between two main chimneys of large house below Chaptico Wharf.....	5	11		2 $\frac{3}{8}$ miles.
West roof peak of house on Chaptico Wharf.....	6	51		2 $\frac{3}{4}$ miles.
Chimney on middle of square house.....	65	06		$\frac{5}{8}$ mile.
Nail in blaze in cedar tree (18 inches diameter).....	124	14		23.45 meters.
Nail in blaze in locust tree (8 inches diameter).....	155	23		16.55 meters.
REFERENCE STATION.....	167	01	20	11.51 meters.
Nail in blaze in oak tree (8 inches diameter).....	213	29		18.74 meters.
Chimney on Key house.....	275	45		1 $\frac{3}{4}$ miles.
Chimney of Maddox house.....	344	28		3 $\frac{1}{4}$ miles.
Right chimney outside of old house.....	354	31		1 $\frac{5}{8}$ miles.

## PERRY.

*General locality.*—Southeastern shore of Chaptico Bay, about 1 mile northeast of Mills Point and  $\frac{5}{8}$  mile southeast of Cohouck Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is in an open field, about 20 feet above high-water mark, 8 yards northwest of edge of bank, 9 yards south-southwest from edge of gully in bank, 5 yards south of edge of bank of gully, and about 150 yards north-northeast of creek.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Fact" (S $51^{\circ} 10'$ W).....	0	00	00	1 mile.
Chimney on right end of house.....	5	41		2 $\frac{3}{8}$ miles.
Chimney on flat-roof house.....	15	03		2 $\frac{1}{2}$ miles.
Left chimney of Crane house.....	31	37		3 $\frac{3}{8}$ miles.
Nail in blaze in locust tree (3 inches diameter).....	42	34		10.49 meters.
Nearest chimney on larger part of double brick house.....	42	50		3 $\frac{3}{8}$ miles.
Left chimney of house on piles.....	55	28		1 $\frac{3}{4}$ miles.
Near peak of roof on house.....	62	53		2 miles.
Near corner of near chimney of Stoddard house.....	66	59		2 miles.
Nail in blaze in locust tree (3 inches diameter).....	81	40		8.44 meters.
Peak of front gable of house on ridge.....	113	51		3 to 4 miles.
Nail in blaze in locust tree (8 inches diameter).....	136	40		5.95 meters.
Near chimney of large house on ridge.....	169	08		1 $\frac{5}{8}$ miles.
Chimney outside of two-and-a-half-story house.....	289	15		150 yards.

## BURR.

*General locality.*—Western shore of Wicomico River directly opposite mouth of Chaptico Bay and  $\frac{3}{4}$  mile north of Bowmans Creek. (See Chart No. 26.)

*Immediate locality.*—Observed station is on hard ground between a sloping bank 10 feet high covered with trees and a marshy shore, about 2 feet above high-water mark, 18 yards northwest of extreme point, 23 yards north of shore, 17 yards southwest of shore, and 9 yards southeast of bottom of bank.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	o	'	"	
"Fact" (S 65° 59' E).....	0	00	00	1¼ miles.
Between two chimneys of large house on ridge .	16	39	..	4¾ miles.
West end of peak of roof of house on Chaptico Wharf.....	17	15	..	2½ miles.
Right chimney of two-and-a-half-story house...	72	21	..	1¾ miles.
Chimney in middle of large house.....	88	21	..	1¾ miles.
Nail in blaze in persimmon tree (11 inches diameter).....	97	25	..	7.67 meters.
Nail in blaze in persimmon tree (9 inches diameter).....	192	56	..	2.60 meters.
Nail in blaze in persimmon tree (10 inches diameter).....	236	32	..	3.86 meters.
Main chimney of Key house.....	293	03	..	2¼ miles.
Chimney on Maddox house.....	358	28	..	3½ miles.

FACT.

General locality.—Eastern shore of Wicomico River on Mills Point on south side of mouth of Chaptico Bay. (See Chart No. 26.)

Immediate locality.—Observed station is on a long point covered on the southern side with gum and cedar trees, about 10 feet above high-water mark, 23 yards from extreme end of top of bank, 6 yards north of edge of bank, and 8 yards southeast of edge of bank.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	o	'	"	
"Cobb Point Bar Light" (S 7° 13' E).....	0	00	00	6½ miles.
Nail in blaze in cedar tree (7 inches diameter)...	5	07	..	6.20 meters.
Nail in blaze in oak tree (28 inches diameter)...	56	16	..	6.37 meters.
Chimney on ell end of Stoddard house.....	157	08	..	1¾ miles.
Chimney on Key house.....	199	54	..	2½ miles.
Near peak of roof of large house.....	274	25	..	¼ mile.
Nail in blaze in cedar tree (6 inches diameter)...	301	45	..	16.26 meters.
Near chimney of large house near shore.....	317	53	..	¾ mile.
West end of peak of house on Chaptico Wharf..	342	53	..	¾ mile.

BOWMAN.

General locality.—Western shore of Wicomico River at northeast side of mouth of Bowmans Creek and 1½ miles west by south of Mills Point. (See Chart No. 26.)

Immediate locality.—Observed station is surrounded by water bushes on point of land about 1½ feet above high water, 14 yards east of high-water mark, 16 yards north of extreme end of point, 20 yards northeast of side of point, 20 yards south of several cedar trees, and about 150 yards south of a house.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	o	'	"	
"Sacred Heart Church Spire" (S 62° 50' E)...	0	00	00	4¾ miles.
Chimney on end of long house.....	10	37	..	¾ miles.
Chimney of Lyon house.....	13	56	..	¾ miles.
Nail in blaze in cedar tree (7 inches diameter)...	59	04	40	8.88 meters.
Chimney on square house.....	76	25	..	¼ mile.
Crane house.....	168	10	..	2 miles.
Nail in blaze in cedar tree (6 inches diameter)...	216	10	00	18.37 meters.
Nail in blaze in cedar tree (7 inches diameter)...	232	40	30	17.58 meters.
Chimney on near end of house.....	263	40	..	½ mile.
Peak of roof between two chimneys.....	357	27	..	2¼ miles.

## EEDLING.

*General locality.*—Western shore of Wicomico River about  $1\frac{1}{4}$  miles southwest of Mills Point and about 1 mile southeast of mouth of Bowmans Creek. (See Chart No. 26.)

*Immediate locality.*—Observed station is in a shell-covered cultivated field, about 10 feet above high-water mark, 37 yards southwest of shell and gravel beach, 88 yards west-northwest of extreme end of point, and 79 yards north of a ditch in marsh. Cement monument marking reference station is 23.99 meters N  $89^{\circ} 56'$  W of observed station.

*Marks.*—Observed and reference stations are marked by the center point of the triangles on standard cement monuments.

References.—	o	'	"	
"Fact" (S $39^{\circ} 15'$ W).....	0	00	00	$1\frac{1}{4}$ miles.
Nail in blaze in gum tree (20 inches diameter) ..	2	07	50	26.06 meters.
Near peak of roof of house on Chaptico Wharf..	42	05	..	$1\frac{3}{8}$ miles.
Chimney outside near end of house on hill.....	44	24	..	$2\frac{5}{8}$ miles.
Nail in blaze in cedar tree (3 inches diameter) ..	49	54	40	25.75 meters.
REFERENCE STATION.....	50	48	55	23.99 meters.
Chimney on right of ell of a house.....	60	12	..	2 miles.
Near peak of roof of Eedling house.....	265	55	..	$\frac{3}{8}$ mile.
Nail in blaze in oak tree (24 inches diameter) ..	331	27	40	33.99 meters.

## FARR.

*General locality.*—Eastern shore of Wicomico River about  $1\frac{1}{4}$  miles south-southeast of Mills Point and  $\frac{1}{4}$  mile north of the mouth of Manahowick Creek. (See Chart No. 26.)

*Immediate locality.*—Observed station is about 10 feet above high-water mark, 5 yards east by south of edge of bank, 32 yards north-northwest of several pine trees at fish shanty near edge of bank, 22 yards south by east of other trees, and 300 yards west by north of a large house.

*Marks.*—Observed station is center point of triangle on standard cement monument buried 16 inches below surface of ground with nail in stub at surface.

References.—	o	'	"	
"Cobb Point Bar Light" (S $2^{\circ} 35'$ E).....	0	00	00	$5\frac{1}{4}$ miles.
"Rock Point Catholic Church Cross".....	8	03	40	$3\frac{1}{4}$ miles.
Chimney on left side of house.....	42	41	..	$1\frac{3}{4}$ miles.
Left chimney of Crane house.....	113	40	..	$4\frac{1}{2}$ miles.
Left peak of house on Chaptico Wharf.....	153	08	..	$\frac{1}{2}$ mile.
Left chimney of house on Mills Point farm.....	168	34	..	$1\frac{1}{4}$ miles.
Right chimney on Maddox house.....	242	28	..	2 miles.
Right corner of large house.....	292	33	..	$\frac{1}{4}$ mile.
Near corner of fish shanty.....	338	27	..	23.69 meters.

## GUST.

*General locality.*—Western shore of Wicomico River on Windmill Point about  $\frac{3}{4}$  mile north of the mouth of Hedneys Creek and opposite mouth of Manahowick Creek. (See Chart No. 26.)

*Immediate locality.*—Observed station is on shell and gravel point, bordered by persimmon and cedar trees, about 2 feet above high-water mark, 12 yards northwest of shore, 16 yards south of shore, and 28 yards west-southwest of shore on extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—	o	'	"	
"Fact" (N $20^{\circ} 09'$ E).....	0	00	00	$1\frac{1}{2}$ miles.
Nail in blaze in persimmon tree (8 inches diameter).....	6	22	..	7.95 meters.
Near peak of roof of house on Chaptico Wharf..	35	32	..	$1\frac{1}{4}$ miles.
Chimney on left side of large house.....	58	18	..	$1\frac{3}{8}$ miles.
Chimney on middle of Lyon house.....	101	24	..	$1\frac{3}{4}$ miles.
Near peak of roof of house with two chimneys..	171	43	..	$\frac{5}{8}$ mile.
Nail in blaze in cedar tree (4 inches diameter) ..	204	14	00	5.90 meters.
Nail in blaze in cedar tree (10 inches diameter) ..	301	03	10	16.18 meters.

## LYON.

*General locality.*—Eastern shore of Wicomico River on a point about  $\frac{1}{4}$  mile north of Bramleigh Creek and 2 miles north by east of Rock Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is on a point of land between the Lyon residence and edge of bank, 100 yards north of small pond which is fringed on river side with cedar trees, about 4 yards north of a bird house on a post, 19 yards east-northeast of most prominent point of bank, 15 yards east-southeast of side of bank, 16 yards north-northeast of another side, and 12 yards south-southwest of a fence.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Weiss" (S 25° 47' E).....	0	00	00	1¼ miles.
Nail in blaze in cedar post of bird house sup- port.....	51	15	20	3.67 meters.
Nail in blaze in pear tree (6 inches diameter)...	58	00	50	11.74 meters.
Chimney of house.....	120	14	..	1½ miles.
Left chimney of Crane house.....	148	52	..	5¼ miles.
Between two chimneys of large brick house....	159	59	..	3½ miles.
Near peak of roof between two chimneys of large house.....	171	56	..	3¾ miles.
West end of peak of roof of house on Chaptico Wharf.....	186	23	..	1¾ miles.
Corner of fence.....	198	08	..	14.15 meters.
Near corner of house.....	247	11	..	22.01 meters.
Right corner of small house.....	295	38	..	24.59 meters.
Nail in blaze in locust tree (4 inches diameter)...	302	02	10	8.82 meters.
Right corner of shed.....	336	36	..	14.98 meters.

## SACRED HEART CHURCH SPIRE (BUSHWOOD).

*General locality.*—Easterly side of Wicomico River on high land about  $\frac{1}{2}$  miles inland, north by east of Bushwood Wharf. (See Chart No. 26.)

*Immediate locality.*—Observed station is steeple of Sacred Heart Church near Bushwood.

*Marks.*—Observed station is center of cross on steeple.

*References.*—None necessary.

## HEDNEY.

*General locality.*—Western shore of Wicomico River on first point above mouth of Charleston Creek and about  $1\frac{3}{4}$  miles northwest of White Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is about 25 feet above high-water mark, 16 yards west-southwest of edge of bank, 139 yards north of large tree at edge of bank, 85 yards north of oak tree at edge of bank, 155 yards east-northeast of gum tree 20 inches diameter on bank of a pond, and about  $\frac{1}{8}$  mile east-southeast of a house among trees.

*Marks.*—Observed station is center point of triangle on standard cement monument with top buried 12 inches below the surface of the ground. Surface mark is nail in stub with top 5 inches above surface of ground.

*References.*—

	°	'	"	
"Sacred Heart Church Spire" (N 86° 31' E)...	0	00	00	4½ miles.
Near corner of nearest chimney of four on a large house on hill.....	7	11	..	4½ miles.
Right chimney of a large house.....	13	03	..	2 miles.
Middle of island at end of White Point Bar....	38	45	..	1¾ miles.
Nail in blaze in oak tree (48 inches diameter)...	50	28	00	73.16 meters.
Nail in blaze in walnut tree (36 inches diam- eter).....	84	52	30	115.63 meters.
Middle of gum tree.....	147	46	30	138.47 meters.
Near peak of roof between two chimneys.....	239	48	..	¾ mile.
Near chimney on large house.....	312	19	..	1½ miles.
Chimney of Lyon house.....	352	40	..	1½ miles.

## Survey of Oyster Bars, Charles County, Md.

## CHARLES.

*General locality.*—Western shore of Wicomico River on first point south of entrance to Charleston Creek, and  $1\frac{1}{4}$  miles north of Rock Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is on a small marshy point about 6 inches above high-water mark and 18 yards east of pine woods on a bank 10 feet above high water. Cement monument marking reference station is  $15.56$  meters N  $57^{\circ} 10'$  W of observed station.

*Marks.*—Observed station is nail in stub with top 2 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Hard" (S $17^{\circ} 38'$ E).....	0	00	00	$1\frac{1}{4}$ miles.
Nail in blaze in pine tree (10 inches diameter)...	47	51	..	28.46 meters.
Nail in blaze in pine tree (12 inches diameter)...	84	58	..	16.66 meters.
Nail in blaze in pine tree (7 inches diameter)...	134	22	..	16.87 meters.
REFERENCE STATION.....	138	28	10	15.56 meters.
West chimney on two-story house.....	265	53	..	$1\frac{1}{4}$ miles.
"Sacred Heart Church Spire (Bushwood)".....	268	03	50	$2\frac{3}{4}$ miles.
West chimney on Garner house.....	293	51	..	$1\frac{3}{4}$ miles.
West gable of house on Bushwood Wharf.....	300	07	..	2 miles.

## WEISS.

*General locality.*—Eastern shore of Wicomico River on White Point, about 3 miles north by east of Cobb Point Bar Light. (See Chart No. 26.)

*Immediate locality.*—Observed station is on a bluff near small cedar trees, about 8 feet above high-water mark, 13 yards north of and 27 yards south of edges of bluff and 52 yards east of extreme point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cobb Point Bar Light" (S $11^{\circ} 43'$ W).....	0	00	00	$3\frac{1}{8}$ miles.
Flagstaff on schoolhouse.....	40	41	20	$1\frac{5}{8}$ miles.
Nail in blaze in cedar tree (10 inches diameter). 54	03	10	..	42.29 meters.
Left chimney on two-story house.....	155	26	..	$\frac{3}{4}$ mile.
Nail in blaze in poplar tree (3 inches diameter). 181	46	..	..	6.24 meters.
"Sacred Heart Church Spire".....	216	56	30	$1\frac{3}{4}$ miles.
West chimney of Garner house.....	260	27	..	$\frac{5}{8}$ mile.
Nail in blaze in poplar tree (4 inches diameter). 266	27	50	..	37.80 meters.
West gable of house on Bushwood Wharf.....	284	26	..	$\frac{5}{8}$ mile.
Left chimney on two-story house.....	342	10	..	$2\frac{3}{8}$ miles.

## BLAKISTONE.

*General locality.*—Eastern shore of Wicomico River, about  $\frac{1}{4}$  mile southeast of Plowdens Wharf at Bushwood, and about 3 miles north-northeast of Cobb Point Bar Light. (See Chart No. 26.)

*Immediate locality.*—Observed station is on second bluff southeast of Bushwood Wharf, 15 feet above high-water mark, 15 yards southeast of a large dogwood tree, about 6 yards northeast of edge of bluff, 3 yards southwest of rail fence, about 15 yards southwest of an ice house near orchard, and 5 to 10 yards south to east of several small cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Prec" (S $18^{\circ} 42'$ W).....	0	00	00	2 miles.
"Rock Point Catholic Church Cross".....	51	28	30	2 miles.
Left peak of roof of wharf house.....	94	16	..	$1\frac{7}{8}$ miles.
Large tree.....	117	48	..	13.36 meters.
Chimney of Blakistone store.....	125	48	..	$\frac{1}{4}$ mile.
Near peak of roof of Blakistone house.....	176	32	..	250 yards.
Point of cupola on Ranahan house.....	191	45	..	$1\frac{3}{4}$ miles.
Near left corner of sill of ice house.....	233	15	..	14.15 meters.
Right lower corner.....	260	33	..	15.76 meters.
Near peak of roof.....	312	54	..	$\frac{1}{4}$ mile.



HARD.

*General locality.*—Western shore of Wicomico River on point of land known as Rock Point about 2 miles north by west of Cobb Point Bar Light. (See Chart No. 26.)

*Immediate locality.*—Observed station is on low point of land near several small cedar trees about 1 foot above high-water mark, 47 yards west of shore, 16 yards south of shore, 30 yards north of shore, about 80 yards northeast by north of Rock Point Wharf, and 170 yards northeast by east of Lancasters store.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Cobb Point Bar Light" (S 10° 17' E).....	0	00	00	2 miles.
Northeast gable of wharf house.....	41	07		80 yards.
"Rock Point Catholic Church Cross".....	70	16	20	¼ mile.
South chimney on Lancaster store.....	88	53		170 yards.
Point of east gable on house.....	134	44		¼ mile.
"Sacred Heart Church Spire".....	239	04	20	3 miles.
Gable of house on wharf at Bushwood.....	256	00		1¼ miles.
West gable of house.....	293	06		2 miles.
West gable on one-story house.....	315	19		2¼ miles.
North chimney of two-story house.....	330	12		2½ miles.

ROCK POINT CATHOLIC CHURCH CROSS.

*General locality.*—Eastern shore of Wicomico River at Rock Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is in settlement called Rock Point. It is on the larger of two similar buildings, the smaller one being the schoolhouse.

*Marks.*—Observed station is center point of cross on Rock Point Catholic Church.

*References.*—None necessary.

PREC.

*General locality.*—Eastern shore of Wicomico River on Bluff Point about 2 miles north-northeast of Cobb Point Bar Light. (See Chart No. 26.)

*Immediate locality.*—Observed station is about 10 feet above high-water mark, 34 yards southeast of nearest end of neck of Bluff Point, 29 yards south-southeast of shore, 16 yards northeast of shore, and 88 yards west by southwest of house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Cobb Point Bar Light" (S 28° 37' W).....	0	00	00	2 miles.
Tangent of woods on Cobb Point.....	34	04		2 miles.
"Rock Point Catholic Church Cross".....	70	16	30	1⅝ miles.
Nail in blaze in locust tree (3 inches diameter).....	116	14	40	20.64 meters.
Left chimney of Garner house.....	148	42		1⅝ miles.
Nail in blaze in left one of twin locust trees (12 inches diameter).....	153	38	20	30.36 meters.
"Sacred Heart Church Spire".....	172	15	10	2¾ miles.
Near chimney of Sherrer house.....	228	37		88 yards.
Nail in blaze in poplar tree (6 inches diameter).....	243	01	50	33.74 meters.
Nail in blaze in poplar tree (5 inches diameter).....	282	00	40	27.71 meters.
Left chimney of cottage.....	298	22		½ mile.
Right chimney of Bailey house on St. Margarets Island.....	336	25		1½ miles.

## CORNER.

*General locality.*—Western shore of Wicomico River on the eastern side of an island known as Cobb Point Neck about halfway between Cobb Point and the entrance to Neales Sound. (See Chart No. 26.)

*Immediate locality.*—Observed station is in a cultivated field on a bluff bordered with pine trees about 15 feet above high-water mark, 3 yards west of a wire fence running along edge of bluff and 21 yards east-northeast of a wire fence which separates cornfield from pine woods.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

"Cobb Point Bar Light" (S 29° 39' E).....	0	00	00	.....	1 3/8 miles.
Nail in blaze in cedar tree (3 inches diameter)..	50	02	..	.....	16.98 meters.
Nail in blaze in pine tree (8 inches diameter)..	111	43	..	.....	21.41 meters.
Nail in blaze in pine tree (12 inches diameter).	135	20	..	.....	33.22 meters.
Middle chimney of house.....	177	07	..	.....	1/4 mile.
"Catholic Church Cross".....	217	16	10	.....	7/8 mile.
Left chimney of house on St. Margarets Island..	318	56	..	.....	1 5/8 miles.

## ST. MARGARET 2.

*General locality.*—Northwestern side of Potomac River on the southwestern side of St. Margarets Island in the mouth of the Wicomico River about 1 mile northeast of Cobb Point Bar Light. (See Chart No. 26.)

*Immediate locality.*—Observed station is on a bluff about 12 feet above high-water mark, 15 inches northeast of edge of bluff, 86 yards northwest of cow shed, 129 yards south-southwest of several houses and 154 yards west-southwest of Bailey (large) house. Cement monument marking reference station is 79.19 meters N 46° 26' E of observed station and at corner of cow shed.

*Marks.*—Observed station is center of a stub in a 2 1/2-inch tile pipe set in cement with top flush with ground. Reference station is center point of triangle of standard cement monument.

*References.*—

"Cobb Point Bar Light" (S 53° 22' W).....	0	00	00	.....	1 mile.
Tangent of Cobb Point.....	45	13	..	.....	1 5/8 miles.
"Rock Point Catholic Church Cross".....	83	42	50	.....	1 7/8 miles.
Chimney on left of Garner new house.....	129	40	..	.....	2 3/8 miles.
"Sacred Heart Church Spire".....	143	27	50	.....	4 miles.
REFERENCE STATION.....	173	04	15	.....	79.19 meters.
Left chimney of Bailey house.....	194	51	..	.....	150 yards.
Nearest chimney of small house on Bullock Island.....	220	26	..	.....	1 mile.
Left chimney of small house on St. Catherine Island.....	258	32	..	.....	1 1/4 miles.

## COBB POINT BAR LIGHT.

*General locality.*—Northerly side of Potomac River at mouth of Wicomico River on the southeastern extremity of Cobb Point Bar. (See Chart No. 26.)

*Immediate locality.*—Observed station is on the end of Cobb Point Bar at the mouth of the Wicomico River.

*Marks.*—Observed station is center point of black lantern on screw pile structure known as "Cobb Point Bar Light."

*References.*—

"Blakiston Island Light" (S 61° 25' E).....	0	00	00	.....	5 miles.
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RIVER SPRINGS CATHOLIC CHAPEL CROSS.

*General locality.*—Northern side of Potomac River inland about  $\frac{3}{4}$  mile north by west of River Springs. (See Chart No. 26.)

*Immediate locality.*—Observed station is on building known as River Springs Catholic Chapel.

*Marks.*—Observed station is center of cross on River Springs Catholic Chapel.

*References.*—None necessary.

SOUND.

*General locality.*—Northern shore of St. Catherine Sound about  $2\frac{1}{4}$  miles east by north of Cobb Point Bar Light and  $\frac{1}{4}$  mile east of Bullock Island. (See Chart No. 26.)

*Immediate locality.*—Observed station is about 15 feet above high-water mark, 35 yards north of edge of bank, 2 yards east of wire fence, 65 yards east of edge of bank, 57 yards south of southeast corner of fence of house yard, and 63 yards south by west of telephone pole line which is on the same side of the road.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cobb Point Bar Light" (S 84° 53' W).....	0	00	00	..... 2 $\frac{1}{4}$ miles.
Right chimney of house on Bullock Island.....	8	24	..	..... $\frac{1}{2}$ mile.
Near end of small chimney on large house.....	27	15	..	..... 1 mile.
Left corner post of fence.....	65	05	..	..... Near.
Near corner of chimney of small house.....	86	25	..	..... Near.
Near corner post of fence.....	100	58	..	..... Near.
Right peak of roof of barn.....	115	20	..	..... Near.
"River Springs Catholic Chapel Cross".....	148	31	10	..... 1 mile.
Chimney of Blakistone store.....	189	16	..	..... $\frac{1}{2}$ mile.
Near chimney of Bailey house.....	217	59	..	..... $\frac{1}{2}$ mile.
Chimney on smaller house on St. Catherine Island.	323	03	..	..... $\frac{3}{4}$ mile.

BAILEY.

*General locality.*—Northeastern shore of St. Catherine Sound, about  $\frac{3}{4}$  mile east by north of eastern end of St. Catherine Island and 1 mile north of the Potomac River. (See Chart No. 26.)

*Immediate locality.*—Observed station is on shelly ground on Bailey property, about 5 feet above high-water mark, 10 yards northeast of high-water mark, 7 yards northeast of a wire fence, 35 yards south-southeast of corner of wire fence, 30 yards north-northwest of corner of wire and wooden fences, 25 yards north of Bailey house, and 40 yards west by south of corner of wooden fence.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cobb Point Bar Light" (N 88° 11' W).....	0	00	00	..... 2 $\frac{5}{8}$ miles.
Nail in blaze in one of four cedar trees (3 inches diameter).....	13	29	..	..... 12.37 meters.
Nail in blaze in cedar tree (8 inches diameter)..	44	59	..	..... 27.82 meters.
Corner of wire fence.....	46	29	..	..... 32.06 meters.
Chimney on house.....	90	38	..	..... 150 yards.
"River Springs Catholic Chapel Cross".....	113	06	00	..... 1 mile.
Corner of wooden fence.....	175	52	..	..... 37.49 meters.
Chimney of Bailey house.....	203	26	..	..... 25 yards.
Junction of wire and wooden fences.....	254	35	..	..... 26.22 meters.
Left chimney of house on Waterloo Point.....	277	43	..	..... $\frac{3}{4}$ mile.
Nail in blaze in first of six cedar trees.....	297	27	..	..... 10.76 meters.
Right chimney of small house on St. Catherine Island.....	348	02	..	..... 1 mile.

## ST. CATHERINE.

*General locality.*—Southern shore of St. Catherine Sound, on the northern side of St. Catherine Island. (See Chart No. 26.)

*Immediate locality.*—Observed station is about 12 feet above high-water mark, 86 yards south of edge of bank, 49 yards west of line of young cedar trees, 198 yards northeast of a lone mulberry tree 3 feet in diameter, and 207 yards southeast of small house among trees.

*Marks.*—Observed station is center point of triangle on standard cement monument with top 12 inches below the surface.

*References.*—

	°	'	"	
"Cobb Point Bar Light" (N 81° 08' W).....	0	00	00	1 7/8 miles.
Right side of right chimney on small house.....	13	04	..	207 yards.
Left chimney of large house on St. Margarets Island	34	42	..	1 3/8 miles.
Right chimney of house on Bullock Island.....	66	01	..	1/2 mile.
Chimney of Blackistone house.....	117	39	..	3/8 mile.
"River Springs Catholic Chapel Cross".....	129	17	40	1 5/8 miles.
Left chimney of Bailey house.....	158	19	..	1/8 mile.
Right chimney of Young house on Waterloo Point.	207	48	..	1/8 mile.

## WATERLOO.

*General locality.*—Southeastern shore of St. Catherine Sound, about 3/4 mile east-southeast of St. Catherine Island and about 1/4 mile north of Potomac River. (See Chart No. 26.)

*Immediate locality.*—Observed station is at top of rise in field, about 8 feet above high-water mark, 48 yards east by south of shore at a point where several mulberry trees stand, 43 yards south of large sugarberry tree, 19 yards south by east of wire-fence post, and 200 yards north of Young house on Waterloo Farm.

*Marks.*—Observed station is center point of triangle on standard cement monument, with top 12 inches below surface of ground.

*References.*—

	°	'	"	
"Sound" (N 18° 41' W).....	0	00	00	1 mile.
Near end of peak of Blackistone barn.....	3	02	..	1 mile.
"Sacred Heart Church Spire (Bushwood)"....	10	37	20	5 miles.
Peak of gable of Blackistone house at River Springs.....	21	54	..	1/8 mile.
Near peak of roof of Bailey house.....	31	01	..	3/4 mile.
Near peak of roof of Yates house.....	49	13	..	1/2 mile.
Near peak of roof of Quaid house.....	71	25	..	1/4 mile.
Near peak of house.....	92	31	..	1/2 mile.
Nail in blaze in apple tree (5 inches diameter)..	111	20	30	34.78 meters.
Nail in blaze 8-inch branch on apple tree (14 inches diameter).....	153	34	20	24.90 meters.
Nail in blaze in apple tree (6 inches diameter)..	203	50	00	26.18 meters.
Near peak of roof of Young house.....	206	57	..	200 yards.
Left tangent of St. Catherine Island.....	300	21	..	3/4 mile.
Right chimney of roof of house on Bullock Island.....	337	19	..	1 3/8 miles.
Near peak of roof of house.....	352	57	..	1 3/4 miles.

PRINCE.

*General locality.*—Western shore of Patuxent River, about  $\frac{1}{4}$  mile north of mouth of Swanson Creek. (See Chart No. 26.)

*Immediate locality.*—Observed station is in pasture about 20 feet above high water, 15 yards northwest of edge of bank, 75 yards northeast of a grove of trees, and 100 yards southwest of another grove of trees. Locust trees form a fringe along edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	1	''	
"Leitch" (S 83° 01' E).....	0	00	00	..... $\frac{3}{4}$ mile.
Square chimney on house.....	0	02	..	..... $\frac{3}{4}$ mile.
Chimney on store at Buena Vista.....	19	15	..	..... $1\frac{3}{4}$ miles.
Chimney of Dr. Huggins house at Buena Vista..	21	07	..	..... $1\frac{3}{4}$ miles.
Nearest chimney on Gourley house on Hallowing Point.....	55	16	..	..... $2\frac{1}{2}$ miles.
Nail in blaze in locust tree (3 inches diameter)..	79	38	30	..... 15.94 meters.
Nail in blaze in locust tree (4 inches diameter)..	110	13	30	..... 14.55 meters.
Outside chimney on large house on hill.....	150	45	..	..... $\frac{3}{4}$ mile.
Near end of peak of roof.....	226	02	..	..... $\frac{3}{4}$ mile.
Middle of clump of trees.....	273	00	..	..... 100 yards.
Chimney of house.....	311	04	..	..... $1\frac{3}{4}$ miles.
Nail in blaze in crotch of locust tree (6 inches diameter).....	350	39	10	..... 19.27 meters.

LEITCH.

*General locality.*—Eastern shore of Patuxent River, on prominent point opposite mouth of Swanson Creek, given on chart as Gods Grace Point, but known locally as Leitchs Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is on sand and grass land about 1 foot above high water and 3 yards north of straight line connecting two round points. It is about 13 yards northwest of the lower of these two points and 9 yards east of upper point. A creek 3 feet wide has its mouth about 19 yards east by south of the station. There are no permanent objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	1	''	
"Prince" (N 83° 00' W).....	0	00	00	..... $\frac{3}{4}$ mile.
Near end of corner peak of roof of large house on hill.....	25	02	..	..... $1\frac{3}{4}$ miles.
Near end of peak of wharf-house roof.....	77	46	..	..... $\frac{1}{4}$ mile.
Right chimney of house.....	183	32	..	..... $\frac{1}{8}$ mile.
Right chimney of Gourley house.....	253	58	..	..... 2 miles.
Canning-house stack.....	277	22	..	..... 2 miles.
"Catholic Church Cross".....	281	35	30	..... 2 miles.
Chimney of small house.....	308	52	..	..... 1 mile.
Right outside chimney of old house.....	328	43	..	..... $1\frac{1}{4}$ miles.
Right outside chimney of old house.....	343	05	..	..... $1\frac{1}{4}$ miles.

FODDER.

*General locality.*—Western shore of Patuxent River on the southern side of the mouth of Swanson Creek about 1 mile west-southwest of Leitch Wharf and  $\frac{3}{4}$  mile west-northwest of Point Judith (locally known as Teague Point). (See Chart No. 26.)

*Immediate locality.*—Observed station is on the edge of cultivated land about 10 feet above high-water mark, 4 yards west of edge of bank, and 9 yards north of another edge. Cement monument marking reference station is 15.21 meters S 60° 52' W of observed station.

*Marks.*—Observed station is center point of triangle on standard cement monument with a top 9 inches square and 8 inches above surface of ground. Reference station is center point of triangle on standard cement monument with a top about 8 inches square and 5 inches above surface ground.

References.—	°	'	''	
"Prince" (N 25° 00' E).....	0	00	00	1/2 mile.
Near peak of large house on bluff.....	17	55	..	2 miles.
Right corner of house.....	24	08	..	1 3/4 miles.
Near peak of Leitch Wharf house.....	35	11	..	1 3/4 miles.
Left peak of Leitch house.....	48	37	..	1 3/4 miles.
Front peak of house at Buena Vista.....	75	00	..	1 3/4 miles.
Chimney outside left end of house on hill.....	87	16	..	2 miles.
Near peak of small house.....	101	33	..	3/8 mile.
Large chimney on small house.....	174	43	..	1 mile.
Left side of left chimney outside Bowling house.....	211	47	..	3/4 mile.
REFERENCE STATION.....	215	52	30	15.21 meters.
Left corner of house on top of hill.....	318	27	..	1 mile.

## BUENA.

*General locality.*—Eastern shore of Patuxent River about 1 3/4 miles northeast of Benedict at place known as Buena Vista. (See Chart No. 26.)

*Immediate locality.*—Observed station is in a field on land adjoining house owned by S. V. Smith and occupied by Dr. Huggins. It is about 10 feet above high water, 8 yards east of edge of bank, and 12 yards south of a rail fence. Cement monument marking reference station is 11.11 meters N 5° 42' E of observed station and near fence.

*Marks.*—Observed station is nail in stub with top 2 inches above ground. Reference station is center point of triangle on standard cement monument.

References.—	°	'	''	
"Hallowing" (S 27° 22' W).....	0	00	00	1 1/4 miles.
Center of red roof on square house near Bene- dict.....	18	05	..	2 miles.
Canning-house stack.....	21	30	..	1 3/4 miles.
"Catholic Church Cross".....	29	04	10	1 3/4 miles.
Nail in blaze in locust tree (4 inches diameter).....	31	48	40	8.58 meters.
Left chimney of old house.....	66	15	..	3 miles.
Left chimney of old house.....	72	52	..	3 miles.
Nail in blaze on cherry tree (2 inches diam- eter).....	99	05	..	9.70 meters.
Peak of roof of large house.....	99	15	..	4 miles.
Chimney of house near Leitch Wharf.....	108	52	..	1 mile.
Nail in blaze on fence post.....	143	33	50	11.18 meters.
REFERENCE STATION.....	158	20	20	11.11 meters.
Near corner of house.....	159	44	..	25 yards.
Cherry tree on fence line (15 inches diameter).....	221	25	..	35 yards.
Double apple tree (30 inches diameter).....	290	54	..	59 yards.

## TEAGUE.

*General locality.*—Western shore of Patuxent River on point on southern side of entrance to Swan-son Creek, locally known as Teague Point, and given on chart as Point Judith. (See Chart No. 26.)

*Immediate locality.*—Observed station is on gravel and grass land about 3 feet above high water, about 11 yards from south side, 16 yards from north-northeast side, and 75 yards west by north of extreme end of point. Bushes stand between station and north side of point. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Buena" (N 85° 24' E).....	0	00	00	1½ miles.
Tangent of Teague Point.....	20	00		75 yards.
Near corner of right chimney of Gourley house near Hallowing Point.....	65	45		1¼ miles.
Canning-house stack.....	106	18		1¼ miles.
Near end of peak of hotel.....	108	12		1¼ miles.
Left one of two ivy-covered chimneys.....	110	25		1 mile.
"Catholic Church Cross".....	114	11	10	1 mile.
Chimney on Slye House.....	130	30		2 miles.
Left chimney of house on hill.....	144	57		2 miles.
Tangent of high-water mark.....	168	00		75 yards.
Near end of peak of roof.....	223	41		1 mile.
Chimney on large house on hill.....	243	20		3 miles.
Left chimney on house.....	301	17		1 mile.
Near end of peak of roof on store at Buena Vista.....	355	59		1¼ miles.

CATHOLIC CHURCH CROSS (BENEDICT).

*General locality.*—Western shore of upper Patuxent River in the town of Benedict. (See Chart No. 26.)

*Immediate locality.*—Observed station is on Catholic Church, located on the main street of the town of Benedict about one-fourth mile from the wharf.

*Marks.*—Observed station is center point of cross on church.

*References.*—None necessary.

CITY.

*General locality.*—Western shore of Patuxent River on Town Point about one-fourth mile north-northeast of Benedict steamboat wharf. (See Chart No. 26.)

*Immediate locality.*—Observed station is on gravel and shell point about 4 feet above high water, 12 yards northwest of the shore, 63 yards west-southwest of a shanty, about 100 yards west-southwest of extreme end of point, and 11 yards southeast of a slough. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Hallowing" (S 51° 21' E).....	0	00	00	½ mile.
Windmill near Sheridan Point.....	21	39		3½ miles.
Two middle chimneys at Dowells.....	21	39		3½ miles.
Left tangent of peak of wharf-house roof.....	81	34		¼ mile.
Center of roof of square house.....	84	36		½ mile.
Canning-house stack.....	95	22		¼ mile.
Nearest ivy-covered chimney of old house.....	130	14		¼ mile.
"Catholic Church Cross".....	142	58	50	¼ mile.
Left square chimney of house.....	245	42		1¾ miles.
Near end of peak of roof of Huggins house.....	280	54		1½ miles.
Near corner of shanty.....	300	44		63 yards.
Right chimney of Gourley house.....	339	20		¾ mile.
Chimney of old building behind wharf.....	352	01		¾ mile.

## HALLOWING.

*General locality.*—Eastern shore of Patuxent River on point opposite Benedict, known locally as Holland Point, but given on charts as Hallowing Point. (See Chart No. 26.)

*Immediate locality.*—Observed station is on a rounded gravel and grass point about 250 yards south of wharf on Holland Point, about 2 feet above high water, 10 yards north of shore, 8 yards east of shore, and 15 yards outside of a group of locust trees, sugar-berry trees, and bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"City" (N 51° 21' W).....	0	00	00	¾ mile.
Left end of peak of roof of wharf house on Holland Point.....	23	15	..	250 yards.
Chimney of store at Buena Vista.....	77	27	..	1¾ miles.
Nail in blaze in nearest one of group of four sugar-berry trees (each 8 inches diameter)...	92	24	..	12.88 meters.
Nail in blaze in sugar-berry tree (10 inches diameter).....	109	58	50	15.74 meters.
Nail in blaze in locust tree (4 inches diameter)...	167	55	40	11.90 meters.
Smokepipe on Trent Hall Wharf building.....	227	35	..	2¼ miles.
Outside chimney of detached house at Soth- orons.....	309	54	..	1½ miles.
Center of roof on square house.....	314	15	..	¾ mile.
Canning-house stack.....	333	16	..	½ mile.
"Catholic Church Cross".....	347	44	20	¾ mile.

## INDIAN.

*General locality.*—Western shore of Patuxent River on north side of entrance to Indian Creek and about one-fourth mile below Benedict steamboat wharf. (See Chart No. 26.)

*Immediate locality.*—Observed station is about 3 feet above high water, 7 yards west of shore, 16 yards northeast of a fence and a line of trees, 13 yards southwest of a lone locust tree, about 250 yards to the south-southeast of a large square house, and 125 yards east-northeast of another house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sothoron" (S 23° 11' E).....	0	00	00	1 mile.
Nail in blaze in locust tree near fence (5 inches diameter).....	33	48	50	15.57 meters.
Nail in blaze in middle branch of locust tree (6 inches diameter).....	66	24	50	19.13 meters.
Square chimney on old house.....	137	23	..	1¼ miles.
Right chimney of square house.....	188	30	..	⅛ mile.
Near end of peak of roof of hotel.....	206	26	..	¼ mile.
Canning-house stack.....	213	22	10	¼ mile.
Nail in blaze in left branch of locust tree (5 inches diameter).....	225	28	..	12.90 meters.
Right tangent of Benedict Wharf.....	228	10	..	½ mile.
Chimney of house near "Buena Vista".....	245	58	..	2¼ miles.
Chimney of Gourley house.....	270	28	..	1 mile.
Windmill at Dowell's on Sheridan Point.....	344	48	..	4¼ miles.
Left of right chimney on Dowell house.....	344	48	..	4¼ miles.



DWARF.

*General locality.*—Eastern shore of Patuxent River about 2 miles north-northwest of Sheridan Point and about 1½ miles southeast of Benedict on a point of land opposite the mouth of Indian Creek. (See Chart No. 26.)

*Immediate locality.*—Observed station is on sand and grass land about 1 foot above high-water mark, 6 yards northeast from extreme end of point, 4 yards east of one edge of shore, and 6 yards north of another edge of shore. Point on which station is located has a sugar-berry tree, several small locust trees and water bushes, and a pond behind bushes and trees about 100 yards to the east.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sothoron" (S 42° 05' W).....	0	00	00	¾ mile.
Nearest corner of top of nearest chimney on tenant house.....	80	31	..	2 miles.
Center of roof of square house.....	83	16	..	1 mile.
Nail in blaze in locust tree (4 inches diameter).....	93	38	30	4.22 meters.
Canning-house stack.....	95	03	33	1¼ miles.
"Catholic Church Cross".....	99	03	10	1¼ miles.
Left tangent of wharf.....	124	19	..	¾ mile.
Nail in sugar-berry tree (10 inches diameter).....	152	38	30	8.94 meters.
Nail in blaze in locust tree (3 inches diameter).....	196	22	20	2.68 meters.
Chimney on small house.....	258	48	..	2 miles.
Left point of peak of roof of Dowell's.....	287	30	..	2¼ miles.
Left end of peak of roof of Trent Hall Wharf.....	315	35	..	1½ miles.
Middle cupola on stable.....	321	12	20	1½ miles.
Right pillar on Sothoron house porch.....	359	21	..	1 mile.

SOTHORON.

*General locality.*—Western shore of Patuxent River on Long Point between entrances to Indian and Trent Hall creeks. (See Chart No. 26.)

*Immediate locality.*—Observed station is on sand and grass lowland about 1 foot above high-water mark among cedar trees, about 24 yards west by north of extreme end of point, 12 yards north of one edge of shore and 30 yards southwest of another edge of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Hallowing" (N 13° 51' E).....	0	00	00	1¼ miles.
Nearest chimney on Gourley house.....	3	55	..	1¼ miles.
Nail in blaze in locust tree (4 inches diameter).....	30	49	..	3.35 meters.
Left end of peak of roof of Dowell house.....	120	35	..	2¼ miles.
Middle cupola on Trent Hall stable.....	150	25	00	1¼ miles.
Point of middle attic window on John Bullinger house.....	187	42	..	1 mile.
Left pillar of porch of Sothoron house.....	206	23	..	½ mile.
Nail in blaze in cedar tree (12 inches diameter).....	242	51	50	8.12 meters.
Near corner of nearest chimney on Slye house.....	291	05	20	2 miles.
Nail in blaze in locust tree (4 inches diameter).....	302	29	40	10.83 meters.
Right one of two outside chimneys on old house on hill on property of A. B. Slye.....	307	31	..	2 miles.
Center of roof on square house.....	323	39	..	1 mile.
Nail in blaze in locust tree (6 inches diameter).....	350	24	10	12.81 meters.

## Survey of Oyster Bars, Charles County, Md.

## BUZZ.

*General locality.*—Northeast shore of Patuxent River on southwest side of Buzzards Island, near mouth of Buzzards Island Creek. (See Chart No. 26.)

*Immediate locality.*—Observed station is on marsh, clay, and grass land on wooded island about 2 feet above high water, 5 yards northeast of river shore and 40 yards northwest of extreme point of island. Cement monument marking reference station is 8.97 meters N 42° 23' E of observed station.

*Marks.*—Observed station is nail in stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Morsel" (S 25° 23' E) . . . . .	0	00	00	¾ mile.
Smokepipe on roof of storehouse . . . . .	39	11	..	2 miles.
Near corner of near chimney . . . . .	40	36	..	2 miles.
Chimney of Trent Hall . . . . .	50	48	..	1¼ miles.
Nearest of three cupolas on stable . . . . .	54	36	50	1¼ miles.
Left piazza post at Sothorons . . . . .	102	41	..	1¼ miles.
Center of roof of square house . . . . .	155	15	..	1¾ miles.
"Catholic Church Cross" . . . . .	164	56	..	2 miles.
Nail in blaze in oak tree (18 inches diameter) . . . . .	172	14	..	4.55 meters.
Nail in blaze in oak tree (18 inches diameter) . . . . .	198	36	40	13.16 meters.
Nail in blaze in oak tree (24 inches diameter) . . . . .	235	08	30	9.62 meters.
REFERENCE STATION . . . . .	252	45	45	8.97 meters.
Nail in blaze in pine tree (5 inches diameter) . . . . .	255	43	..	6.52 meters.
Chimney on house across creek . . . . .	313	23	..	¼ mile.

## BOUNDARIES OF OYSTER BARS.

### EXPLANATION.

The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the designation and employment by the Department of Commerce and Labor of such officers, experts, and other technically qualified persons "as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland." The oyster laws of Maryland provide that the Maryland Shell Fish Commissioners, with the aid of such persons as may be designated by the Government, shall proceed "to have laid out, surveyed, and designated on the said charts the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts." The oyster laws of Maryland also provide in another section that there shall "be made a true and accurate survey of the natural oyster beds, bars, and rocks \* \* \* with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey."

Under the provisions of the laws quoted above the State of Maryland, in cooperation with the Department of Commerce and Labor, must define the boundaries of the natural oyster bars "as accurately as practicable" and also "with reference to fixed and permanent objects on the shore, giving courses and distances." The requirement of "as accurately as practicable" is easily fulfilled by definition of the location of the corners of the oyster bars by latitude and longitude. In fact, this method is probably the most satisfactory and accurate one that could be used for all purposes of legal definition or for relocation of the oyster-bar boundaries by competent engineers. Therefore the additional requirement of "giving courses and distances" is superfluous and is only fulfilled in the published definitions on account of the specific provisions of the law making it compulsory. This part of the description of boundaries has involved an immense amount of extra computations in order to prevent technical discrepancies between the latitude and longitude of a corner of an oyster bar and its distance and bearing from objects on shore of known latitude and longitude without adding anything to the accuracy and very little to the convenience of practical use of the descriptions of the oyster-bar boundaries.

As provided by law the boundaries of the oyster bars are all straight lines, but in the work already completed they have inclosed areas of all shapes from triangles to complicated 14-sided figures, and of all sizes from 4 acres to 7,548 acres. The sides have varied in length from 93 to 7,529 yards, and in some cases the corners of the boundaries have been practically at the triangulation stations from which they are located, while in other instances they were over 13,600 yards from the landmarks most available for the purpose of fixing their position.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made and the magnitude of the work with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and great importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the Commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and the future.

#### METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in each county.

*Title.*—At the top of each tabular form is given the legal name of the oyster bar to be described, and the one by which it is known and designated in the published oyster records and on the oyster charts. The adopted name of the oyster bar is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission; and when there was no local name in common use a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the oyster bar was located.

Underneath the name, in parentheses, is given the general locality of the oyster bar and the serial number of the "Maryland Oyster Chart" on which its legal boundaries are shown.<sup>a</sup>

*First column.*—This column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar. Where a corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars, only the number of the corner of the oyster bar being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the Commission as the primary technical definition of the location of the corners, and should be considered as final in case of a dispute arising from discrep-

<sup>a</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

ancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations of the survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>a</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>b</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars: one, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

(1) *Triangulation.*—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation

<sup>a</sup>The mean magnetic variation for Charles County was  $5^{\circ} 20'$  west of north in 1910 and increasing at the rate of  $4'$  yearly.

<sup>b</sup>Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D. C.

rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the Commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant, the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "Stoddard" oyster bar, which is the first one described in this publication, and assume that "Corner No. 3," is to be examined as to its position. The angle between the two landmarks "Key" and "Upper" as determined from right to left from the forward bearings from this corner is  $122^{\circ} 28'$  and the angle between "Upper" and "Stoddard" is  $88^{\circ} 43'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor ("position finder"), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the

angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant then the other until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic location of a point is attained. In fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the Commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State fishery force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer can take compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>a</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks, for which the bearings are published, have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used. This can be done by getting their bearings directly from the chart by parallel rulers or a protractor and then applying these new bearings in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fifth column of the tables opposite the "corner" in question. The direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

<sup>a</sup> The mean magnetic variation for Charles County is  $5^{\circ} 20'$  west of north in 1910 and increasing at the rate of  $4'$  yearly.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

## BOUNDARIES OF NATURAL OYSTER BARS.

## STODDARD.

(Upper Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 21 30.76	76 50 51.20	N 55 14 E	S 55 15 W	Yards.	Key. Stoddard. Hayden.
			N 87 09 W	S 87 10 E	1, 199	
			S 52 52 W	N 52 52 E	856 1, 354	
2	38 21 31.00	76 51 14.34	N 37 05 W	S 37 05 E	1, 102	Upper. Stoddard. Hayden.
			N 81 54 W	S 81 54 E	244	
			S 29 24 W	N 29 23 E	947	
3	38 21 38.90	76 51 14.82	N 75 46 E	S 75 46 W	1, 663	Key. Upper. Stoddard.
			N 46 42 W	S 46 42 E	896	
			S 44 35 W	N 44 35 E	326	
4	38 21 38.74	76 50 51.60	N 67 24 E	S 67 24 W	1, 078	Key. Upper. Stoddard.
			N 64 01 W	S 64 01 E	1, 411	
			S 74 59 W	N 74 59 E	875	



Survey of Oyster Bars, Charles County, Md.

WICOMICO LUMPS.

(Upper Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 20 17.64	76 51 40.36	S 85 05 E N 15 14 W S 54 28 W	N 85 05 W S 15 14 E N 54 27 E	1,834 775 973	Fact. Burr. Bowman.
2	38 20 33.54	76 51 45.42	N 17 57 E N 18 07 W S 30 50 W	S 17 57 W S 18 07 E N 30 50 E	1,168 223 1,284	Hayden. Burr. Bowman.
3	38 21 10.18	76 50 51.08	S 84 22 E N 49 23 W S 83 30 W	N 84 22 W S 49 24 E N 83 20 E	897 1,131 1,090	Cohouck. Stoddard. Hayden.
Thence along county boundary as delineated on Chart No. 26 to corner No. 4.						
4	38 20 51.98	76 50 58.86	N 64 26 E N 60 46 W S 72 34 W	S 64 26 W S 60 46 E N 72 34 E	1,218 1,004 1,368	Cohouck. Hayden. Burr.
Thence along county boundary as delineated on Chart No. 26 to corner No. 5.						
5	38 20 20.70	76 51 13.00	N 55 17 W S 66 14 W S 76 42 E	S 55 17 E N 66 13 E N 76 42 W	1,132 1,660 1,132	Burr. Bowman. Fact.

MILLS WEST.

(Upper Wicomico River—Chart No. 26.)

1	38 19 50.98	76 51 45.74	N 2 07 W N 62 50 W S 26 44 E	S 2 07 E S 62 50 E N 26 43 W	1,648 729 1,156	Burr. Bowman. Eedling.
2	38 20 17.64	76 51 40.36	S 85 05 E N 15 14 W S 54 28 W	N 85 04 W S 15 14 E N 54 27 E	1,834 775 973	Fact. Burr. Bowman.
3	38 20 20.70	76 51 13.00	N 55 17 W S 66 14 W S 76 42 E	S 55 17 E N 66 13 E N 76 42 W	1,132 1,660 1,132	Burr. Bowman. Fact.
Thence along county boundary as delineated on Chart No. 26 to corner No. 4.						
4	38 20 00.00	76 51 11.88	N 88 54 W S 15 50 W N 67 44 E	S 88 55 E N 15 50 E S 67 44 W	1,548 1,392 1,157	Bowman. Eedling. Fact.

## Survey of Oyster Bars, Charles County, Md.

## JOES LUMPS.

(Middle Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 19 04.42	76 50 28.14	N 78 10 E	S 78 11 W	961	Farr.
			N 2 14 W	S 2 14 E	2,313	Fact.
			S 77 22 W	N 77 22 E	1,049	Gust.
2	38 19 04.52	76 51 04.74	S 12 18 W	N 12 18 E	233	Gust.
			N 84 14 E	S 84 15 W	1,923	Farr.
			N 46 57 W	S 46 57 E	779	Eedling.
3	38 19 11.00	76 51 12.82	S 19 58 E	N 19 58 W	480	Gust.
			S 89 18 E	N 89 17 W	2,128	Farr.
			N 48 33 W	S 48 33 E	474	Eedling.
4	38 19 22.46	76 51 17.14	N 47 25 W	S 47 26 E	1,913	Bowman.
			S 73 02 W	N 73 02 E	250	Eedling.
			S 18 27 E	N 18 27 W	879	Gust.
5	38 19 50.98	76 51 45.74	N 2 07 W	S 2 07 E	1,648	Burr.
			N 62 50 W	S 62 50 E	729	Bowman.
			S 26 44 E	N 26 43 W	1,156	Eedling.
6	38 20 00.00	76 51 11.88	N 88 54 W	S 88 55 E	1,548	Bowman.
			S 15 50 W	N 15 50 E	1,392	Eedling.
			N 67 44 E	S 67 44 W	1,157	Fact.
Thence along county boundary as delineated on Chart No. 26 to corner No. 1.						

## WINDMILL.

(Middle Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 18 13.28	76 50 55.00	S 20 55 E	N 20 55 W	502	Hedney.
			S 87 33 E	N 87 32 W	2,227	Lyon.
			N 11 43 W	S 11 43 E	1,523	Gust.
2	38 18 35.66	76 50 54.30	S 7 28 E	N 7 28 W	1,237	Hedney.
			S 68 56 E	N 68 55 W	2,359	Lyon.
			N 23 54 W	S 23 54 E	809	Gust.
3	38 18 45.28	76 51 04.61	S 15 43 E	N 15 43 W	1,604	Hedney.
			S 64 37 E	N 64 36 W	2,745	Lyon.
			N 7 25 W	S 7 25 E	421	Gust.
4	38 18 53.20	76 50 57.30	S 7 32 E	N 7 32 W	1,834	Hedney.
			N 71 28 E	S 71 29 W	1,809	Farr.
			N 59 02 W	S 59 02 E	289	Gust.
5	38 19 04.52	76 51 04.74	S 12 18 W	N 12 18 E	233	Gust.
			N 84 14 E	S 84 15 W	1,923	Farr.
			N 46 57 W	S 46 57 E	779	Eedling.
6	38 19 04.42	76 50 28.14	N 78 10 E	S 78 11 W	961	Farr.
			N 2 14 W	S 2 14 E	2,313	Fact.
			S 77 22 W	N 77 22 E	1,049	Gust.
Thence along the county boundary as delineated on Chart No. 26 to corner No. 7.						
7	38 18 24.45	76 50 16.82	S 44 40 W	N 44 39 E	1,189	Hedney.
			S 68 42 E	N 68 42 W	1,299	Lyon.
			N 22 31 E	S 22 31 W	1,672	Farr.

Survey of Oyster Bars, Charles County, Md.

FENWICK.

(Middle Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 17 55.86	76 50 36.14	N 69 46 W S 14 00 E N 74 04 E	S 69 46 E N 14 00 W S 74 04 W	343 1,227 1,792	Hedney. Charles. Lyon.
2	38 18 13.28	76 50 55.00	S 20 55 E S 87 33 E N 11 43 W	N 20 55 W N 87 32 W S 11 43 E	502 2,227 1,523	Hedney. Lyon. Gust.
3	38 18 24.45	76 50 16.82	S 44 40 W S 68 42 E N 22 31 E	N 44 39 E N 68 42 W S 22 31 W	1,189 1,209 1,672	Hedney. Lyon. Farr.
4	Thence along the county boundary as delineated on Chart No. 26 to corner No. 4.					
	38 17 55.98	76 50 08.16	N 63 31 E N 83 52 W S 20 30 W	S 63 32 W S 83 52 E N 20 30 E	1,095 1,072 1,275	Lyon. Hedney. Charles.

WICOMICO MIDDLE GROUND.

(Middle Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 17 26.40	76 49 42.82	S 68 36 E N 11 40 E S 80 01 W	N 68 35 W S 11 40 W N 80 00 E	1,357 1,520 1,137	Weiss. Lyon. Charles.
2	38 17 31.78	76 50 25.60	S 2 32 E N 47 54 E N 32 54 W	N 2 32 W S 47 55 W S 32 54 E	379 1,945 1,108	Charles. Lyon. Hedney.
3	38 17 55.86	76 50 36.14	N 69 46 W S 14 00 E N 74 04 E	S 69 46 E N 14 00 W S 74 04 W	343 1,227 1,792	Hedney. Charles. Lyon.
4	38 17 55.98	76 50 08.16	N 63 31 E N 83 52 W S 20 30 W	S 63 32 W S 83 52 E N 20 30 E	1,095 1,072 1,275	Lyon. Hedney. Charles.
	Thence along county boundary as delineated on Chart No. 26 to corner No. 1.					

## Survey of Oyster Bars, Charles County, Md.

## CHARLESTON CREEK.

(Middle Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 16 45.98	76 50 04.48	S 3 51 E N 64 45 E N 25 02 W	N 3 51 W S 64 45 W S 25 03 E	697 2,033 1,286	Hard. Weiss. Charles.
2	38 17 10.08	76 50 04.50	S 1 48 E N 88 17 E N 57 01 W	N 1 48 W S 88 18 W S 57 01 E	1,508 1,841 649	Hard. Weiss. Charles.
3	38 17 26.40	76 49 42.82	S 68 36 E N 11 40 E S 80 01 W	N 68 35 W S 11 40 W N 80 00 E	1,357 1,520 1,137	Weiss. Lyon. Charles.
4	38 16 55.66	76 49 32.82	Thence along county boundary as delineated in Chart No. 26 to corner No. 4.			
			N 61 31 E N 58 48 W S 37 53 W	S 61 32 W S 58 49 E N 37 53 E	1,133 1,621 1,294	Weiss. Charles. Hard.

## LANCASTER.

(Lower Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 16 26.20	76 49 48.82	S 73 19 E N 42 50 E S 85 37 W	N 73 18 W S 42 51 W N 85 37 E	2,146 2,093 371	Prec. Weiss. Hard.
2	38 16 30.22	76 50 04.42	S 15 25 E N 52 43 E N 17 50 W	N 15 25 W S 52 44 W S 17 51 E	170 2,310 1,783	Hard. Weiss. Charles.
3	38 16 45.98	76 50 04.48	S 3 51 E N 64 45 E N 25 02 W	N 3 51 W S 64 45 W S 25 03 E	697 2,033 1,286	Hard. Weiss. Charles.
4	38 16 55.66	76 49 32.82	N 61 31 E N 58 48 W S 37 53 W	S 61 32 W S 58 49 E N 37 53 E	1,133 1,621 1,294	Weiss. Charles. Hard.
5	38 16 34.94	76 49 13.42	Thence along the county boundary as delineated in Chart No. 26 to corner No. 5.			
			S 50 45 E N 67 32 E N 21 15 E	N 50 45 W S 67 32 W S 21 15 W	1,442 1,791 1,330	Prec. Blakistone. Weiss.

Survey of Oyster Bars, Charles County, Md.

ROCK POINT.

(Lower Wicomico River—Chart No. 26.)

Corner of bar-	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / "	° / "	° / "	° / "	Yards.	
1	38 15 53.62	76 49 54.98	N 77 43 E N 10 53 W S 47 24 W	S 77 43 W S 10 53 E N 47 24 E	2,271 1,090 944	Prec. Hard. Corner.
2	38 15 53.70	76 50 09.30	S 26 08 W N 79 31 E N 9 18 E	N 26 08 E S 79 32 W S 9 18 W	717 2,644 1,082	Corner. Prec. Hard.
3	38 15 56.62	76 50 23.06	S 3 53 E N 82 39 E N 29 10 E	N 3 53 W S 82 40 W S 29 10 W	744 2,991 1,110	Corner. Prec. Hard.
4	38 15 56.19	76 50 26.80	S 11 40 E N 82 38 E N 33 03 E	N 11 40 W S 82 39 W S 33 04 W	743 3,091 1,173	Corner. Prec. Hard.
5	38 15 58.92	76 50 26.82	S 10 24 E N 84 20 E N 35 42 E	N 10 24 W S 84 22 W S 35 42 W	834 3,081 1,098	Corner. Prec. Hard.
6	38 16 00.00	76 50 18.76	S 4 17 W N 84 39 E N 26 30 E	N 4 17 E S 84 40 W S 26 30 W	857 2,864 956	Corner. Prec. Hard.
7	38 16 20.60	76 50 01.98	S 18 13 W S 79 54 E N 6 59 W	N 18 13 E N 79 53 W S 6 59 E	1,632 2,443 162	Corner. Prec. Hard.
8	38 16 26.20	76 49 48.82	S 73 10 E N 42 50 E S 85 37 W	N 73 18 W S 42 51 W N 85 37 E	2,146 2,093 371	Prec. Weiss. Hard.
9	38 16 34.94	76 49 13.42	S 50 45 E N 67 32 E N 21 15 E	N 50 45 W S 67 32 W S 21 15 W	1,442 1,791 1,330	Prec. Blakistone. Weiss.
10	38 16 01.56	76 49 33.97	N 82 38 E N 43 36 W S 54 07 W	S 82 39 W S 43 36 E N 54 07 E	1,675 1,108 1,550	Prec. Hard. Corner.

## Survey of Oyster Bars, Charles County, Md.

## SHIPPING POINT.

(Lower Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 15 26.96	76 49 47.60	N 73 48 W	S 73 49 E	Yards. 930 1,830 1,858	Corner. Cobb Point Bar Light. St. Margaret 2.
			S 8 55 E	N 8 55 W		
			S 65 57 E	N 65 57 W		
2	38 15 28.40	76 50 12.00	S 26 40 E	N 26 40 W	2,078 2,480 322	Cobb Point Bar Light. St. Margaret 2. Corner.
			S 71 03 E	N 71 02 W		
			N 49 15 W	S 49 15 E		
3	38 15 42.76	76 49 57.94	N 5 03 W	S 5 03 E	1,441 676 2,406	Hard. Corner. Cobb Point Bar Light.
			S 66 04 W	N 66 04 E		
			S 13 25 E	N 13 25 W		
4	38 15 53.70	76 50 09.30	S 26 08 W	N 26 08 E	717 2,644 1,082	Corner. Prec. Hard.
			N 79 31 E	S 79 32 W		
			N 9 18 E	S 9 18 W		
5	38 15 53.62	76 49 54.98	N 77 43 E	S 77 43 W	2,271 1,090 944	Prec. Hard. Corner.
			N 10 53 W	S 10 53 E		
			S 47 24 W	N 47 24 E		
6	38 15 45.40	76 49 40.46	N 67 30 E	S 67 31 W	1,985 1,471 1,142	Prec. Hard. Corner.
			N 23 43 W	S 23 43 E		
			S 71 27 W	N 71 27 E		

## COBB POINT.

(Lower Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 14 32.61	76 49 24.30	N 45 04 E	S 45 05 W	Yards. 1,522 2,580 337	St. Margaret 2. Corner. Cobb Point Bar Light.
			N 35 52 W	S 35 53 E		
			N 85 52 W	S 85 52 E		
2	38 14 33.33	76 49 36.93	S 81 09 E	N 81 08 W	3,285 1,762 2,379	St. Catherine. St. Margaret 2. Corner.
			N 53 22 E	S 53 23 W		
			N 29 39 W	S 29 39 E		
3	38 14 38.79	76 49 53.05	S 66 46 E	N 66 45 W	467 2,035 2,030	Cobb Point Bar Light. St. Margaret 2. Corner.
			N 64 48 E	S 64 49 W		
			N 21 39 W	S 21 40 E		
4	38 15 00.00	76 50 16.60	S 49 33 E	N 49 33 W	1,386 2,473 1,173	Cobb Point Bar Light. St. Margaret 2. Corner.
			N 86 28 E	S 86 29 W		
			N 5 53 W	S 5 53 E		
5	38 15 00.00	76 49 47.48	S 17 22 E	N 17 22 W	940 1,701 1,471	Cobb Point Bar Light. St. Margaret 2. Corner.
			N 84 53 E	S 84 54 W		
			N 37 30 W	S 37 30 E		

TEAGUE.

(Upper Patuxent River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 31 26.32	76 40 15.01	N 74 28 E	S 74 29 W	Yards.	Buena. Teague. City.
			N 40 12 W	S 40 12 E	1,750	
			S 13 24 W	N 13 24 E	408	
2	38 31 47.57	76 40 25.32	S 1 23 E	N 1 23 W	405	Teague. Buena. Leitch.
			S 82 47 E	N 82 46 W	1,974	
			N 23 49 E	S 23 49 W	1,208	
3	38 31 41.00	76 40 05.60	S 88 56 E	N 88 56 W	1,436	Buena. Leitch. Teague.
			N 1 28 W	S 1 28 E	1,328	
			S 70 21 W	N 70 21 E	545	
4	38 31 31.00	76 40 00.50	N 76 34 E	S 76 35 W	1,337	Buena. Leitch. Teague.
			N 5 48 W	S 5 48 E	1,673	
			N 76 37 W	S 76 38 E	666	

ELBOW.

(Upper Patuxent River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 31 11.40	76 40 07.18	N 30 01 W	S 30 02 E	Yards.	Teague. City. Hallowing.
			S 35 30 W	N 35 30 E	942	
			S 12 36 E	N 12 36 W	844	
2	38 31 21.38	76 40 07.64	N 66 55 E	S 66 56 W	1,620	Buena. Teague. City.
			N 43 48 W	S 43 48 E	663	
			S 25 02 W	N 25 02 E	1,131	
3	38 31 23.96	76 39 59.32	N 66 36 E	S 66 37 W	1,383	Buena. Teague. City.
			N 60 02 W	S 60 03 E	784	
			S 32 10 W	N 32 10 E	1,312	
4	38 31 15.42	76 39 58.63	N 56 15 E	S 56 16 W	1,505	Buena. Teague. City.
			N 45 45 W	S 45 45 E	973	
			S 41 07 W	N 41 07 E	1,090	

## Survey of Oyster Bars, Charles County, Md.

## CARPENTERS YARD.

(Upper Patuxent River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 30 14.21	76 40 28.32	S 59 32 E N 54 22 E N 54 57 W	N 59 32 W S 54 23 W S 54 57 E	1,260 1,051 494	Dwarf. Hallowing. Indian.
2	38 30 14.56	76 40 37.12	S 63 45 E N 61 02 E N 32 13 W	N 63 44 W S 61 03 W S 32 13 E	1,471 1,240 322	Dwarf. Hallowing. Indian.
3	38 30 24.62	76 40 38.64	N 76 57 E N 21 05 E S 62 54 W	S 76 58 W S 21 05 W N 62 54 E	1,158 954 148	Hallowing. City. Indian.
4	38 30 39.94	76 40 25.60	S 71 56 E N 0 24 W S 39 18 W	N 71 56 W S 0 24 E N 39 18 E	822 373 752	Hallowing. City. Indian.
5	38 30 29.62	76 40 20.02	N 81 39 E N 11 47 W S 69 19 W	S 81 40 W S 11 48 E N 69 19 E	641 736 667	Hallowing. City. Indian.
6	38 30 24.08	76 40 27.79	N 71 36 E N 3 29 E S 83 20 W	S 71 37 W S 3 29 W N 83 20 E	886 910 421	Hallowing. City. Indian.



## APPENDICES.

### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*  
SEC. 4. That this act shall take effect from the date of its passage.

[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects herein-after expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

*Survey of Oyster Bars, Charles County, Md.*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven. \* \* \*

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[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

---

[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

---

[Act of Congress approved March 4, 1909.]

AN ACT Making appropriation for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and ten, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and ten, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of Congress approved June 25, 1910.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eleven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eleven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available fifteen thousand dollars.

[Act of the Legislature of Maryland approved April 2, 1906.]

AN ACT To establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis, and the said commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie. \* \* \*

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

\* \* \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the said to the Clerks of the Circuit court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks shall be construed in all the courts of the State to be barren bottoms and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act; provided, that the said survey and report shall not be construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act.

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the survey, is as follows:

AN ACT Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland*, That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or leveling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>a</sup> *And be it enacted*, That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses (to be by them sworn or affirmed and examined), shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted*, That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

<sup>a</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from Second Report of Shell Fish Commission.]

OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland, had a twofold object in view:

1. To encourage an industry in oyster culture upon the *barren bottoms* beneath the tidewaters of the State.
2. To prevent the leasing of *natural oyster bars* for the purpose of oyster culture."

SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."

DEFINITION OF A NATURAL OYSTER BAR.

NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, charting and buoying them, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the Commission."

DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturists, may be made to yield a greater number of oysters than they now produce."

"It should be evident to every one that neither of these definitions could be adopted by the Commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by *oystermen* on one hand and by *oyster culturists* on the other is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd *v.* Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed and is as follows:

What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them, and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters, within the meaning of the Act of Assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the Act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and can not be located or appropriated by any individual.

#### APPLICATION OF DEFINITION.

Before this definition may be of use in determining, accurately and scientifically, the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors, and these factors must be combined into a practical scheme of investigating the condition of the ground under consideration.

Stated briefly, a *livelihood* is represented by a *sum of money* obtained from the sale, at a fixed *price*, of a certain *quantity of oysters* gathered in a given *time* from an allotted *area* of ground.

Knowing the value of each of these factors it becomes possible to calculate the number of oysters an oyster ground must produce per square yard in order that oystermen may secure a livelihood by working upon it.

NOTE.—The factors into which the Commission resolved the livelihood problem, the value assigned to each factor, and the scheme devised for practical use in examining and applying the definition to oyster bottoms are given in outline in their second report under the heading of the preceding extract, and in detail in their first report on pages 32 to 69.

#### APPENDIX C.—SUMMARY OF THE PARTICULAR SURVEYING OPERATIONS WHICH CONSTITUTE AN "OYSTER SURVEY" AS NOW BEING CARRIED ON IN MARYLAND.

*Explanation.*—A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest practical accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

*Triangulation survey.*—Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a framework or foundation. Therefore, a triangulation survey including the permanent marking of the positions of landmarks with monuments and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

*Topographic survey.*—The technical records which establish the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the leasable bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore, a topographic survey is a necessary operation of a complete oyster survey.

*Hydrographic survey.*—In the settlement of the important question of what is, or what is not, a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore, a hydrographic survey is a necessary operation of a complete oyster survey.

*Necessary foundation for an oyster survey.*—Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

*Special surveys and investigations pertaining to oysters.*—Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>a</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding boat party in addition to the usual hydrographic work.<sup>b</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells or absence of shells.

The special oyster investigations<sup>c</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affect the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

*Preparation of results.*—The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>d</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for publication by the Government, the preparation of that part of the annual report of the Commission covering the special oyster surveys and investigations, the making of the leasing charts and finished projections, and finally the filing of the oyster charts and records with the courts and the Commission, thus opening a county for oyster culture.

*Summary.*—From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

<sup>a</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>b</sup> See pages 104 to 123 of "First Annual Report of Maryland Shell Fish Commission."

<sup>c</sup> See pages 30 to 67 and 129 to 199 of "First Annual Report of Maryland Shell Fish Commission."

<sup>d</sup> No mention is made here of the large amount of administrative work of the Commission, which is greatly complicated and increased by the effect of the oyster-survey operations on many thousands of people whose interests are more or less involved; or of the large amount of survey work involved in the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

## Survey of Oyster Bars, Charles County, Md.

APPENDIX D.—STATISTICS OF RESULTS OF THE COMBINED OYSTER SURVEY OPERATIONS OF THE GOVERNMENT AND STATE.<sup>a</sup>

Operations.	Anne Arundel County.	Somerset County.	Wicomico County.	Worcester County.	Calvert County.	Charles County.	Total. <sup>b</sup>
Beginning of field work.....	June 20, 1906	May	Aug. 27, 1907	Nov. 8, 1907	May 2, 1908	Aug. 18, 1908	.....
Filing of certified charts and reports.....	June 20, 1907	July	Dec. 1, 1908	Apr. 12, 1909	Dec. 14, 1909	Jan. 27, 1911	.....
Natural oyster bars surveyed and delineated.....	91	37	15	28	41	15	227
Acres of natural oyster bars.....	33,666	27,596	2,038	1,655	12,393	2,285	679,515
Crab bottoms surveyed and delineated.....	.....	54	.....	.....	.....	.....	54
Acres of crab bottoms.....	.....	32,108	.....	.....	.....	.....	32,108
Clam beds surveyed and delineated.....	.....	3	.....	.....	.....	.....	3
Acres of clam beds.....	.....	506	.....	.....	.....	.....	506
Boundary buoys located and planted.....	362	154	53	108	140	51	877
Triangulation landmarks established.....	123	86	39	48	78	42	305
Miles of shore line covered by triangulation.....	110	125	46	95	95	32	487
Square miles of water covered by triangulation.....	220	375	44	110	157	20	902
Miles of examination of shell bottom with chain apparatus.....	369	296	58	63	250	38	1,074
Oyster investigation stations occupied.....	440	679	102	147	667	113	2,208
Tide stations established.....	4	3	1	1	2	1	12
Number of soundings over shell bottoms.....	37,049	17,904	3,387	3,649	11,292	1,631	74,912
Square miles covered by soundings and chain apparatus.....	58	47	3	3	30	4	135
Projections prepared and plotted.....	9	13	2	5	8	3	38
Leasing charts prepared.....	13	12	2	3	5	2	37
Oyster charts published.....	4	6	2	3	5	1	21
Reports published.....	2	2	2	2	2	2	8
Progress maps published.....	2	2	2	2	2	2	8

<sup>a</sup> These statistics do not include the large amount of triangulation, topography, and hydrography resulting from previous work of the Coast and Geodetic Survey, which was utilized in the preparation of the published oyster charts and records. Work in St. Marys, Baltimore, Kent, Queen Anne, and Dorchester counties has been finished, but final statistics of results will not be published until the summer of 1911.

<sup>b</sup> Less quantities covered by statistics of more than one county.

<sup>c</sup> Total area of natural oyster bars of Connecticut is 5,770 acres.

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COAST AND GEODETIC SURVEY  
 PROGRESS MAP  
 CHARLES COUNTY  
 MARYLAND

To accompany report of work of United States  
 Coast and Geodetic Survey in cooperation  
 with the Maryland Shell Fish Commission.

1910

Projection I.

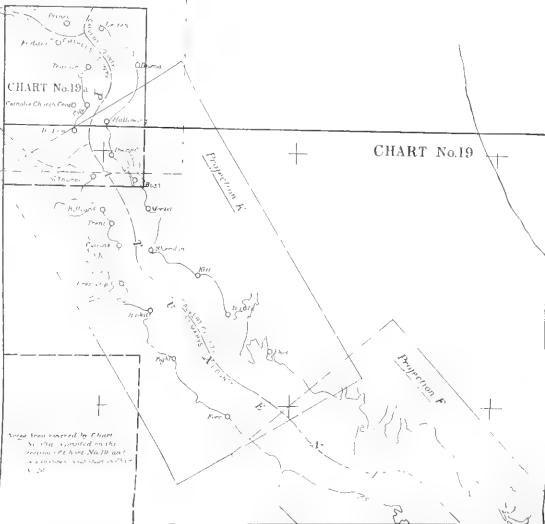
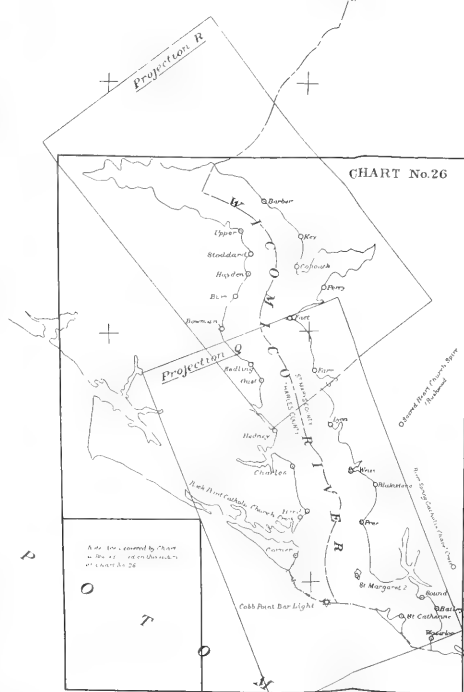


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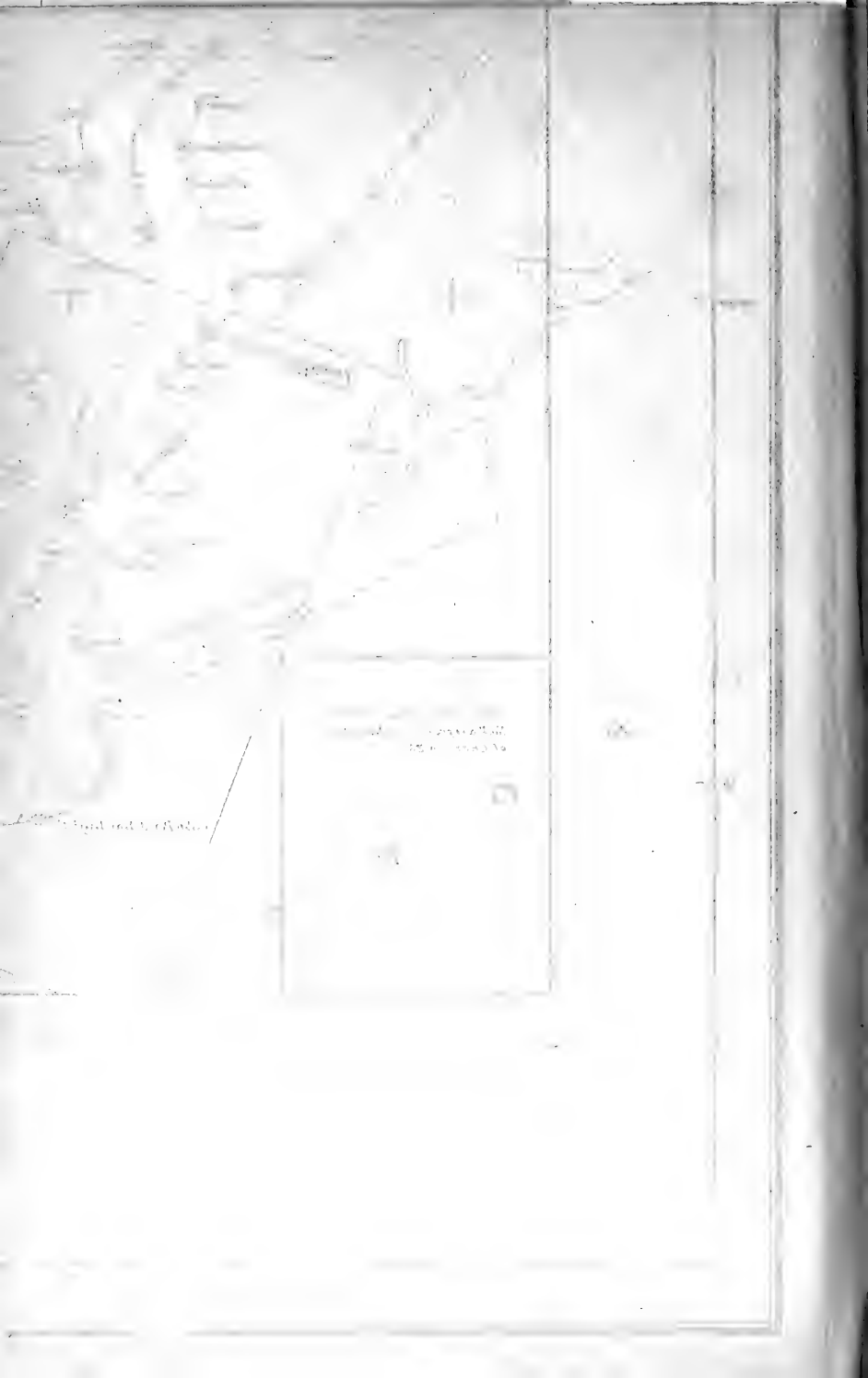
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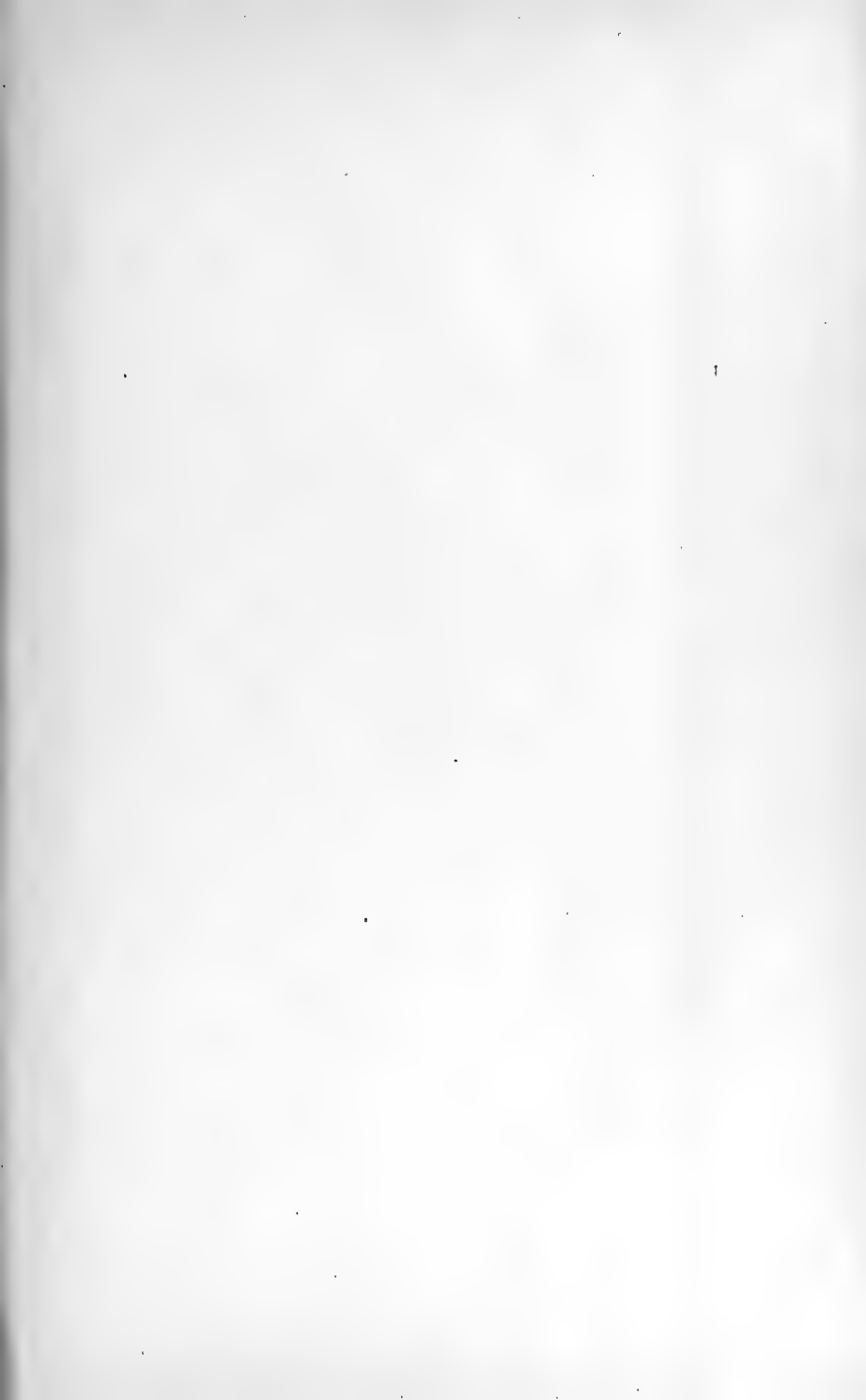


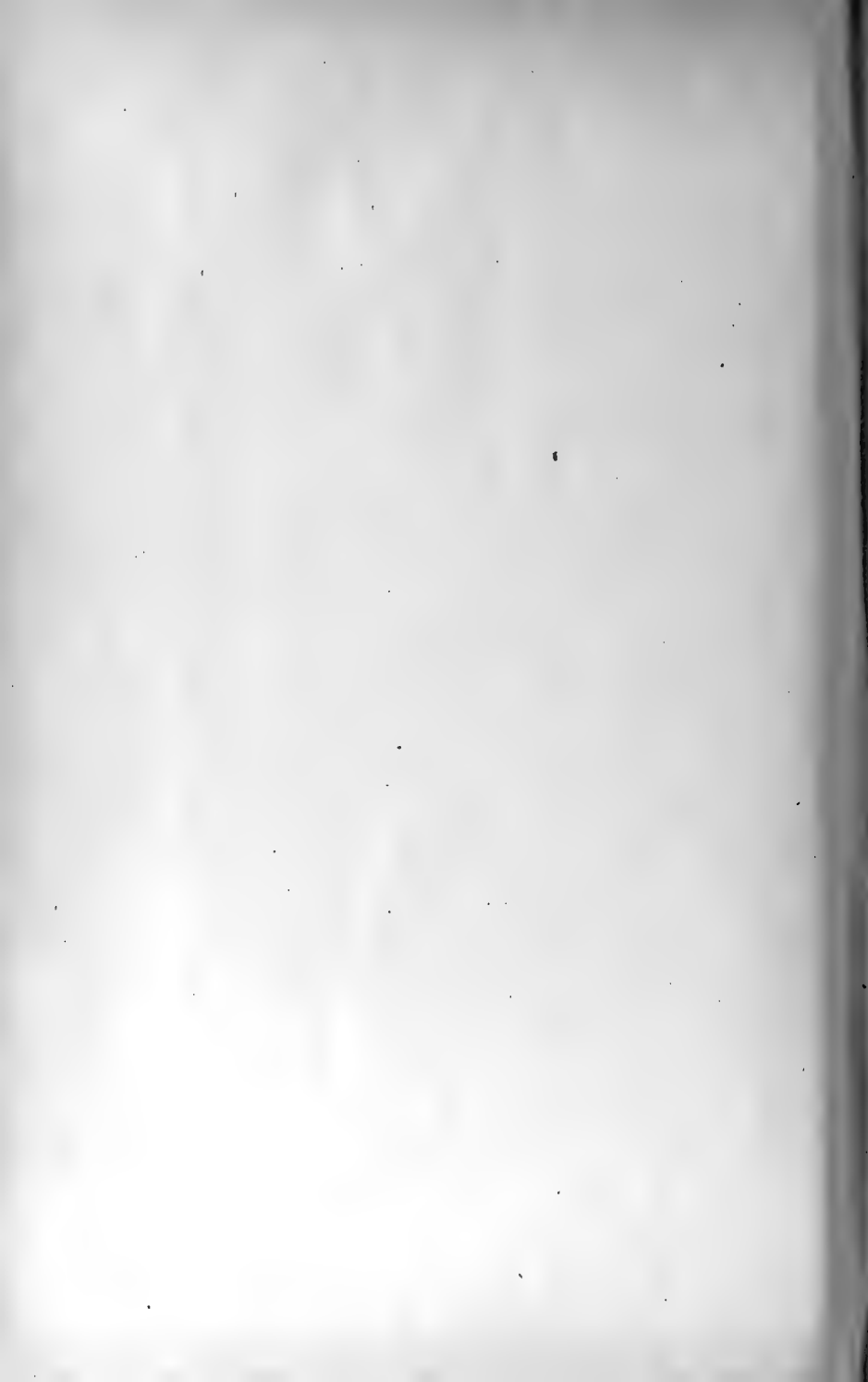
- Landmarks Coast Survey Triangulation Stations
- Waters contiguous to county
- - - Waters within territorial limits of county
- Limits of projections on file at Washington
- Limits of charts published by Coast and Geodetic Survey



R I V E R







DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY

O. H. TITTMANN Superintendent

---

# SURVEY OF OYSTER BARS

## DORCHESTER COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND  
REPORT OF WORK OF UNITED STATES COAST  
AND GEODETIC SURVEY IN COOPERATION  
WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND  
SHELL FISH COMMISSION

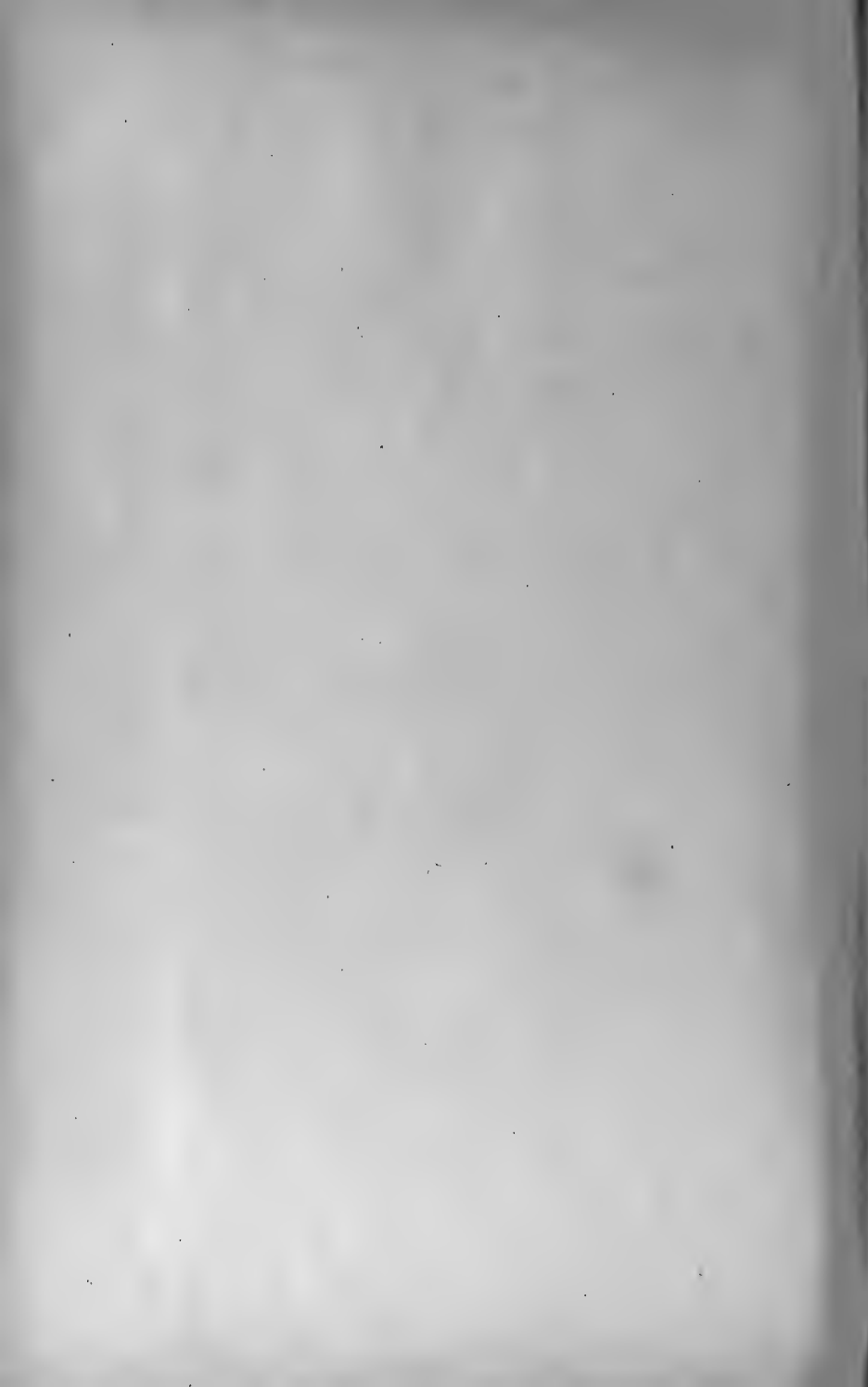
By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE

1912





## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,

*Washington, August 17, 1912.*

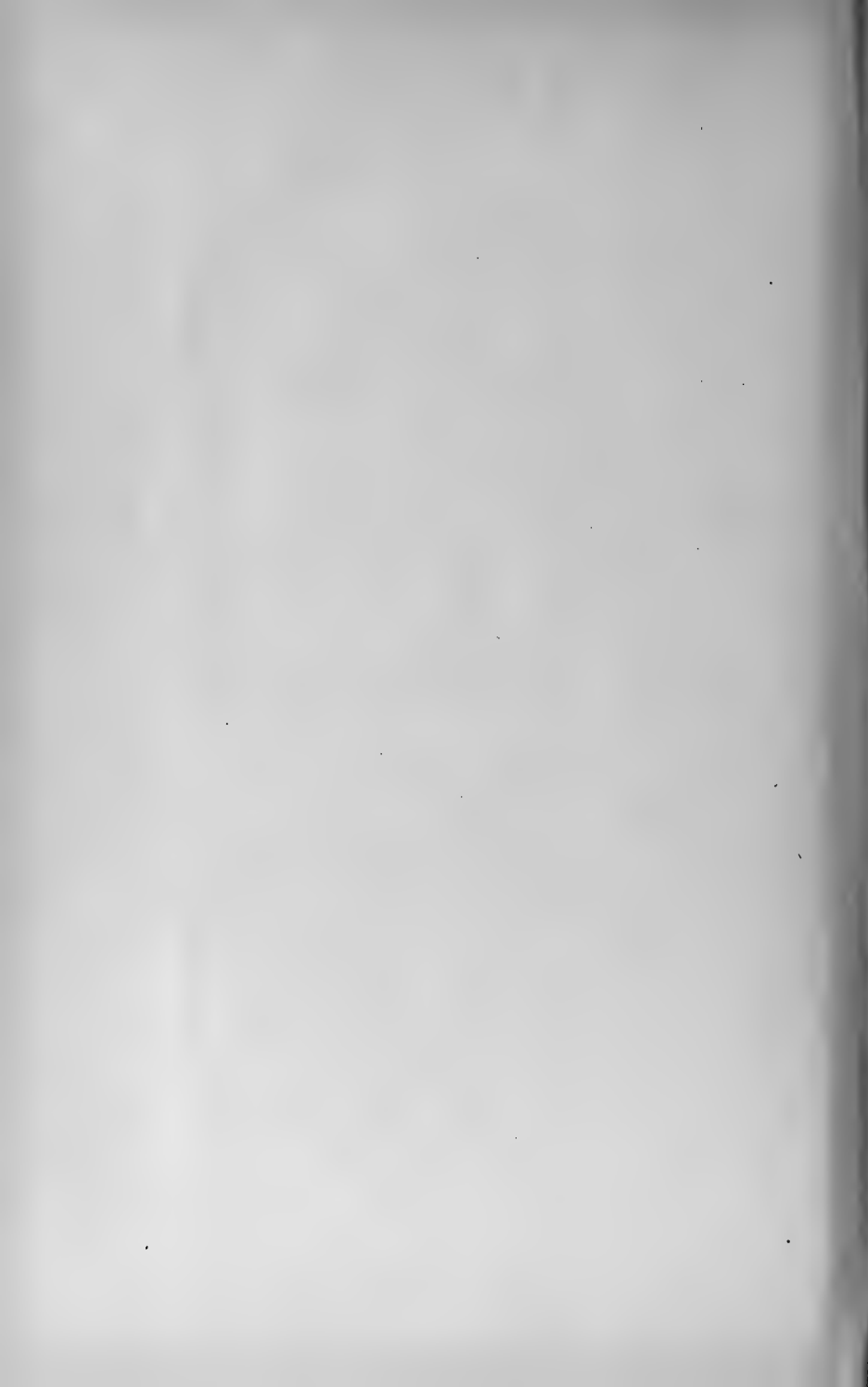
SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, together with certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the Shell Fish Commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, 1909, 1910, 1911, and 1912.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To Hon. CHARLES NAGEL,  
*Secretary of Commerce and Labor.*



## CERTIFICATION.

---

BALTIMORE, MD., *May 4, 1912.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in Dorchester County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,

*Chief of Coast and Geodetic Survey Party,*

*Assistant, Coast and Geodetic Survey.*

---

BALTIMORE, MD., *May 4, 1912.*

Examined and certified to be correct.

WALTER J. MITCHELL,

CASWELL GRAVE,

BENJAMIN K. GREEN,

*Maryland Shell Fish Commission.*

SWEPSON EARLE,

*Hydrographic Engineer.*

NOTE.—Certified copies of this publication and of the charts of the natural oyster bars of Dorchester County were filed in the office of the clerk of the circuit court of Dorchester County and in the office of the Board of Shell Fish Commissioners on August 17, 1912.



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# SURVEY OF OYSTER BARS, DORCHESTER COUNTY, MD.

## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws<sup>1</sup> authorizing the work and the natural division of the surveying operations<sup>2</sup> of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consist of a series of charts and a technical report for each county surveyed.<sup>3</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey in charge of the work of that service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.<sup>4</sup>

The publications prepared and issued by the State under the direction of the Shell Fish Commission consist of annual reports<sup>5</sup> of all the operations of the Commission performed under the provisions of the laws of Maryland,<sup>6</sup> including results of biological and economic oyster investigations, methods and results of the hydrographic survey of

<sup>1</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>2</sup> See Appendix C for a summary of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland.

<sup>3</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C. The publications now ready for issue are those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, St. Marys, Baltimore, Kent, Queen Annes, Talbot, and Dorchester Counties.

<sup>4</sup> The technical records and charts for each county are published separately on account of the requirements of the oyster-culture laws of the State and the practical considerations which make it desirable to have each county "opened up" for oyster culture as soon as practicable after the completion of its survey. For these reasons and the fact that these reports are each arranged for distribution and use in one county only without reference to other published records, much of the text of this publication is of necessity identical with similar previous publications for other counties.

<sup>5</sup> These reports can be obtained by application to the Shell Fish Commission, Marine Bank Building, Baltimore, Md. They are issued annually in October, and the first, second, third, and fourth reports are now available for distribution.

<sup>6</sup> See Appendix B for an extract from the "Second Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman oyster culture law."

the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.<sup>1</sup>

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential as a foundation for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>2</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL STATEMENT OF WORK OF COAST AND GEODETIC SURVEY.<sup>3</sup>

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need very little other summary than is indicated by the published "Charts of Natural Oyster Bars" and the index of hydrographic projections and triangulation stations shown on the county progress maps attached to each report.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, Assistant, Bureau of Fisheries.

<sup>3</sup> For a detail statement of the very large amount of excellent oyster survey work of the Maryland Shell Fish Commission see the "Annual Reports of the Maryland Shell Fish Commission."



The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars, but also to the Government for any future work it may do in the regions covered by the oyster-survey operations.

The hydrographic projections and published charts are prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various shell-fish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to and permanently fixed by published technical descriptions, which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way, and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County":

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last 65 years.

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REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY IN  
DORCHESTER COUNTY.

INSTRUCTIONS.

The following letters, together with the laws<sup>1</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the survey at Washington, have proved very beneficial to the work and are greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

LAWRENCE O. MURRAY, *Assistant Secretary.*

His Excellency Hon. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the Commissioners, prepare a program of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. and G. S. Steamer Endeavor, Baltimore, Md.*

ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides

<sup>1</sup> For these laws see Appendix A.

the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the field and the preparation for publication of oyster charts and technical records in the office at Washington.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster*, the Coast and Geodetic Survey party has had the constant use of the large launch *Inspector* and several other boats furnished by its own service, and the occasional use of the Bureau of Fisheries launch *Canvasback*<sup>1</sup> and the steamer *Governor McLane*<sup>2</sup> of the State Fishery Force.

The greater part of the equipment of instruments for the operations of both the Government and State has been furnished by the Coast and Geodetic Survey and consists of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

#### CHRONOLOGICAL STATEMENT OF WORK.

The field work of the Coast and Geodetic Survey in Dorchester County dates from March 14, 1910, when a subparty was organized and sent out to complete certain unfinished details of triangulation in Talbot County and to take up the overlapping triangulation between Dorchester and Talbot Counties.<sup>3</sup> This party first went to St. Michaels, then to Cambridge, and finally to Oxford, where the main party on the house boat was joined at the end of April.

On April 30, 1910, the house boat *Oyster* was towed from Baltimore by the State steamer *McLane* to an anchorage in Tar Creek near Bellevue. While at this harbor the house boat was cleaned, painted, and generally overhauled for the season's work, and at the same time triangulation was carried on in Choptank River and its tributaries.

On May 30, 1910, the house boat shifted her anchorage to Tred Avon River off Oxford, from which point a small amount of field work was done in Dorchester County along with the work in Talbot County.

On June 30, 1910, the *Oyster* was towed to an anchorage off Cambridge, where she remained until the completion of the overlapping field work in Choptank River of both Dorchester and Talbot Counties.

On July 20, 1910, the house boat *Oyster* was towed from Cambridge to an anchorage off Solomons Island in the mouth of the Patuxent River. A greater part of the field work along the Chesapeake Bay shore of Dorchester County was carried on from this harbor. During weather too rough to work in the open Chesapeake Bay, considerable work was also done from this point in checking up descriptions of triangulation stations required for the preparation of the publications covering Calvert, St. Marys, and Charles Counties.

<sup>1</sup> By courtesy of Dr. H. F. Moore, United States Bureau of Fisheries.

<sup>2</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>3</sup> The field work of Dorchester County was so intermixed with that of Talbot County that the chronological statement of the work in one of these counties necessarily includes a considerable part of the work of the other county.

On August 11, 1910, the *Oyster* was moved across the Chesapeake Bay to an anchorage in Honga River off Hoopers Island Wharf. A greater part of the oyster-survey work along the lower Chesapeake Bay shore of Dorchester County, as well as that of Honga River and Fishing Bay, was carried on from this point as headquarters.

On September 30, 1910, the field work in the southern half of Dorchester County being completed, the house boat *Oyster* was towed by the steamer *McLane* to the Little Choptank River and anchored off the town of Madison, where she remained for over two months while oyster-survey operations were being carried on in the Little Choptank River and its many tributaries.

On December 4, 1910, the house boat *Oyster* was moved to the northern side of Little Choptank River to an anchorage in the mouth of Hudson Creek, where she remained in spite of bad weather and ice until the practical completion of the oyster-survey work in Dorchester County.

On December 15, 1910, the field work of Dorchester County was completed, and as this was the last county to be surveyed, this date also marks the completion of all the field work of the Maryland Oyster Survey, with the exception of the two days, the 20th and 21st of June, 1912, when a small party, under the charge of Mr. Frank W. Seth, surveyman in the Coast and Geodetic Survey, was put in the field to complete necessary details of triangulation in Talbot and Dorchester Counties.

The office work connected with the oyster survey of Dorchester County, including the computations of geographic information and the drafting necessary for the preparation for publication of the oyster charts and the technical records of that county, was carried on intermittingly with the office work of other counties from the beginning of the field work in Dorchester County on March 14, 1910, to the time of filing of the certified oyster charts and technical records in the archives of the Maryland Shell Fish Commission and with the clerk of the circuit court of Dorchester County on August 17, 1912.

STATISTICS.<sup>1</sup>

Landmarks and triangulation signals erected. . . . .	156
Monuments planted to mark triangulation stations. . . . .	156
Triangulation stations occupied for observations of horizontal angles. . . . .	161
Old triangulation stations recovered. . . . .	65
New triangulation stations established. . . . .	125
Total old and new triangulation stations marked and described. . . . .	190
Linear miles of shore line covered by triangulation (approximate). . . . .	270
Square miles covered by triangulation (approximate). . . . .	330
Hydrographic projections prepared and completed as records of oyster boundaries. . . . .	21
Triangles computed. . . . .	380
Geographic positions computed. . . . .	170
Corners of oyster bar and crab bottom boundaries established by computation. . . . .	671
Back azimuths and distances computed from corners of boundaries to triangulation stations. . . . .	2,013
Descriptions of triangulation stations prepared for publication. . . . .	190
Descriptions of oyster bar and crab bottom boundaries prepared for publication. . . . .	135
"Charts of Natural Oyster Bars" prepared for publication. . . . .	8
Progress map prepared for publication. . . . .	1

<sup>1</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of this county, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the Commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland. See Appendix D of this publication for "Statistics of results of combined operations of the Government and the State."

## GENERAL REMARKS.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore, of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unflinching tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the Commission, who, as editor of the Commission's annual report and commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Mr. Benjamin K. Green, treasurer of the Commission, who has looked after the equipment and commissary of the house boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Mr. Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

And to the many others connected with the Commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

## CHARTS AND MAPS.

### CHARTS OF NATURAL OYSTER BARS.<sup>1</sup>

The charts of the natural oyster bars of Dorchester County published by the Coast and Geodetic Survey from results of the surveys of the Government in cooperation with the Maryland Shell Fish Commission consist of eight sheets covering all the oyster-producing waters of that county. They are published on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{8}$  inches to a statute mile) and are constructed on polyconic projections; and all information shown on them is based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars and other boundaries established by the Commission, and are certified for the purpose of filing in the office of the clerk of the circuit court of Dorchester County and in the office of the Maryland Shell Fish Commission, as required by the oyster laws of Maryland.

In addition to the oyster bar and other boundaries, the charts show the location and name of all landmarks (United States Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography<sup>2</sup> necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the heading "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a particular oyster bar or landmark which is only known by name, consult the "Contents" and the desired chart and general location will be indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> Much of the detail of the inshore topography was obtained from the excellent map of Dorchester County, prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the United States Geological Survey.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shell fish industries. The 1-fathom contour (6 feet) and the 5-fathom curve (30 feet) correspond in a general way to the inner and outer limits of all the oyster bars surveyed. The 3-fathom contour (18 feet) furnishes the curve of about the average depth of water on the oyster bars, and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" and the boundaries of the "waters contiguous to the county" opened up for the leasing with Dorchester County are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart within the boundaries of the different shell fish bottoms.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Dorchester County, like those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, St. Marys, Baltimore, Kent, Queen Annes and Talbot counties, have been prepared under the direction of the hydrographic engineer of the Commission. They are constructed on polyconic projections on the scales of 1 part in 5,000 or 1 part in 10,000 as the needs of oyster culture may require, and the information shown on them is based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts have been divided by parallels of latitude and meridians of longitude into small rectangles of 1 acre or 5 acres, as may be best suited to the area under consideration, and prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as possible.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in the Marine Bank Building at Baltimore.



PROJECTIONS.

The polyconic projections<sup>1</sup> covering Dorchester County waters are 21 in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, but the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission were plotted by the draftsman of the Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the archives of the Shell Fish Commission.

PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the United States Coast and Geodetic Survey in Dorchester County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress maps<sup>2</sup> accompanying the first and second annual reports of the Maryland Shell Fish Commission were prepared under the direction of the hydrographic engineer of the Commission. They are on the scale of 1 part in 400,000, and show the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey.

<sup>1</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>2</sup> These maps and reports can be obtained by application to Maryland Shell Fish Commission, Marine Bank Building, Baltimore, Md.

## BOUNDARIES OF THE COUNTY WATERS.<sup>1</sup>

### WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>2</sup> between the waters "within the territorial limits" of Dorchester County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the "oyster" charts and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:<sup>3</sup>

Commencing at the head of the oyster-producing waters of Choptank River on the channel boundary line between Dorchester County and Talbot County; thence following the channel boundary line between Talbot County and Dorchester County down the upper Choptank River to a point situated about half way between the town of Choptank and Cabin Creek; thence continuing down the channel boundary line of the upper Choptank River as laid down on "Chart No. 35, Natural Oyster Bars, Maryland" around Chancellors Point and pass the city of Cambridge to the entrance of upper Choptank River between Castle Haven Point and Island Creek; thence along the boundary line between Talbot County and Dorchester County in the lower Choptank River as laid down on "Charts Nos. 36 and 37, Natural Oyster Bars, Maryland," to a point in the Chesapeake Bay entrance of the lower Choptank River defined by the intersection of this boundary line with a straight line defined at its northwestern end by a point situated on Blackwalnut Point in latitude  $38^{\circ} 40' 06.6''$  and longitude  $76^{\circ} 20' 24.7''$  and defined at its southeastern end by a point situated on Cook Point in latitude  $38^{\circ} 37' 55.7''$  and longitude  $76^{\circ} 17' 28.7''$ ; thence in a straight line across the southeastern half of the Chesapeake Bay entrance of the lower Choptank River to a point situated on Cook Point defined by latitude  $38^{\circ} 37' 55.7''$  and longitude  $76^{\circ} 17' 28.7''$ ; thence in a southeasterly direction along the mean low-water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on the northern side of Tripps Bay defined by latitude  $38^{\circ} 36' 10.4''$  and longitude  $76^{\circ} 16' 21.8''$ ; thence in a straight line across the eastern end of Tripps Bay to a point situated on the southern side of the eastern end of Tripps Bay defined by latitude  $38^{\circ} 35' 52.7''$  and longitude  $76^{\circ} 16' 05.1''$ ; thence in a southwesterly direction along the mean low-water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on the northeastern side of the entrance of Brannock Bay defined by latitude  $38^{\circ} 35' 33.9''$  and longitude  $76^{\circ} 16' 23.8''$ ; thence in a straight line across the entrance of Brannock Bay to a point situated on Mills Point on the southwestern side of the entrance of Brannock Bay defined by latitude  $38^{\circ} 35' 07.2''$  and longitude  $76^{\circ} 17' 13.2''$ ; thence in a southwesterly direction along the mean low-water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on Hills Point on the northern side of the entrance of Little Choptank River defined by latitude  $38^{\circ} 33' 48.6''$  and longitude  $76^{\circ} 18' 41.8''$ ; thence in a straight line across the entrance of Little Choptank River to a point situated on James Island on the southern side of Little Choptank River defined by latitude  $38^{\circ} 31' 44.9''$  and longitude  $76^{\circ} 20' 01.9''$ ; thence following the northern and western side of James Island along the mean low-water line or across the mouth of all inlets less than

<sup>1</sup>For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>2</sup>See "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and the progress map at the end of this publication.

<sup>3</sup>Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.

100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on the southern end of James Island defined by latitude  $38^{\circ} 30' 07.6''$  and longitude  $76^{\circ} 20' 19.3''$ ; thence in a straight line across the entrance of Oyster Creek to a point situated on the southern side of the entrance of Oyster Creek defined by latitude  $38^{\circ} 29' 51.9''$  and longitude  $76^{\circ} 20' 25.4''$ ; thence in a southeasterly direction along the mean low-water line across the mouth of all inlets less than 100 yards in width, as the case may be, along the eastern shore of Chesapeake Bay across the entrance of Punch Island Creek to a point situated on the northern side of the entrance between two marsh islands into the extreme northern end of Tar Bay defined by latitude  $38^{\circ} 22' 48.6''$  and longitude  $76^{\circ} 16' 46.7''$ ; thence in a straight line across the entrance of the northern end of Tar Bay to a point situated on the northern end of a marsh island defined by latitude  $38^{\circ} 22' 33.6''$  and longitude  $76^{\circ} 16' 45.0''$ ; thence in a southerly direction following the western side of a marsh island along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on the southern end of a marsh island on the northern side of the main northern entrance of Tar Bay defined by latitude  $38^{\circ} 21' 49.2''$  and longitude  $76^{\circ} 16' 31.0''$ ; thence in a straight line across the main northern entrance of Tar Bay to a point situated on the northern end of Barren Island defined by latitude  $38^{\circ} 20' 53.4''$  and longitude  $76^{\circ} 16' 01.5''$ ; thence following the western and southern side of Barren Island along the mean low-water line or across the mouth of all inlets less than 100 yards in width, as the case may be, to a point situated on the southern end of Barren Island defined by latitude  $38^{\circ} 18' 39.8''$  and longitude  $76^{\circ} 14' 37.5''$ ; thence in a straight line across the southern entrance of Tar Bay to a point situated on Pons Point on the western side of Upper Hooper Island defined by latitude  $38^{\circ} 18' 24.0''$  and longitude  $76^{\circ} 13' 27.5''$ ; thence in a southeasterly direction following the western side of Upper Hooper Island, Middle Hooper Island, and Lower Hooper Island along the mean low-water line or across the causeways and bridges connecting these islands and the mouths of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on the southern side of Lower Hooper Island on the northwestern side of the entrance of Hooper Strait defined by latitude  $38^{\circ} 13' 57.7''$  and longitude  $76^{\circ} 07' 56.5''$ ; thence in a straight line across the Chesapeake Bay entrance of Hooper Strait to a point situated on the northwestern side Bloodworth Island on the southern side of the entrance of Hooper Strait defined by latitude  $38^{\circ} 11' 40.6''$  and longitude  $76^{\circ} 05' 25.2''$ ; thence in a southerly direction following the western side of Bloodworth Island along the mean low-water line or across the mouth of all inlets less than 100 yards in width, as the case may be, to a point situated on the southwestern end of a part of Bloodworth Island known as Billys Island defined by latitude  $38^{\circ} 09' 23.8''$  and longitude  $76^{\circ} 05' 09.1''$ ; thence in a straight line across the channel between Billys Island and Adam Island to a point situated on the northern end of Adam Island defined by latitude  $38^{\circ} 09' 14.7''$  and longitude  $76^{\circ} 05' 14.0''$ ; thence following the northern and western side of Adam Island along the mean low-water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on the southern end of Adam Island defined by latitude  $38^{\circ} 08' 16.4''$  and longitude  $76^{\circ} 05' 09.0''$ ; thence in a straight line across the channel between Adam Island and Holland Island to a point on the northern end of Holland Island defined by latitude  $38^{\circ} 08' 06.6''$  and longitude  $76^{\circ} 05' 27.8''$ ; thence in a southerly direction following the western side of Holland Island along the mean low-water line or across the mouth of all inlets less than 100 yards in width, as the case may be, to a point on the southern end of Holland Island defined by latitude  $38^{\circ} 06' 36.4''$ ; and longitude  $76^{\circ} 05' 31.6''$ ; thence in a straight line to a point situated on the boundary line between Dorchester County and Somerset County on the southern side of the Chesapeake Bay entrance of Holland Straits about  $1\frac{1}{2}$  miles north-northeast of Holland Island Bar Light defined by latitude  $38^{\circ} 04' 40.8''$  and longitude  $76^{\circ} 04' 14.8''$ ; thence in a straight line along the Holland Straits boundary line between Dorchester County and Somerset County to a point on the western side of Pry Island on the eastern side of Holland Straits defined by latitude  $38^{\circ} 05' 44.1''$  and longitude  $76^{\circ} 03' 44.6''$ ; thence in a straight line along the Holland Straits boundary line between Dorchester County and Somerset County across the mouth of Pry Cove to a point on the western side of a small marsh island on the eastern side of Holland Straits defined by latitude  $38^{\circ} 06' 39.9''$  and longitude  $76^{\circ} 03' 17.8''$ ; thence in a straight line diagonally across Holland Straits along the boundary line between Dorchester County and Somerset County to a point on the southeastern side of Bloodworth Island on the northwestern side of Holland Straits defined by latitude  $38^{\circ} 08' 50.6''$  and longitude  $76^{\circ} 01' 53.4''$ ; thence in a straight line across the western half of Upper Tangier Sound along the boundary line between Dorchester County and Somerset County to a point situated in Tangier Sound about  $1\frac{3}{8}$  miles west of upper land end of Deal Island Wharf and  $2\frac{3}{8}$

miles south by east of Sharkfin Shoal Light defined by latitude  $38^{\circ} 10' 08.1''$  and longitude  $76^{\circ} 58' 40.6''$ ; thence in a straight line along the Tangier Sound boundary line between Dorchester County and Somerset County to a point in Tangier Sound entrance of Nanticoke and Wicomico Rivers situated about  $\frac{3}{8}$  mile east-southeast of Sharkfin Shoal Light defined by latitude  $38^{\circ} 11' 50.3''$  and longitude  $75^{\circ} 58' 20.8''$  thence along the boundary line between Dorchester County and Somerset County, up the channel of Nanticoke River, pass Roaring Point and Ragged Point to a point on the channel boundary line between Dorchester County and Somerset County situated about 2 miles north of the town of Bivalve, all as laid down on "Chart No. 41, Natural Oyster Bars, Maryland," thence continuing up the Nanticoke River along the channel boundary line between Dorchester County and Somerset County to the head of the oyster-producing waters.

#### WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the United States Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners in the city of Baltimore," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county and the waters contiguous to but not within the territorial limits of adjacent counties.

This boundary line has been delineated on the "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and is technically described and defined as follows:<sup>1</sup>

Commencing at a point in the Chesapeake Bay entrance of the lower Choptank River defined by the intersection of the boundary line between Dorchester County and Talbot County as laid down on "Charts Nos. 36 and 37, Natural Oyster Bars, Maryland," with a straight line defined at its northwestern end by a point situated on Blackwalnut Point in latitude  $38^{\circ} 40' 06.6''$  and longitude  $76^{\circ} 20' 24.7''$  and defined at its southeastern end by a point situated on Cook Point in latitude  $38^{\circ} 37' 55.7''$  and longitude  $76^{\circ} 17' 28.7''$ ; thence along the boundary line between Dorchester County and Talbot County passing into Chesapeake Bay south of Sharps Island as laid down on "Charts Nos. 36 and 37, Natural Oyster Bars, Maryland," to a point in Chesapeake Bay about  $5\frac{1}{2}$  miles southwest of Sharps Island Light and  $5\frac{3}{4}$  miles northwest of James Island defined by latitude  $38^{\circ} 34' 29.6''$  and longitude  $76^{\circ} 26' 17.0''$ ; thence in a straight line in a southerly direction with Chesapeake Bay to a point situated in Chesapeake Bay about  $4\frac{1}{2}$  miles west of the southern end of James Island defined by latitude  $38^{\circ} 30' 00.0''$  and longitude  $76^{\circ} 25' 30.0''$ ; thence in a straight line in a southeasterly direction with Chesapeake Bay to a point situated in Chesapeake Bay about  $2\frac{5}{8}$  miles east of Cove Point Light defined by latitude  $38^{\circ} 23' 10.3''$  and longitude  $76^{\circ} 20' 00.0''$ ; thence in a straight line in a southerly direction with Chesapeake Bay to a point situated in Chesapeake Bay about  $3\frac{1}{8}$  miles northeast of Cedar Point Light defined by latitude  $38^{\circ} 19' 37.7''$  and longitude  $76^{\circ} 19' 19.0''$ ; thence in a straight line in a southerly direction with Chesapeake Bay to a point situated in Chesapeake Bay about  $2\frac{3}{4}$  miles east of Cedar Point Light defined by latitude  $38^{\circ} 17' 58.0''$  and longitude  $76^{\circ} 18' 59.7''$ ; thence in a straight line in a southeasterly direction with Chesapeake Bay to a point situated in Chesapeake Bay about  $5\frac{1}{8}$  miles west of Holland Island Bar Light in latitude  $38^{\circ} 04' 34.8''$  and longitude  $76^{\circ} 12' 01.0''$ ; thence in a straight line in an easterly direction across the eastern half of Chesapeake Bay to a point situated on Holland Island Bar Light defined by latitude  $38^{\circ} 04' 07.3''$  and longitude  $76^{\circ} 05' 45.9''$ ; thence in a straight line in a northeasterly direction toward the entrance of Holland Straits to a point situated about  $1\frac{1}{2}$  miles north-northeast of Holland Island Bar Light on the boundary line between Dorchester County and Somerset County on the southern side of the Chesapeake Bay entrance of Holland Straits defined by latitude  $38^{\circ} 04' 40.8''$  and longitude  $76^{\circ} 04' 14.8''$ .

<sup>1</sup>Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.

## LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION.

The oyster laws of Maryland authorizing the survey to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of location and character of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking a landmark has only an indefinite idea of its location. They gradually proceed from description of the general locality of a landmark to the descriptions of its immediate surroundings. This is followed by specific details of the character of the center and reference marks and a "round" of reference angles and distances which in themselves frequently contain enough information to furnish an independent and reliable location of the triangulation station.

### METHOD OF DESCRIBING TRIANGULATION STATIONS.

*The separate descriptions of triangulation stations should not be used without reading the following explanation of the method of describing the triangulation stations, as it contains certain details that are common to all the landmarks described in this publication and which are omitted in the separate descriptions as being needless repetitions:*

*Name.*—The title at the top of each separate description is the name by which the landmark or triangulation station is known and designated in all work and published oyster records or oyster charts of both the Government and State. The selection of the name is usually left to the triangulator establishing the station, and it may or may not have geographic or other significance in reference to the locality.

*General locality.*—Under this heading is given the general locality of the landmark in reference to well-known and prominent natural or artificial features, such as the nearest body of water, town, river, steamer wharf, well-defined point of land, church, or any other feature that is likely to remain both permanent and prominent.

This heading also covers a reference to the published chart or map which shows the location of the station most clearly. Nearly all the triangulation stations described in this publication are plainly indicated by name and a triangulation symbol on the published charts of oyster bars of Maryland. In this case they are referred to by serial number only, the words "charts of oyster bars of Maryland" being omitted to avoid needless repetition. These published oyster charts are on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{6}$  inches to a statute mile) and show the locations of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

*Immediate locality.*—Under this heading is given the description of the "observed station" in reference to its immediate surroundings. This is supposed to include a statement of the station's estimated elevation above high water or some other well-defined level of the locality, such as a road or house; the character of the ground on which it is located, such as marsh land, sand beach, cultivated field, or meadow; estimated bearings in points of the compass and estimated distances in yards *from (not to)* easily recognized features, such as extreme end of point, edge of bluff, bank of creek, line of telephone poles, shore line, barn, house, fence, ditch, trees, or any other definite detail, such as being on range with the tangent of an island and a church; and so forth.

When a standard monument has been established near the station as a "reference station," this heading also covers a statement of the true bearing of the monument in degrees and minutes and its measured distance in meters, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached and might be mistaken for the center mark of the "observed station" unless special attention is called to it.

The distinction between the "observed station" and "reference station" should be carefully noted by anyone making use of the description of stations for any future surveying operations.

The "observed station" is located at the particular triangulation point covered by the description of stations and is the one whose geographic position is first computed, as it is the point which was "occupied" and "observed on" for horizontal angles. However, in spite of the primary importance of the location of the "observed station," it will be noted from the description of stations that frequently it is not marked as well as the "reference station," and in some instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate "observed stations" on edges of banks and ends of points of land, which in the tidewater section of Maryland generally means they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the great need of "reference stations," if the frequent reestablishment of a new framework of triangulation is to be avoided.

The chief reason and need for the establishment of the "reference station," or secondary station, as it might be well named, is explained in the preceding paragraph, but in several instances other reasons, such as the location of the "observed station" on an unstable sand dune, in a cultivated field, in front of a residence, or other places objectionable to the landowner, have led to establishment of "reference stations." The location of the "reference station" in relation to the "observed station" is fixed

for plotting on charts or for computation of its geographic position by checked measurements of its distances and azimuth from the "observed station."<sup>1</sup>

*Marks.*—Under this heading is given a description of the character of the permanent monuments or other marks of the location of the "observed station," and of the "reference station" where one has been established.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground, unless otherwise stated.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

*References.*—Under this heading are given the "rounds" of directions and distances to all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described, this, if possible, being a lighthouse, church spire, or other permanent and prominent point. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>2</sup> of the initial object is always given in parentheses alongside its name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by horizontal angles or for the relocation of corner buoys of oyster-bar boundaries by the method of compass directions described in this publication under the heading of "Boundaries of oyster bars."

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters,"

<sup>1</sup> Geographic coordinates (latitude, longitude, distance, and azimuth) relating to any of the "observed stations" or of the "reference stations" described in this publication can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> The mean magnetic variation for Dorchester County was  $6^{\circ} 00'$  west of north in 1911 and increasing at the rate of  $5'$  yearly.

however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner the accuracy of the directions are indicated by the refinement of angular measure with which they are recorded.

#### DESCRIPTIONS OF TRIANGULATION STATIONS.

##### WEATHER BUREAU STAFF.

*General locality.*—Eastern side of Tred Avon River in the town of Oxford. (See Chart No. 35.)

*Immediate locality.*—Observed station is in park south of high and primary schools, 55 yards east of shore of Tred Avon River, 55 yards west of Morris Street, and in center of circle of trees.

*Marks.*—Observed station is center of galvanized iron staff on square galvanized angle-iron tower.

*References.*—None necessary.

##### FIRST.

*General locality.*—Eastern shore of Tred Avon River in town of Oxford about  $\frac{1}{8}$  mile north of railroad wharves. (See Chart No. 35.)

*Immediate locality.*—Observed station is about 8 feet above high water, 2 yards east-southeast of edge of bank, 4 yards east by north of point of bank, 4 yards northeast of edge of bank at small gully, 2 yards south of corner fence post, and 35 yards west of house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Bach" (S 17° 38' W) .....	0	00	00	..... $\frac{5}{8}$ mile.
Right peak of small house .....	51	59	..	..... $1\frac{3}{8}$ miles.
Right peak of modern house .....	67	10	..	..... $1\frac{5}{8}$ miles.
Left peak of small house .....	128	37	..	..... $1\frac{1}{8}$ miles.
Nail in blaze in fence post .....	207	52	00	..... 4.98 meters.
Nail in blaze in apple tree (20 inches diam- eter) .....	237	43	30	..... 11.94 meters.
Nail in blaze in apple tree (12 inches diam- eter) .....	266	24	50	..... 14.56 meters.
Windmill .....	346	43	..	..... $\frac{1}{4}$ mile.

##### BACH.

*General locality.*—Eastern shore of entrance to Tred Avon River on Bachelor Point about  $1\frac{3}{8}$  miles north-northeast of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is in cultivated field about 6 feet above high water, 30 yards east of edge of bank, 70 yards north-northeast of edge of bank on range with Choptank River Light, and 100 yards south by west of edge of bank of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Choptank River Light" (S 16° 50' W) .....	0	00	00	..... $1\frac{3}{8}$ miles.
Tangent of Benoni Point .....	55	29	..	..... $1\frac{1}{4}$ miles.
Left peak of roof of house .....	147	25	..	..... $1\frac{5}{8}$ miles.
Left corner of burnt house .....	166	05	..	..... $1\frac{1}{8}$ miles.
Right corner of house .....	211	35	..	..... $\frac{1}{4}$ mile.
Left corner of left chimney on very large house .....	240	46	..	..... $\frac{5}{8}$ mile.
"Large Water Tank" .....	338	00	20	..... $2\frac{3}{4}$ miles.



## BOONE.

*General locality.*—Northeastern shore of Choptank River about  $\frac{3}{8}$  mile northwest of entrance to Boone Creek,  $\frac{1}{2}$  mile southeast of Bachelor Point, and  $1\frac{1}{8}$  miles northeast of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is about 5 feet above high water, 13 yards northeast of edge of tree-fringed bank, 60 yards south-southwest of right corner of house, and 50 yards south-southeast of large apple tree.

*Marks.*—Observed station is center point of triangle on standard cement monument with top 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Choptank River Light" (S 33° 54' W) . . . . .	o	oo	oo	1¼ miles.
Nail in blaze in locust tree (5 inches diameter) . . . . .	21	01	40	10.26 meters.
Nail in blaze in locust tree (10 inches diameter) . . . . .	65	31	10	20.59 meters.
Near peak of house . . . . .	107	59	..	¼ mile.
Right corner of house . . . . .	159	12	..	57 yards.
Near peak of house . . . . .	195	28	..	¾ mile.
Nail in blaze in locust tree (4 inches diameter) . . . . .	323	14	oo	13.02 meters.

## ENTER.

*General locality.*—Northern shore of Island Creek on point at east side of entrance to a small cove, about  $\frac{1}{8}$  mile northeast of Choptank River, and  $1\frac{3}{8}$  miles east-northeast of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is in cultivated land about 6 feet above high water, 16 yards north of edge of bank of creek, 18 yards south-southeast of edge of bank of cove, 30 yards east-northeast of outlet of cove, and 250 yards west by south of frame house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Choptank River Light" (S 72° 00' W) . . . . .	o	oo	oo	1¾ miles.
Nail in blaze in locust tree (6 inches diameter) . . . . .	67	05	40	39.96 meters.
Nail in blaze in cedar tree (10 inches diameter) . . . . .	109	17	20	16.91 meters.
Left corner of left chimney of house . . . . .	117	35	..	2 miles.
Left corner of house . . . . .	173	35	..	¼ mile.
Near corner of house . . . . .	204	11	..	1½ miles.
"Large Water Tank" . . . . .	301	37	oo	2½ miles.
Nail in blaze in locust tree (4 inches diameter) . . . . .	357	13	40	23.93 meters.

## LANDEYE.

*General locality.*—Northeastern shore of Choptank River on point at south side of entrance to Island Creek, about  $1\frac{1}{2}$  miles east of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is in cultivated land about 5 feet above high water, 15 yards east-southeast of edge of bank, 50 yards southwest of fringe of trees and bushes, 55 yards south-southwest of point of field and end of fringe of trees and bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Choptank River Light" (S 83° 39' W).....	0	00	00	1¼ miles.
Chimney of house near Bachelors Point. ....	48	33	..	1¼ miles.
Left corner of barn.....	122	21	..	¾ mile.
Left corner of barn.....	230	18	..	¾ mile.
"Large Water Tank".....	297	25	50	2¾ miles.

## CHOPTANK RIVER LIGHT.

*General locality.*—In Choptank River about 1¼ miles southeast of Benoni Point, 1 mile south of entrance to Tred Avon River, and 8½ miles east of Blackwalnut Point. (See Charts Nos. 35 and 37.)

*Immediate locality.*—Observed station is on hexagonal screw-pile structure known as Choptank River Light House.

*Marks.*—Observed station is center of lantern on Choptank River Light House.

## References.—

	°	'	''	
Chlora (S. 57° 04' E).....	0	00	00	2¾ miles.

## BENONI 2.

*General locality.*—Northern shore of Choptank River on Benoni Point at western side of entrance to Tred Avon River, about 1¾ miles northwest of Choptank River Light. (See Progress map.)

*Immediate locality.*—Observed station is about 5 feet above high water, 9 yards south-southwest of foot of knoll and edge of marsh, 4 yards northeast of edge of bank, 25 yards east-southwest of point of bank, 30 yards north by west of point of marsh, and 100 yards southwest of a cove. Cement monument marking reference station is 7.45 meters N. 42° 02' E of observed station.

*Marks.*—Observed station is nail in center of 2 by 4 inch stub projecting 4 inches above a 4-inch tile pipe with top of pipe flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	°	'	''	
"Choptank River Light" (S 40° 01' E).....	0	00	00	1¼ miles.
"Large Water Tank".....	13	10	20	3¼ miles.
Left corner of house.....	65	40	..	4¼ miles.
Nail in blaze in waterbush.....	181	09	10	7.68 meters.
Nail in blaze in water bush.....	231	34	40	4.54 meters.
Near peak of small house.....	245	50	..	1¾ miles.
Left corner of burnt house.....	261	14	..	2 miles.
REFERENCE STATION.....	262	02	40	7.45 meters.
Peak of near gable of large house.....	277	30	..	1¾ miles.
Nail in blaze in waterbush.....	288	09	40	10.40 meters.
Left corner of house.....	306	56	..	1¾ miles.

## CHLORA.

*General locality.*—Northeastern shore of Choptank River on Chlora Point about 1½ miles south-southeast of entrance to Island Creek, 1½ miles northwest of entrance to LaTrappe Creek, and 2¾ miles southeast of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is about 8 feet above high water, 6 yards east-northeast of edge of bank, 9 yards south of wire fence, and 18 yards north of edge of bank at walnut tree. Cement monument marking reference station is 6.91 meters N. 78° 43' E of observed station.

*Marks.*—Observed station is hole in center of cement filled tile pipe 4 inches diameter, with top about 2 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above the surface of the ground.

## References.—

	°	'	''	
"Choptank River Light" (N 57° 03' W).....	0	00	00	2¾ miles.
Nail in blaze in wild cherry tree (3 inches diameter).....	74	39	10	3.11 meters.
Nail in blaze in cedar tree (4 inches diameter).....	129	31	00	9.01 meters.

References—Continued.	°	'	"	
REFERENCE STATION.....	135	46	10	..... 6.91 meters.
Nail in blaze in walnut tree (14 inches diameter).....	220	12	10	..... 16.70 meters.
Near peak of house.....	254	53	..	..... 3 miles.
Spindle on cupola.....	267	24	..	..... 2 $\frac{3}{4}$ miles.
"Large Water Tank".....	294	46	30	..... 1 $\frac{1}{2}$ miles.

## TRAPPE.

*General locality.*—Northern shore of Choptank River at west side of entrance to La Trappe Creek about 1 $\frac{1}{4}$  miles southeast of Chlora Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on grassy gravel point about 3 feet above high water, 4 yards north of shore, 6 yards east-northeast of shore, and 17 yards south by east of large cedar tree. Cement monument marking reference station is 12.62 meters N 47° 40' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 2 inches above surface of ground.

References.—	°	'	"	
"Lan" (N 25° 07' E).....	0	00	00	..... $\frac{1}{2}$ mile.
Cedar tree.....	11	05	..	..... 35 yards.
Red Beacon.....	96	50	00	..... $\frac{1}{4}$ mile.
Right chimney of house.....	130	16	..	..... 3 miles.
"Black Beacon".....	145	54	40	..... $\frac{1}{4}$ mile.
Northerly peak of Travers Wharf house.....	196	15	..	..... 2 $\frac{1}{8}$ miles.
Center of smaller water tank.....	241	02	..	..... 2 $\frac{3}{8}$ miles.
"Large Water Tank".....	241	44	30	..... 2 $\frac{3}{8}$ miles.
Nail in blaze in cedar tree (20 inches diameter).....	294	50	50	..... 7.23 meters.
REFERENCE STATION.....	350	06	40	..... 12.62 meters.
Nail in blaze in cedar tree (22 inches diameter).....	353	23	40	..... 15.99 meters.

## GRUBIN.

*General locality.*—Northern shore of Choptank River on east side of entrance to La Trappe Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on grassy marsh back of gravel beach, about 1 foot above high water, 13 yards east of shore, 13 yards south of shore, 20 yards southeast of extreme end of point, and 100 yards northwest of pond.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Howard" (S 1° 21' W).....	0	00	00	..... 2 $\frac{3}{8}$ miles.
South peak of Travers Wharf house.....	45	02	..	..... 3 miles.
"Black Beacon".....	51	56	10	..... $\frac{1}{4}$ mile.
Center of smaller water tower.....	86	56	..	..... 3 miles.
"Large Water Tank".....	87	49	30	..... 2 $\frac{3}{8}$ miles.
Red Beacon.....	90	47	10	..... $\frac{1}{4}$ mile.
South peak of shed.....	153	07	..	..... $\frac{5}{8}$ mile.
Near peak of barn.....	181	58	..	..... $\frac{3}{8}$ mile.
Nail in blaze in stump (7 inches diameter).....	194	47	40	..... 12 17 meters.
Chimney of house.....	199	51	..	..... $\frac{3}{8}$ mile.
Nail in blaze in cedar tree (5 inches diameter).....	225	34	30	..... 12.04 meters.

## BLACK BEACON.

*General locality.*—Northeastern shore of Choptank River off entrance to La Trappe Creek about  $1\frac{5}{8}$  miles northeast of Horn Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a cylindrical foundation known as La Trappe Creek Outer Light.

*Marks.*—Observed station is center point of lantern on La Trappe Creek Outer Light.

*References.*—None necessary.

## HOWELLS.

*General locality.*—Northern shore of Choptank River on Howells Point about  $1\frac{5}{8}$  miles east of Horn Point, 2 miles north of entrance to Jenkins Creek, and 2 miles northwest of Hambrooks Bar Beacon. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a long grassy gravel point about 3 feet above high water, 50 yards south-southeast of old fish shanty and trees, 25 yards south of highest level part of land, 11 yards west of shore, 3 yards east of shore, and  $\frac{1}{4}$  mile north of extreme end of Point. Cement monument marking reference station is 22.82 meters N  $17^{\circ} 53'$  of observed station.

*Marks.*—Observed station is nail in center of cedar stub in center of 4-inch tile pipe with top of pipe 4 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	°	'	"	
"Red" (N $78^{\circ} 26'$ E).....	0	00	00	..... $1\frac{5}{8}$ miles.
South peak of Kirby Wharf house.....	12	35	..	..... 2 miles.
"Hambrooks Bar Beacon".....	44	16	50	..... 2 miles.
Flagstaff on boathouse.....	57	19	..	..... $1\frac{5}{8}$ miles.
"Dicks Water Tank".....	62	22	10	..... $1\frac{3}{4}$ miles.
"Cambridge Standpipe".....	69	41	10	..... $3\frac{3}{4}$ miles.
Spindle on barn cupola.....	137	22	..	..... $1\frac{3}{4}$ miles.
"Large Water Tank".....	209	51	40	..... $3\frac{3}{8}$ miles.
"Black Beacon".....	251	22	20	..... $1\frac{1}{2}$ miles.
Nail in blaze in dead locust tree (15 inches diameter).....	285	21	50	..... 9.83 meters.
Nail in blaze in locust tree (3 inches diameter).....	294	01	40	..... 13.37 meters.
Nail in blaze in pin oak tree (11 inches diameter).....	297	59	10	..... 27.28 meters.
REFERENCE STATION.....	299	26	40	..... 22.82 meters.

## RED.

*General locality.*—Northern shore of Choptank River at eastern side of Dickinsons Bay about  $1\frac{5}{8}$  miles east-northeast of Howells Point and  $\frac{3}{4}$  mile northwest of Kirby Wharf. (See Chart No. 35.)

*Immediate locality.*—Observed station is on cultivated land on first high bluff upstream from Howells Point, about 12 feet above high water, 8 yards northeast of edge of bank, 10 yards north of edge of bank, 10 yards east of edge of bank. Cement monument marking reference station is 23.65 meters N  $89^{\circ} 58'$  of observed station and almost on line with east chimney of house.

*Marks.*—Observed station is nail in stub in center of 2-inch tile pipe with top of pipe 6 inches below surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	°	'	"	
"Hambrooks Bar Beacon" (S $3^{\circ} 39'$ E).....	0	00	00	..... $1\frac{5}{8}$ miles.
"Cambridge Standpipe".....	0	30	10	..... 3 miles.
"Dicks Water Tank".....	19	34	50	..... $1\frac{3}{4}$ miles.
Center of silo tower.....	51	38	..	..... 3 miles.
"Large Water Tank".....	102	32	50	..... $4\frac{3}{4}$ miles.
Near peak of barn with two cupolas.....	148	28	..	..... 1 mile.
REFERENCE STATION.....	229	16	20	..... 23.63 meters.
East chimney of house.....	229	38	..	..... $\frac{1}{4}$ mile.

## References—Continued.

	°	'	"	
Near peak of large barn.....	282	07	..	¾ mile.
Right peak of Kirby Wharf house.....	308	26	..	¾ mile.
Near peak of hospital.....	348	39	..	¾ miles.
"East Cambridge Tall Stack".....	351	07	40	3 miles.

## DOUBLE.

*General locality.*—Northern shore of Choptank River nearly opposite Cambridge, about 1 mile northwest of entrance to Bolingbroke Creek and 1½ miles east of Hambrooks Bar Beacon. (See Chart No. 35.)

*Immediate locality.*—Observed station is on point of marsh separated from field by a row of locust trees about 12 yards northeast of shore, 20 yards north of shore, 14 yards east of shore, and 30 yards south of a large wild cherry tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"East Cambridge Tall Stack" (S 32° 33' W) ..	0	00	00	1¾ miles.
"Dicks Water Tank".....	51	44	20	2 miles.
"Hambrooks Bar Beacon".....	60	01	00	1½ miles.
"Large Water Tank".....	76	25	40	6½ miles.
Chimney of house.....	107	34	..	2½ miles.
Nail in blaze in wild cherry tree (24 inches diameter).....	142	08	30	26.69 meters.
Nail in blaze in locust tree (5 inches diameter).....	177	10	40	24.92 meters.
Chimney outside of near end of house.....	177	29	..	½ mile.
Nail in blaze in wild cherry tree (4 inches diameter).....	207	20	40	34.66 meters.
Spindle on barn cupola.....	248	23	..	½ mile.
Chimney of house.....	320	47	..	2¼ miles.
Spindle on cupola.....	347	55	..	2 miles.
Near peak of hospital.....	354	52	..	1¾ miles.

## BOLING.

*General locality.*—Northern shore of Choptank River on an island in entrance to Bolingbroke Creek, about ¾ mile northwest of Chancellors Point and 2 miles east-northeast of Cambridge. (See Chart No. 35.)

*Immediate locality.*—Observed station is in rushes on a sandy marsh about 3 feet above high water, 6 yards northeast of shore, 7 yards north of shore, 8 yards east of shore, and 160 yards northwest by north of entrance to Bolingbroke Creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"East Cambridge Tall Stack" (S 60° 19' W) ..	0	00	00	1¾ miles.
Chimney outside of left end of mansard roof house.....	33	11	..	2½ miles.
Flagpole on boat house.....	37	05	..	2¾ miles.
"Hambrooks Bar Beacon.....	44	30	00	2¾ miles.
Nail in blaze in cedar tree (8 inches diameter).....	134	40	30	26.53 meters.
Nail in blaze in old cedar stump (13 inches diameter).....	191	39	00	5.29 meters.
Near peak of barn cupola.....	249	14	..	1¾ miles.

## Survey of Oyster Bars, Dorchester County, Md.

## References—Continued.

	o	'	"	
Near peak of barn.....	270	14	..	1½ miles.
Chimney of house.....	294	34	..	1½ miles.
Nail in blaze in cedar tree (11 inches diameter).....	300	25	40	4.56 meters.
Chimney of house.....	313	10	..	1⅝ miles.

## REAR.

*General locality.*—Northern shore of Choptank River about ¼ mile northwest of Chancellors Point, and ½ mile southeast of entrance to Bolingbroke Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is in cultivated field on bluff about 12 feet above high water, 65 yards north of edge of bank, 110 yards northeast of edge of bank and trees, 160 yards east of edge of bank, and 95 yards northwest of bottom of gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	"	
"Barber" (N 35° 22' E).....	0	00	00	1 mile.
Near corner of square cupola.....	27	51	..	¼ mile.
Chimney of house.....	78	16	..	1½ miles.
Near peak of barn cupola.....	105	00	..	1¼ miles.
Near peak of large barn.....	136	08	..	1⅜ miles.
Left peak of large barn.....	177	19	..	1¾ miles.
Barn cupola.....	214	22	..	2 miles.
"Cambridge Standpipe".....	221	13	50	2¾ miles.
"Hambrooks Bar Beacon".....	255	40	50	3 miles.
"Large Water Tank".....	257	19	00	8¼ miles.
Chimney of house.....	280	15	..	1¼ miles.
Chimney outside near end of house.....	288	83	..	1¾ miles.

## CHANCELLOR.

*General locality.*—Northern shore of Choptank River on Chancellors Point about ¾ mile north of entrance of Hurst Creek, and ¾ mile southeast of entrance to Bolingbroke Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on sand and grass point about 1 foot above high water, 35 yards west of shore, 35 yards northeast of shore, 60 yards north by west of extreme end of point, 13 yards south of line of cedar stumps, 27 yards southeast of large lone pine tree, and almost on range of Cambridge Standpipe and left peak of hospital. Cement monument marking reference station is 4.70 meters N 31° 31' W of observed station and almost on line to large lone pine tree.

*Marks.*—Observed station is nail in cedar stub in center of 4-inch tile pipe with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

## References.—

	o	'	"	
"Cambridge Standpipe" (S 78° 00' W).....	0	00	00	2⅞ miles.
REFERENCE STATION.....	70	29	10	4.70 meters.
Nail in blaze in lone pine tree (16 inches diameter).....	71	00	00	24.74 meters.
Southeast corner of square cupola.....	115	45	..	350 yards.
Nail in blaze in cedar stump (16 inches diameter).....	122	32	50	12.40 meters.
Chimney of house.....	216	38	..	1¼ miles.
Near peak of house.....	245	53	..	1⅝ miles.
Chimney on left end of house.....	282	44	..	1¼ miles.
Chimney of house.....	328	52	..	1⅝ miles.
Nail in blaze in small pine tree.....	350	04	40	23.26 meters.
Left peak of hospital.....	359	06	..	2¼ miles.

## BARBER.

*General locality.*—Northwestern shore of upper Choptank River about 1 mile north-northeast of Chancellors Point and about  $\frac{7}{8}$  mile west-southwest of Goose Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 2 feet above high water, 12 yards north-northwest of county road and shore, 45 yards west-southwest of a cabin on the county road, 25 yards west of two cedar trees just across road, and 65 yards south of a wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Duck" (N 75° 49' E).....	0	00	00	..... $\frac{7}{8}$ mile.
Nail in blaze in cedar tree (10 inches diameter).....	5	04	50	..... 19.17 meters.
Smokepipe on wharf house.....	35	48	..	..... $1\frac{1}{2}$ miles.
Near peak of house.....	57	06	..	..... $1\frac{1}{2}$ miles.
Northwest peak of house.....	92	22	..	..... $1\frac{3}{4}$ miles.
Chimney on left end of house.....	116	41	..	..... $2\frac{3}{4}$ miles.
Near peak of house with square cupola.....	133	33	..	..... $\frac{7}{8}$ mile.
Large lone tree.....	208	40	..	..... 350 yards.
Nail in blaze in cedar tree (5 inches diameter).....	309	58	40	..... 36.42 meters.
Nail in blaze in persimmon tree (5 inches diameter).....	323	12	30	..... 36.01 meters.
Near corner of barn.....	347	15	..	..... 21.96 meters.
Nail in blaze in cedar tree (10 inches diameter).....	359	16	50	..... 20.12 meters.

## DUCK. (CHOPTANK RIVER.)

*General locality.*—Northern shore of Choptank River on Goose Point about  $\frac{3}{4}$  mile north of Oyster Shell Point and  $1\frac{3}{4}$  miles northeast of Chancellors Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on edge of sand beach on lower part of point on level with high water, 15 to 20 yards southeast of a group of cedar and persimmon trees. Cement monument marking reference station is 12.61 meters N 28° 19' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	°	'	"	
"Jam" (N 35° 54' E).....	0	00	00	..... $1\frac{3}{8}$ miles.
Left peak of large barn.....	46	01	..	..... $1\frac{3}{4}$ miles.
Center of roof of house.....	82	31	..	..... $1\frac{3}{8}$ miles.
Smokepipe on wharf house.....	115	52	..	..... $\frac{7}{8}$ mile.
Left peak of barn cupola.....	160	21	..	..... 2 miles.
Near corner of square chimney of house.....	174	03	..	..... $2\frac{3}{4}$ miles.
Chimney of house.....	192	50	..	..... 4 miles.
Near corner of square cupola on house.....	197	16	..	..... $1\frac{5}{8}$ miles.
Nail in blaze in persimmon tree (2 inches diameter).....	238	59	40	..... 21.22 meters.
REFERENCE STATION.....	295	47	30	..... 12.61 meters.
Nail in blaze in persimmon tree (3 inches diameter).....	297	48	50	..... 15.20 meters.
Nail in blaze in cedar tree (3 inches diameter).....	332	27	20	..... 14.28 meters.

## JAM.

*General locality.*—Western shore of Choptank River on Jamaica Point opposite entrance to Warwick River. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh point about 3 feet above high water, 25 yards west-northwest of end of wharf, 7 yards north of county road, 11 yards northeast of county road, 13 yards south of shore, 8 yards west-southwest of shore, and 30 yards north by east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	"	
"Spindle" (N 14° 53' W).....	0	00	00	..... 3/8 mile.
Chimney outside near end of house.....	16	33	..	..... 2 miles.
Chimney of large house.....	19	46	..	..... 2 miles.
"Wick".....	76	04	00	..... 3/4 mile.
Chimney of house.....	82	48	..	..... 1 1/8 miles.
Left chimney of large brick house.....	90	07	..	..... 1 1/2 miles.
Left corner of wharf house.....	95	57	20	..... 49.81 meters.
Right corner of wharf house.....	108	14	00	..... 46.85 meters.
Nail in first plank on level part of wharf.....	110	03	50	..... 24.94 meters.
Near peak of large barn.....	144	56	..	..... 1 1/2 miles.
Chimney of house.....	171	30	..	..... 2 miles.
Near peak of house.....	202	51	..	..... 2 1/4 miles.
Near peak of house near wharf.....	211	21	..	..... 2 miles.
Right peak of barn cupola.....	218	30	..	..... 2 1/2 miles.
Near corner of fence.....	269	38	..	..... 1/4 mile.

## SPINDLE.

*General locality.*—Western shore of upper Choptank River about 3/8 mile north of Jamaica Point Wharf. (See Chart No. 35.)

*NOTE.*—This triangulation landmark was destroyed before this publication was prepared, and therefore it is not described, although its name and location are shown on Chart No. 35.

## BANK.

*General locality.*—Western shore of upper Choptank River about 1 mile north-northwest of Jamaica Point, and 1 1/4 miles southwest of entrance to Cabin Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is in a cultivated field on a tree fringed bluff about 20 feet above high water, 10 yards northwest of edge of bluff, 10 yards west of edge of bluff, and 12 yards north of edge of bluff.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	"	
"Raccoon" (N 19° 26' E).....	0	00	00	..... 5/8 mile.
Left chimney of modern house.....	5	55	..	..... 1 1/4 miles.
Nail in blaze in branch of double oak tree (12 and 18 inches diameter).....	34	56	40	..... 7.03 meters.
Chimney of house in woods.....	54	30	..	..... 1 1/2 miles.
Chimney of shanty in woods.....	86	07	..	..... 1 1/8 miles.
Chimney of house.....	103	23	..	..... 1 3/4 miles.
Nail in blaze in oak tree (8 inches diam- eter).....	124	13	10	..... 8.55 meters.
Nail in blaze in cedar tree (7 inches diam- eter).....	161	00	10	..... 21.11 meters.
Front peak of house.....	168	29	..	..... 1/8 mile.



## RACCOON.

*General locality.*—Western shore of upper Choptank River about  $\frac{3}{8}$  mile south of entrance to a small creek,  $1\frac{1}{2}$  miles north of Jamaica Point, and 1 mile west of entrance to Cabin Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is between 2 clumps of trees on sandy marsh about 2 feet above high water, 8 yards northwest of shore, 12 yards west of shore, 16 yards north of shore, and 200 yards southeast of woods beyond marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	'	''	
"Blind" (N $52^{\circ}$ 15' E).....	0	00	00	..... $\frac{3}{4}$ mile.
Chimney outside near end of house.....	34	22	..	..... $1\frac{3}{4}$ miles.
Near peak of modern house.....	41	07	..	..... $1\frac{1}{8}$ miles.
Chimney of house.....	77	59	..	..... $1\frac{3}{4}$ miles.
Near peak of house.....	105	09	..	..... 2 miles.
Chimney of house.....	113	14	..	..... $3\frac{1}{8}$ miles.
Near peak of Jamaica Point Wharf house.....	120	42 <sup>00</sup>	..	..... $1\frac{1}{2}$ miles.
Left corner of house.....	144	31	..	..... 1 mile.
Nail in blaze in oak tree (10 inches diameter). 155	21	50	.....	12.66 meters.
Nail in blaze in large pine tree (12 inches diameter).....	204	45	40	..... 37.12 meters.
Nail in blaze in oak tree (10 inches diameter). 329	46	20	.....	26.50 meters.
Chimney outside near end of house.....	350	04	..	..... $\frac{5}{8}$ mile.

## BLIND.

*General locality.*—Northwestern shore of Choptank River about  $\frac{1}{2}$  mile west-northwest of entrance to Cabin Creek, and 2 miles north of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh point between river and line of locust tree about 1 foot above high water, 11 yards north of shore, 15 yards west of shore, 16 yards northeast of shore at duck blind, and 25 yards east by north of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	'	''	
"Up" (N $61^{\circ}$ 44' E).....	0	00	00	..... $\frac{3}{4}$ mile.
Chimney outside of near end of old house....	47	17	..	..... 1 mile.
Peak of side gable of modern house.....	57	24	..	..... $1\frac{1}{4}$ miles.
Right peak of Jamaica Point Wharf house ...	131	24	..	..... 2 miles.
Chimney on house.....	162	44	..	..... $1\frac{1}{4}$ miles.
Nail in blaze in locust tree (4 inches diameter).....	201	23	50	..... 10.28 meters.
Nail in blaze in locust tree (4 inches diameter).....	226	50	20	..... 7.53 meters.
Nail in blaze in locust tree (6 inches diameter).....	270	06	10	..... 5.72 meters.
Nail in blaze in locust tree (10 inches diameter).....	322	04	50	..... 14.25 meters.

## UP.

*General locality.*—Northwestern shore of upper Choptank River about  $\frac{3}{4}$  mile north of entrance to Cabin Creek and  $2\frac{1}{2}$  miles north-northeast of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 55 yards northwest of extreme end of point, 25 yards west of shore, and 20 yards north of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 8 inches above surface of marsh. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Myrtle" (S 60° 25' E).....	0	00	00	..... $\frac{3}{8}$ mile.
Peak of side gable of modern house.....	34	14	..	..... 1 mile.
Chimney of old house.....	36	10	..	..... $\frac{3}{8}$ mile.
Tangent of point.....	77	45	..	..... 1 mile.
House.....	111	45	..	..... $1\frac{1}{8}$ miles.
Tangent of point.....	122	02	..	..... $\frac{3}{8}$ mile.
House.....	273	00	..	..... $1\frac{1}{2}$ miles.
Tangent of point.....	305	15	..	..... 175 yards.

## MYRTLE.

*General locality.*—Eastern shore of upper Choptank River about  $\frac{1}{2}$  mile north of entrance to Cabin Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 17 yards east of shore, 20 yards south of extreme end of point, 15 yards southwest of small gut, and 250 yards west of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Hut" (S 7° 47' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Left peak of old barn.....	6	41	..	..... $\frac{3}{8}$ mile.
Tangent of point.....	32	14	..	..... $\frac{1}{8}$ mile.
Chimney of house.....	53	01	..	..... 2 miles.
Chimney outside east end of house.....	78	42	..	..... $1\frac{1}{4}$ miles.
Near peak of shanty.....	157	18	..	..... $\frac{3}{4}$ mile.
Stack of cannery at Choptank.....	180	51	..	..... $2\frac{3}{4}$ miles.
Left peak of house.....	194	19	..	..... $2\frac{1}{4}$ miles.
Tangent of point.....	203	56	..	..... $\frac{1}{4}$ mile.
Right peak of roof showing over woods.....	314	37	..	..... $\frac{3}{4}$ mile.
Large lone pine tree.....	333	11	..	..... 300 yards.

## HUT.

*General locality.*—Eastern shore of upper Choptank River on north side of entrance to Cabin Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 15 yards east of shore, 50 yards northwest of shore, 20 yards northeast of extreme end of point, 90 yards southwest of a hut, and 80 yards south-southwest of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"House" (S 46° 38' W).....	0	00	00	..... $\frac{3}{4}$ mile.
Chimney of house.....	25	27	..	..... $1\frac{3}{4}$ miles.
Chimney outside of house.....	60	33	..	..... $1\frac{3}{4}$ miles.
Cupola on barn.....	132	48	..	..... $2\frac{1}{2}$ miles.
Right corner of hut.....	173	53	20	..... 90 yards.

## References—Continued.

	°	'	''	
Chimney outside near end of old house . . . . .	242	13	..	½ mile.
Peak of near gable of modern house . . . . .	281	42	..	½ mile.
Right peak of old barn . . . . .	337	43	..	¾ mile.

## HOUSE.

*General locality.*—Eastern shore of Choptank River about ¼ mile south of entrance to Cabin Creek, 1 mile north of entrance to Warwick River, and on south side of a small cove. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 14 yards south of shore, 26 yards southeast of shore, 35 yards southwest by west of shore and mouth of small creek in marsh and 175 yards north of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Saw" (S 6° 22' W) . . . . .	0	00	00	¾ mile.
Two pine trees . . . . .	5	49	..	..
Left peak of shanty . . . . .	126	49	..	1 ½ mile.
Chimney outside near end of house . . . . .	131	06	..	1 ¾ miles.
Near peak of house . . . . .	137	29	..	1 ¾ miles.
Tangent of point . . . . .	172	07	..	¼ mile.
Stack of cannery at Choptank . . . . .	189	09	..	4 miles.
Near peak of house . . . . .	193	59	..	4 ½ miles.
Near peak of shack . . . . .	219	48	..	¾ mile.
Cut in woods . . . . .	348	16	..	½ mile.

## SAW.

*General locality.*—Eastern shore of Choptank River about ¼ mile northeast of entrance to Warwick River, and 1 mile northeast by east of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 22 yards east of shore, 26 yards southeast of shore, 37 yards northeast of shore, 200 yards west-northwest of dense woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Wick" (S 19° or' W) . . . . .	0	00	00	½ mile.
Right peak of Jamaica Point Wharf house . . . . .	24	57	..	1 mile.
Left corner of very wide chimney on brick house . . . . .	32	14	..	1 ¼ miles.
Right corner of railing on roof of house . . . . .	70	36	..	1 ¾ miles.
Chimney of house . . . . .	86	44	..	1 ¼ miles.
Near peak of house . . . . .	135	04	..	1 ¼ miles.
Chimney outside left end of house . . . . .	152	42	..	2 miles.
Cupola or steeple . . . . .	181	04	00	5 miles.
Near corner of brick house . . . . .	311	51	..	½ mile.

## WICK.

*General locality.*—Eastern shore of upper Choptank River on northern side of entrance to Warwick River about ¾ mile northeast of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on sandy ridge between beach and marsh about 2 feet above high water, 8 yards northeast of shore, 10 yards north of shore, 9 yards east of shore, 100 yards southeast by east of extreme end of point, and 35 yards northwest of two pine trees. Cement monument marking reference station is 8.26 meters N 25° 00' E of observed station.

*Marks.*—Observed station is nail in cedar stub with top flush with the surface of the ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

<i>References.</i> —	°	'	"	
"War" (S 2° 08' E).....	0	00	00	..... 5/8 mile.
Near peak of house in trees.....	2	21	..	..... 5/8 mile.
Smoke pipe on wharf house.....	27	13	..	..... 2 3/8 miles.
Tangent of Goose Point.....	45	55	..	..... 1 7/8 miles.
Right peak of Jamaica Point Wharf house... ..	62	29	..	..... 5/8 mile.
Right corner of very wide chimney on brick house.....	68	42	..	..... 7/8 mile.
Left corner of cupola on roof.....	115	10	..	..... 1 1/8 miles.
Near peak of house.....	167	00	..	..... 2 3/8 miles.
REFERENCE STATION.....	207	07	20	..... 8.26 meters.
Nail in blaze in pine tree (12 inches diameter).....	296	59	10	..... 30.06 meters.
Right pine tree.....	325	53	20	..... 400 yards.

## WAR.

*General locality.*—Eastern shore of upper Choptank River on southern side of entrance to Warwick River about 3/4 mile east-southeast of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on northern side of point of marsh about 1 foot above high water, 45 yards south of shore, 35 yards southeast of shore, 45 yards east of shore, and 35 to 45 yards southwest to west of woods. Cement monument marking reference station is 4.95 meters S 12° 18' E of observed station.

*Marks.*—Observed station is nail in center of cedar stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Gander" (S 11° 26' W).....	0	00	00	..... 3/4 mile.
Chimney of house.....	17	12	..	..... 2 miles.
Smoke pipe on wharf house.....	23	00	..	..... 1 3/4 miles.
Left chimney of small house.....	26	05	..	..... 2 miles.
Square cupola on large house.....	45	53	..	..... 3 1/4 miles.
Left peak of house.....	66	11	..	..... 1 1/8 miles.
Right corner of very wide chimney on brick house.....	96	11	..	..... 1 mile.
Left peak of Jamaica Point Wharf house.....	105	01	..	..... 5/8 mile.
Chimney of house.....	132	50	..	..... 1 3/4 miles.
Near peak of house.....	157	00	..	..... 2 3/8 miles.
Nail in blaze in pin oak tree (10 inches diameter).....	186	09	50	..... 42.26 meters.
Nail in blaze in pine tree (11 inches diameter).....	212	30	40	..... 41.75 meters.
Nail in blaze in pine tree (12 inches diameter).....	245	18	30	..... 31.45 meters.
Nail in blaze in pine tree (12 inches diameter).....	267	08	30	..... 30.11 meters.
REFERENCE STATION.....	336	16	20	..... 4.95 meters.
Chimney of house.....	353	07	..	..... 1 mile.

## GANDER.

*General locality.*—Southeastern shore of Choptank River  $\frac{3}{8}$  mile southwest of entrance to Goose Creek, about  $1\frac{3}{8}$  miles east-northeast of Oystershell Point, and about  $1\frac{1}{8}$  miles south-southeast of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is in an uncultivated field on bank about 6 feet above high water, 19 yards east of edge of bank, 33 yards northeast of edge of bank, 33 yards southeast of edge of bank, and 155 yards west of two large cedar trees at a paling fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Chief" (S 9° 44' W).....	0	00	00	..... $\frac{5}{8}$ mile.
Chimney of house.....	28	22	..	..... $1\frac{1}{4}$ miles.
Smoke pipe on wharf house.....	40	14	..	..... $1\frac{1}{8}$ miles.
Chimney of house.....	50	00	..	..... $4\frac{1}{2}$ miles.
"Cambridge Stand Pipe".....	62	46	50	..... $5\frac{3}{4}$ miles.
Chimney outside of house.....	113	39	..	..... $1\frac{1}{4}$ miles.
Right chimney of house.....	135	48	..	..... $1\frac{1}{4}$ miles.
Near peak of Jamaica Point Wharf house.....	147	14	..	..... $1\frac{1}{8}$ miles.
Chimney of house.....	148	54	..	..... $2\frac{3}{8}$ miles.
Chimney of house.....	164	24	..	..... $3\frac{1}{4}$ miles.
Tangent of point.....	172	50	..	..... $\frac{3}{4}$ mile.
Right end of roof of long barn.....	235	04	..	..... $\frac{5}{8}$ mile.
Black walnut tree.....	282	36	..	..... 200 yards.
Chimney of house.....	344	59	..	..... $\frac{1}{4}$ mile.

## CHIEF.

*General locality.*—Southeast shore of Choptank River on a narrow neck of land between Choptank River and Indian Creek, about 1 mile east of Oystershell Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a grass strip between Choptank River and Indian Creek about 2 feet above high water, 15 yards south of river shore, 11 yards north of creek shore, 20 yards southeast of river shore, and 25 yards southwest of river shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Shell" (S 85° 11' W).....	0	00	00	..... 1 mile.
Smoke pipe on wharf house.....	0	42	..	..... $\frac{3}{4}$ mile.
Nail in blaze in locust tree (3 inches diam- eter).....	13	37	10	..... 11.76 meters.
Right corner of railing on house.....	78	32	..	..... 2 miles.
Near peak of house.....	91	47	..	..... $3\frac{5}{8}$ miles.
Right corner of square chimney.....	114	47	..	..... $\frac{1}{2}$ mile.
Near corner of barn.....	144	05	..	..... $\frac{1}{4}$ mile.
Nail in blaze in cedar tree (6 inches diam- eter).....	167	07	10	..... 22.07 meters.
Stack of cannery.....	208	56	20	..... $\frac{3}{8}$ mile.
Peak of house between two chimneys.....	253	32	..	..... $\frac{1}{4}$ mile.
Nail in blaze in cedar tree (8 inches diam- eter).....	348	04	50	..... 13.81 meters.
Near peak of cottage.....	358	38	..	..... 1 mile.

## SHELL.

*General locality.*—Southeastern shore of Choptank River on Oyster Shell Point about  $\frac{3}{4}$  mile south of Goose Point and  $1\frac{1}{2}$  miles east-northeast of Chancellors Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 100 yards north of rail fence, 55 yards southwest of shore, 75 yards south of shore, 400 yards west of a wharf, 250 yards west by north of a small house near the shore, 50 yards west by north of corner of fence. Cement monument marking reference station is 2.27 meters N  $83^{\circ} 07'$  W of observed station.

*Marks.*—Observed station is nail in cedar stub flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 5 inches above the surface of the ground.

*References.*—

	o	'	"	
"Whitehall" (S $41^{\circ} 55'$ W).....	0	00	00	$\frac{5}{8}$ mile.
Lone tree.....	29	12	..	225 yards.
"Cambridge Standpipe".....	35	39	00	$4\frac{1}{2}$ miles.
Right corner of square cupola.....	39	24	..	$1\frac{1}{2}$ miles.
REFERENCE STATION.....	54	57	50	2.27 meters.
Chimney of left end of house.....	83	10	..	$1\frac{1}{8}$ miles.
Near peak of large house.....	150	53	..	$1\frac{7}{8}$ miles.
Near peak of Jamaica Point Wharf house.....	158	17	..	$1\frac{7}{8}$ miles.
Right peak of building.....	177	29	..	$2\frac{5}{8}$ miles.
Chimney on house.....	205	20	..	$1\frac{3}{4}$ miles.
Smoke pipe on wharf house.....	221	13	..	$\frac{1}{4}$ mile.
Near peak of shed.....	265	40	..	150 yards.
Near peak of house.....	280	06	..	300 yards.

## WHITEHALL.

*General locality.*—Southeastern shore of Choptank River about  $\frac{5}{8}$  mile southwest of Oystershell Point, and  $1\frac{1}{8}$  miles east of Chancellors Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point among water bushes about 12 yards south-southeast of shore, 13 yards south-southwest of shore, and 15 yards east-southeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Ferry" (S $55^{\circ} 08'$ W).....	0	00	00	$1\frac{1}{4}$ miles.
Chimney of house.....	10	50	..	$2\frac{3}{4}$ miles.
"Cambridge Stand Pipe".....	27	22	40	4 miles.
Right of square cupola.....	46	16	..	$1\frac{1}{8}$ miles.
Left chimney on long house.....	99	58	..	$1\frac{1}{4}$ miles.
Chimney outside near end of house.....	137	20	..	$1\frac{7}{8}$ miles.
Near peak of large building.....	144	31	..	$2\frac{3}{8}$ miles.
Front peak of Jamaica Point Wharf house.....	150	00	..	$2\frac{1}{2}$ miles.

## FERRY.

*General locality.*—Southern shore of Choptank near east side of entrance to Hurst Creek about  $2\frac{1}{2}$  miles east of Cambridge. (See Chart. No. 35.)

*Immediate locality.*—Observed station is on a sand beach about on level with high water, 92 yards east-northeast of Hurst Creek, 1 yard southeast of shore, and 6 to 10 yards northwest to north of several low cedar trees. Cement monument marking reference station is 16.74 meters S  $50^{\circ} 12'$  E of observed station.

*Marks.*—Observed station is nail in pine stub in center of 2-inch tile pipe with top of pipe 6 inches below surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	''	
"E. Cambridge Tall Stack" (N. 81° 21' W) ..	0	00	00	..... 2½ miles.
"Hambrooks Bar Beacon" .....	24	05	10	..... 3½ miles.
Near peak of large house with cupola .....	79	37	..	..... 1 mile.
Near peak of barn cupola .....	99	22	..	..... 2 miles.
Near peak of Jamaica Point Wharf house .....	116	23	..	..... 3¾ miles.
Nail in blaze in cedar tree (11 inches diameter) .....	193	07	00	..... 6.82 meters.
REFERENCE STATION .....	211	09	00	..... 16.74 meters.
Nail in blaze in cedar tree (8 inches diameter) .....	242	42	50	..... 8.32 meters.
Nail in blaze in cedar tree (16 inches diameter) .....	279	49	00	..... 9.76 meters.
Chimney of house .....	338	10	..	..... 1¾ miles.

## SHOAL.

*General locality.*—Southern shore of Choptank River near entrance to a small creek about 1 mile east-southeast of Cambridge 1½ miles west-southwest of Chancellors Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is in woods on a point of land about 10 feet above high water, 50 yards east of edge of bank, 6 yards southwest of wire fence at edge of high land, 7 yards south of wire fence, 11 yards west of wire fence, 13 yards west-southwest of large double oak tree, and 90 yards east of a marsh point at a creek. Cement monument marking reference station is 6.08 meters S 23° 44' W of observed station.

*Marks.*—Observed station is center of tile pipe with top 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

<i>References.</i> —	°	'	''	
"Cambridge" (N 46° 31' W) .....	0	00	00	..... 1¾ miles.
Large chimney of house .....	25	55	..	..... 3¾ miles.
Spindle of barn cupola .....	61	31	..	..... 1¾ miles.
Left chimney of house .....	84	09	..	..... 2 miles.
Near peak of barn with cupola .....	106	11	..	..... 1¾ miles.
Nail in blaze in large double oak tree .....	120	03	20	..... 11.31 meters.
Nail in blaze in black walnut tree (8 inches diameter) .....	205	53	40	..... 10.96 meters.
Nail in blaze in cedar tree (6 inches diameter) .....	224	26	30	..... 8.05 meters.
REFERENCE STATION .....	250	15	40	..... 6.08 meters.
Nail in blaze in black walnut tree (17 inches diameter) .....	304	19	20	..... 3.19 meters.
Flagstaff on boathouse .....	358	43	..	..... 2½ miles.

## EAST CAMBRIDGE TALL STACK.

*General locality.*—Southern shore of Choptank River in the town of Cambridge on the east side of Cambridge Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is tall square brick smokestack at plant of Cambridge Manufacturing Company.

*Marks.*—Observed station is center of stack.

*References.*—None necessary.

## Survey of Oyster Bars, Dorchester County, Md.

## EAST CAMBRIDGE SPIRE.

*General locality.*—Southern shore of Choptank River in town of Cambridge on the east side of Cambridge Creek and the south side of Maryland Avenue. (See Chart No. 35.)

*NOTE.*—This triangulation landmark was torn down before this publication was prepared and therefore it is not described, although its name and location are shown on Chart No. 35.

## CAMBRIDGE STANDPIPE.

*General locality.*—Southwestern side of Choptank River in the town of Cambridge. (See Chart No. 35.)

*Immediate locality.*—Observed station is on standpipe on the north side of High Street near Pine Street.

*Marks.*—Observed station is center of cylindrical water standpipe with ornamental railing on top.

*References.*—None necessary.

## CAMBRIDGE.

*General locality.*—Southern shore of Choptank River on a point about  $\frac{3}{4}$  mile southeast of Hambrooks Bar Beacon and  $\frac{1}{2}$  mile northwest of Cambridge steamer wharf. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 30 yards west of shore, 35 yards south of shore at cut, 40 yards southwest of shore, and 3 yards southwest of barb-wire fence running northwest and southeast.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Command" (N 50° 20' W) . . . . .	0	00	00	..... $\frac{7}{8}$ mile.
"Hambrooks Bar Beacon" . . . . .	36	12	00	..... $\frac{3}{4}$ mile.
Southwest peak of Kirby Wharf house . . . . .	58	27	..	..... $1\frac{1}{4}$ miles.
Chimney outside of south end of house . . . . .	107	00	..	..... $1\frac{7}{8}$ miles.
Near one of four chimneys on large square house . . . . .	133	26	..	..... $2\frac{1}{4}$ miles.
Right chimney of large house on Chancellors Point . . . . .	146	27	..	..... $2\frac{3}{4}$ miles.
Weather vane on hotel . . . . .	235	36	..	..... $\frac{1}{2}$ mile.
Chimney of house . . . . .	328	03	..	..... $\frac{3}{4}$ mile.
Flagpole . . . . .	354	09	..	..... $\frac{3}{4}$ mile.
Flagpole on boathouse . . . . .	359	24	..	..... $\frac{3}{4}$ mile.

## HAMBROOKS BAR BEACON.

*General locality.*—Southern side of Choptank River about  $\frac{3}{4}$  mile offshore from point of land known as Hambrooks Bar, about 2 miles southeast of Howells Point and  $1\frac{1}{2}$  miles northwest of Cambridge. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a cylindrical foundation known as Hambrooks Bar Beacon.

*Marks.*—Observed station is center point of lantern on Hambrooks Bar Beacon.

*References.*—None necessary.

## DICKS WATER TANK.

*General locality.*—Southern shore of Choptank River near Hambrooks Bar about  $\frac{3}{4}$  mile southwest of Hambrooks Bar Beacon and  $\frac{1}{2}$  mile west of extreme end of Hambrooks Bar. (See Chart No. 35.)

*Immediate locality.*—Observed station is on water tank.

*Marks.*—Observed station is spindle on top of water tank.

*References.*—None necessary.



## COMMAND.

*General locality.*—Southern shore of Choptank River about  $\frac{1}{2}$  mile west-southwest of Hambrooks Bar Beacon and about  $1\frac{1}{2}$  miles northwest of Cambridge Wharf. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point inside of a fence line, about 2 feet above high water, 18 yards southeast of shore, 16 yards south of shore, 25 yards southwest of shore, and 150 yards northwest of a boathouse.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Choptank River Light" (N 49° 40' W).....	0	00	00	..... 6 $\frac{3}{4}$ miles.
Nail in blaze in fence post.....	5	33	30	..... 10.85 meters.
Near peak of large building.....	16	45	..	..... 2 $\frac{1}{4}$ miles.
Nail in blaze in fence post.....	65	08	20	..... 11.01 meters.
Left chimney of house with three dormer windows.....	68	28	..	..... 1 $\frac{7}{8}$ miles.
Near peak of Kirby Wharf house.....	86	40	..	..... 1 $\frac{1}{2}$ miles.
"Hambrooks Bar Beacon".....	121	17	50	..... $\frac{1}{2}$ mile.
Near peak of large house.....	153	10	..	..... 3 miles.
Flagstaff on boathouse.....	183	20	..	..... 150 yards.
"Dicks Water Tank".....	266	29	30	..... $\frac{1}{8}$ mile.
Nail in blaze in fence post.....	328	25	40	..... 17.23 meters.
Left chimney of old house.....	331	53	..	..... 2 $\frac{3}{4}$ miles.
"Large Water Tank".....	347	03	10	..... 5 miles.

## HOWARD.

*General locality.*—Southern shore of Choptank River, 2 miles southeast of Horn Point and about  $\frac{1}{4}$  mile northwest of entrance to Jenkins Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on cultivated land on bluff about 12 feet above high water, 25 yards southwest of edge of bluff, 30 yards south of edge of bluff, 35 yards west of edge of bluff, 45 yards west-northwest of corner of fence dividing field from marsh, and 65 yards northeast of the south one of two small poplar trees in field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Choptank River Light" (N 36° 14' W).....	0	00	00	..... 6 miles.
Near peak of barn.....	30	20	..	..... 3 $\frac{1}{2}$ miles.
"Black Beacon".....	32	16	50	..... 2 $\frac{5}{8}$ miles.
Red Beacon.....	34	11	30	..... 2 $\frac{7}{8}$ miles.
Near peak of low house in trees.....	79	52	..	..... 3 $\frac{1}{4}$ miles.
Near peak of Kirby Wharf house.....	90	53	..	..... 3 miles.
"Dicks Water Tank".....	109	57	40	..... 1 $\frac{1}{2}$ miles.
Left chimney of house.....	115	00	..	..... 1 mile.
Nail in blaze in locust tree (8 inches diameter).....	125	51	50	..... 37.49 meters.
Nail in blaze in locust tree.....	144	34	50	..... 45.66 meters.
Nail in blaze in locust tree.....	188	22	40	..... 63.83 meters.
Near peak of barn.....	245	03	..	..... $\frac{1}{4}$ mile.
Right peak of house.....	317	02	..	..... $\frac{1}{4}$ mile.
Right peak of old house.....	351	02	..	..... 1 $\frac{1}{2}$ miles.

## TOOT.

*General locality.*—Southern shore of Choptank River on Horn Point about  $1\frac{1}{4}$  miles west of Howells Point, and at eastern side of entrance to Lecomptes Bay. (See Chart No. 35.)

*Immediate locality.*—Observed station is in woods about 7 feet above high water, 15 yards south of shore, 13 yards southwest of shore, and 20 yards west of shore, and near but not on highest point of ground. Cement monument marking reference station is 12.38 meters S  $33^{\circ} 34'$  W of observed station.

*Marks.*—Observed station is nail in center of stub in 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of the ground.

*References.*—

	°	'	"	
"Choptank River Light" (N $34^{\circ} 15'$ W) . . . . .	0	00	00	4 $\frac{1}{8}$ miles.
East peak of large barn . . . . .	57	02	..	2 $\frac{3}{4}$ miles.
Large chimney of house . . . . .	68	24	..	2 $\frac{1}{2}$ miles.
Red Beacon . . . . .	71	28	00	2 miles.
"Black Beacon" . . . . .	73	17	30	1 $\frac{5}{8}$ miles.
Near peak of house . . . . .	88	38	..	2 miles.
Nail in blaze in elm tree . . . . .	147	42	40	5.48 meters.
Nail in blaze in oak tree (24 inches diameter) . . . . .	200	47	10	4.70 meters.
Nail in blaze in oak tree (20 inches diameter) . . . . .	246	58	10	16.89 meters.
REFERENCE STATION . . . . .	247	49	00	12.38 meters.
Chimney of house . . . . .	293	21	..	1 $\frac{1}{2}$ miles.
Chimney outside of house . . . . .	331	19	..	1 $\frac{3}{8}$ miles.
"Large Water Tank" . . . . .	344	41	10	2 $\frac{1}{8}$ miles.
Near corner of boathouse . . . . .	351	52	..	2 $\frac{1}{8}$ miles.

## LECOMPTE.

*General locality.*—Southern shore of Choptank River on southwestern side of Lecomptes Bay about  $1\frac{1}{4}$  miles west-southwest of Horn Point,  $\frac{5}{8}$  mile northwest of Travers Wharf, and  $\frac{1}{4}$  mile southwest of mouth of Lecomptes Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 18 yards west of point of shore, 14 yards south-southeast of shore, 5 yards east-southeast of turn in shore at beach, 7 yards northeast of a pool, 10 yards northwest of cut in shore, and 115 yards southeast of near one of two large cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Grubin" (N $56^{\circ} 00'$ E) . . . . .	0	00	00	3 $\frac{1}{8}$ miles.
"Black Beacon" . . . . .	0	12	10	2 $\frac{7}{8}$ miles.
Barn cupola . . . . .	9	10	..	..
North peak of wharf house . . . . .	69	02	..	$\frac{1}{2}$ mile.
North peak of house . . . . .	106	43	..	$\frac{3}{8}$ mile.
Left one of two large cedar trees . . . . .	248	12	..	117 yards.
Spindle on barn cupola . . . . .	280	48	..	$\frac{1}{2}$ mile.
Chimney outside of house . . . . .	303	44	..	$\frac{5}{8}$ mile.
Red Beacon . . . . .	358	07	20	3 $\frac{1}{8}$ miles.

## LARGE WATER TANK.

*General locality.*—Southwestern shore of Choptank River at Castle Haven, about  $2\frac{1}{8}$  miles south of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is on water tank on high steel tower near barns at Castle Haven.

*Marks.*—Observed station is center point of windmill on water tank.

*References.*—None necessary.

## CASTLE.

*General locality.*—Southern shore of Choptank River on Castlehaven Point on north side of Castlehaven Creek about 2 miles south-southwest of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a narrow neck of land, about 25 yards south-southwest of shore of Choptank River, 20 yards north of shore of cove, 22 yards west of bathhouse, and 100 yards east-northeast of three poplar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Choptank River Light" (N 25° 41' W).....	0	00	00	..... 2 miles.
Right corner of house near Bachelor Point..	19	27	..	..... 3 miles.
Left corner of bathhouse.....	95	31	20	..... 21.42 meters.
Near corner of bathhouse.....	109	32	20	..... 19.83 meters.
Near peak of house.....	122	56	..	..... 3 miles.
Right peak of boathouse at Castlehaven				
Wharf.....	215	04	..	..... ¼ mile.
Right corner of chimney of brick house....	254	18	..	..... ¼ mile.

## JERE.

*General locality.*—Eastern side of Chesapeake Bay on Sharps Island, about 1½ miles south-southeast of Sharps Island Light. (See Chart No. 36.)

*Immediate locality.*—Observed station is on hard ground about 7 feet above high water, 95 yards south-southeast of old hotel building, 95 yards west-southwest of shore, 150 yards southwest of a point and in such a position that Sharps Island Light shows to the right of the old hotel building.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Sharps Island Light" (N 24° 06' W).....	0	00	00	..... 1½ miles.
Church cupola.....	46	35	50	..... 5¼ miles.
Chimney on left end of roof of large house....	47	44	..	..... 5 miles.
Chimney of large house.....	104	25	..	..... 4¼ miles.
Large chimney of large house.....	115	46	..	..... 4¾ miles.
Chimney on right end of large house.....	142	21	..	..... 5½ miles.
Near corner of house.....	346	59	..	..... 95 yards.

## SHARPS ISLAND LIGHT.

*General locality.*—Eastern side of Chesapeake Bay off entrance to Choptank River, about 1 mile north-northwest of Sharps Island and 2⅝ miles southwest of Blackwalnut Point. (See Chart No. 36.)

*Immediate locality.*—Observed station is on structure with a cylindrical foundation known as Sharps Island Light.

*Marks.*—Observed station is center point of lantern on Sharps Island Light.

*References.*—

	°	'	''	
"Black" (N 43° 36' E).....	0	00	00	..... 2¾ miles.

## BLACK.

*General locality.*—Eastern shore of Chesapeake Bay on Blackwalnut Point at north side of entrance to Choptank River, about 2¾ miles northeast of Sharps Island Light. (See Charts No. 36.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 35 yards east-northeast of edge of bank, 45 yards west of edge of bank, 65 yards northwest of edge of bank, and 130 yards south of a lone apple tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Sharps Island Light" (S 43° 37' W) . . . . .	0	00	00	2¾ miles.
Near peak of old house . . . . .	123	10		½ mile.
Lone apple tree . . . . .	133	16		131 yards.
Chimney of house among trees . . . . .	145	38		1¾ miles.
Right chimney of house near water . . . . .	163	31		1 mile.
Right chimney of large house . . . . .	211	27		7 miles.
"Choptank River Light" . . . . .	232	11	30	8½ miles.
Near peak of barn . . . . .	253	22		6 miles.
Left chimney of house . . . . .	270	12		3¾ miles.
Chimney outside left end of house . . . . .	283	35		7 miles.
Near peak of old hotel building on Sharps Island . . . . .	337	47		3½ miles.

## BAR.

*General locality.*—Western shore of entrance to Harris Creek on Upper Bar Neck Point, about 1¾ miles north-northeast of Blackwalnut Point and 1½ miles south-southeast of Tilghman Island Wharf. (See Progress map.)

*Immediate locality.*—Observed station is in cultivated field about 6 feet above high water, 3 yards west of edge of bank and 60 yards north of line of trees at edge of marsh. Cement monument marking reference station is 45.81 meters S 83° 00' W of observed station nearly on line to large lone persimmon tree 15 inches diameter.

*Marks.*—Observed station is center of 4-inch tile pipe with top about 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

	°	'	''	
"Large Water Tank" (S 61° 46' E) . . . . .	0	00	00	9¼ miles.
Nail in blaze in oak stump . . . . .	63	18	00	51.17 meters.
Nail in blaze in wild cherry tree . . . . .	78	58	40	46.66 meters.
Nail in blaze in cedar tree . . . . .	88	35	30	47.69 meters.
Nail in blaze in lone persimmon tree . . . . .	144	33	10	49.48 meters.
REFERENCE STATION . . . . .	144	46	00	45.81 meters.
Right chimney of first house to right of woods . . . . .	205	39		¾ mile.
Schoolhouse cupola . . . . .	213	11	40	1¾ miles.
Stack of cannery . . . . .	216	19		1½ miles.
Stack of cannery . . . . .	227	10		1¾ miles.
Right chimney of house showing over woods . . . . .	239	07		2½ miles.
Neavitt schoolhouse cupola . . . . .	269	25		3¾ miles.
Chimney of house . . . . .	276	58		2½ miles.

## CHANGE (1910).

*General locality.*—Eastern shore of Harris Creek on Change Point, about 1½ miles east of Knapps Narrows. (See Progress map.)

*Immediate locality.*—Observed station is in cultivated field about 8 feet above high water, 45 yards north-northeast of extreme end of point, 55 yards northwest of edge of bank, 35 yards east of edge of bank, 70 yards southeast by south of corner of wire fence, and 70 yards south-southwest of wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	''	
"Nelson 3" (S 53° 21' E).....	0	00	00	1 7/8 miles.
"Windmill".....	5	53	50	9 3/4 miles.
Near peak of house.....	25	43	..	7 miles.
Chimney of house.....	89	04	..	2 1/2 miles.
Near peak of house.....	117	29	..	2 1/2 miles.
Near peak of storehouse on Tilghman Island				
Wharf.....	123	16	..	1 3/4 miles.
Near peak of house.....	131	01	..	2 1/8 miles.
Near chimney of brick house.....	210	58	..	2 1/8 miles.
Right chimney of house.....	278	54	..	1/4 mile.
Near peak of house.....	307	44	..	1/8 mile.

## CHEF.

*General locality.*—Eastern shore of Chesapeake Bay on Cook Point, at southern side of entrance to Choptank River, about 4 miles east of Sharps Island. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is in cultivated field about 8 feet above high water, 30 yards inside of fringe of trees parallel with shore, 45 yards southwest of eastern end of fringe of trees, 70 yards east of western end of fringe of trees, and 190 yards northwest by north of gate in fence running east and west.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	''	
"Sharps Island Light" (N 84° or' W).....	0	00	00	4 1/2 miles.
Nail in blaze in wild cherry tree (4 inches diameter).....	18	41	10	31.43 meters.
Nail in blaze in locust tree (5 inches diameter).....	46	09	20	28.53 meters.
Large chimney of house.....	51	57	..	4 3/4 miles.
Nail in blaze in locust tree (5 inches diameter).....	79	02	50	29.94 meters.
Left peak of house.....	81	21	..	5 miles.
Near peak of barn.....	98	22	..	7 1/2 miles.
Nail in blaze in locust tree (5 inches diameter).....	99	50	30	43.16 meters.
Near chimney on largest building in group..	127	24	..	6 miles.
Left end of house.....	150	48	30	7 5/8 miles.
"Choptank River Light".....	158	02	10	5 7/8 miles.
Lone persimmon tree.....	165	47	..	231 yards.
"Large water tank".....	177	43	10	6 3/8 miles.
Right chimney outside house.....	194	02	..	2 1/4 miles.
Chimney on right one of two houses.....	222	37	..	1/4 mile.
Right peak of barn.....	251	19	..	1/4 mile.
Right peak of hotel on Sharps Island.....	341	27	..	4 miles.

## COOK POINT WINDMILL.

*General locality.*—Eastern shore of Chesapeake Bay on Cook Point, between Tripps Bay and Cook Point Cove, about 1 1/4 miles southeast of end of point. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is on windmill over smaller and west one of two water tanks west of a barn on Cook Point farm.

*Marks.*—Observed station is center of windmill over smaller tank.

*References.*—None necessary.

## BRANNOCK.

*General locality.*—Eastern shore of Chesapeake Bay between Choptank River and Little Choptank River, on the southern shore of Brannock Bay, about 7 miles southeast of Sharps Island Light. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is on high land about 8 feet above high water, 11 yards south of shore, 7 yards south of edge of bluff, 8 yards north of rail fence on far side of county road, 50 yards east of bend where road leaves shore and runs toward farmhouse and 150 yards northeast of a farmhouse.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting about inches above surface of ground. Subsurface mark is 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
Sharps Island Light (N 54° 34' W).....	0	00	00	7 miles.
Near peak of house on Cook Point.....	38	18	..	3½ miles.
"Cook Point windmill".....	45	33	30	2½ miles.
Right chimney of house in trees.....	83	15	..	2 miles.
Between two chimneys on large part of house.....	104	31	..	1 mile.
Outside chimney on near end of house.....	108	06	..	1 mile.
Center one of three chimneys of house.....	142	03	..	1 mile.
Tangent of right end of barn roof.....	150	49	..	1 mile.
Center one of three chimneys on house.....	163	16	..	¾ mile.
Right peak of house.....	203	34	..	2 miles.
Left chimney of 1½-story house across creek.....	210	47	..	2 miles.
Near peak of barn.....	285	11	..	¾ mile.
Tangent of Mills Point.....	343	43	..	¾ mile.
Tangent of left end of Sharps Island Hotel.....	352	12	..	5½ miles.

## ROBINS.

*General locality.*—Eastern shore of Chesapeake Bay on Hills Point, at northeast side of entrance to Little Choptank River, about 6 miles southeast of Sharps Island Light. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is in cultivated field about 8 feet above high water, 40 yards northeast by north of edge of bluff, 45 yards east by north of point of bluff, 65 yards south by east of edge of bluff in range with Sharps Island Light, and 140 yards north by west of wire fence at bluff.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Sharps Island Light" (N 34° 11' W).....	0	00	00	6 miles.
Nail in blaze in cedar tree (8 inches diameter).....	5	43	20	37.11 meters.
Left chimney of house.....	76	25	..	⅛ mile.
Near peak of barn.....	87	14	..	⅛ mile.
Tallest chimney of house.....	91	22	..	¾ mile.
Near peak of barn.....	222	52	..	5¼ miles.
Tangent of end of woods on Taylor Island.....	229	14	..	5¼ miles.
Chimney of house on James Point.....	247	10	..	3½ miles.
Tangent of James Point.....	248	00	..	3 miles.
Nail in blaze in cedar tree (8 inches diameter).....	336	32	30	28.22 meters.
Nail in blaze in cedar tree (8 inches diameter).....	353	18	50	30.90 meters.
Tangent of right side of hotel on Sharps Island.....	356	39	..	4½ miles.

RAGGED POINT 3.

*General locality.*—Northern shore of Little Choptank River on Ragged Island, about 3 miles east of the northeast end of James Island. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is on small marsh point about 1 foot above high water, 3 yards east of shore, 5 yards northwest of shore, 9 yards north of extreme end of point, and 100 yards east of a small marsh island. Cement monument marking reference station is 27.27 meters N 31° 42' E of observed station. Tile pipe set in cement marking old reference station is 21.75 meters N 30° 42' E of observed station.

*Marks.*—Observed station is nail in cedar stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Old reference station is tile pipe set in cement projecting 2 inches above surface of ground.

*References.*—

"Hudson" (N 76° 00' E).....	0	00	00	.....	1 3/4	miles.
Near peak of barn .....	66	19	..	.....	2	miles.
Near peak of barn .....	70	55	..	.....	2	miles.
Near chimney of house .....	72	00	..	.....	2	miles.
Right chimney of house .....	75	31	..	.....	2 1/4	miles.
Near peak of barn .....	109	39	..	.....	2 1/2	miles.
Near peak of barn .....	116	30	..	.....	2 1/2	miles.
Left chimney of house on Hooper Point .....	117	34	..	.....	2 1/8	miles.
Near peak of barn .....	129	50	..	.....	2 1/2	miles.
Near peak of barn on Hills Point .....	247	47	..	.....	2 7/8	miles.
OLD REFERENCE STATION (TILE PIPE).....	314	41	40	.....	21.75	meters.
NEW REFERENCE STATION (CEMENT MONUMENT).....	315	47	40	.....	27.27	meters.

TORREY.

*General locality.*—Eastern shore of Slaughter Creek, about 1 mile southeast of Hooper Point, and 1/2 mile southwest of entrance to Parsons Creek. (See Charts Nos. 36, 37, and 38.)

*Immediate locality.*—Observed station is on hard marsh about 1 foot above high water, 90 yards east northeast of shore, 250 yards south of shore, 50 yards west of young pine thicket, and near several small pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

"Maryland" (S 22° 07' W).....	0	00	00	.....	3/4	mile.
Peak of barn .....	0	25	..	.....	1	mile.
Cupola on barn .....	9	37	..	.....	1 3/8	miles.
Right chimney of house .....	22	48	..	.....	1 5/8	miles.
Left chimney of house .....	47	32	..	.....	3/4	mile.
Right end of barn .....	79	07	..	.....	5/8	mile.
Left chimney of house .....	82	24	..	.....	5/8	mile.
Center of old windmill .....	97	14	..	.....	1	mile.
Left chimney of house on Hooper Point .....	109	58	..	.....	1	mile.
Near peak of barn .....	174	14	..	.....	4	miles.
Nail in blaze in pine tree (5 inches diameter).....	265	24	40	.....	9.60	meters.
Nail in blaze in pine tree (6 inches diameter).....	287	08	10	.....	11.86	meters.
Nail in blaze in pine tree (4 inches diameter).....	292	06	00	.....	17.90	meters.

## MARYLAND.

*General locality.*—Eastern side of Slaughter Creek, about  $1\frac{1}{4}$  miles northeast of Slaughter Creek Bridge, and  $\frac{1}{4}$  mile southeast of shore. (See Charts Nos. 36, 37, and 38.)

*Immediate locality.*—Observed station is in a cultivated field about 35 yards northeast of fence between fields, 105 yards west-northwest of road from Madison to Taylor Island, 115 yards northwest of junction of fences at road, and 130 yards west-northwest of house on opposite side of road.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Noble" (S 29° 28' W) . . . . .	0	00	00	..... $\frac{3}{4}$ mile.
Near peak of canning house . . . . .	2	03		..... $1\frac{1}{8}$ miles.
Spindle on cupola on barn . . . . .	12	10		..... $\frac{3}{4}$ mile.
Left side of barn . . . . .	37	09		..... $\frac{1}{4}$ mile.
Right chimney of house . . . . .	51	14		..... $\frac{1}{4}$ mile.
Near chimney of large house . . . . .	99	33		..... $\frac{5}{8}$ mile.
Near peak of large barn . . . . .	126	38		..... $\frac{3}{8}$ mile.
Left chimney of house . . . . .	163	02		..... $\frac{1}{2}$ mile.
Chimney on near end of house . . . . .	212	46		..... $\frac{3}{4}$ mile.
Center of front door of house on opposite side of road . . . . .	269	34		..... 130 yards.
Near peak of barn . . . . .	353	18		..... 1 mile.

## WHITEWASH.

*General locality.*—Western shore of Slaughter Creek, about  $1\frac{1}{4}$  miles north of Slaughter Creek Bridge, and  $1\frac{1}{2}$  miles southwest of entrance to Parsons Creek. (See Charts Nos. 36, 37, and 38.)

*Immediate locality.*—Observed station is on marsh about on level with high water, about 25 yards west-northwest of shore, 50 yards north-northwest of shore, 60 yards southwest of shore, 50 yards east-southeast of wire fence, and 300 yards south of farm house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Moore" (N 23° 17' E) . . . . .	0	00	00	..... $\frac{5}{8}$ mile.
Near chimney of house . . . . .	28	33		..... $1\frac{1}{8}$ miles.
Left chimney of house . . . . .	42	53		..... $\frac{5}{8}$ mile.
Near peak of barn . . . . .	51	57		..... $\frac{3}{4}$ mile.
Near gable of house . . . . .	92	49		..... $\frac{5}{8}$ mile.
Left chimney of house . . . . .	115	15		..... $\frac{3}{8}$ mile.
Cupola on barn . . . . .	155	17		..... $\frac{3}{4}$ mile.
Center of canning house ventilators . . . . .	161	17		..... $1\frac{1}{4}$ miles.
Center of draw of Slaughter Creek Bridge . . . . .	169	48		..... $1\frac{1}{4}$ miles.
Near peak of large building . . . . .	177	46		..... $1\frac{3}{8}$ miles.
Near peak of barn . . . . .	330	08		..... 250 yards.
Right chimney of house . . . . .	335	23		..... $\frac{5}{8}$ mile.
Near peak of barn . . . . .	351	15		..... $\frac{5}{8}$ mile.



MOORE.

*General locality.*—Western shore of Slaughter Creek, about  $\frac{3}{8}$  mile south of Hooper Point and  $\frac{7}{8}$  mile west-southwest of entrance to Parsons Creek. (See Charts Nos. 36, 37, and 38.)

*Immediate locality.*—Observed station is on sand and shell land near edge of marsh about 1 foot above high water, 11 yards west of shore, 25 yards north of shore, 130 yards south of shore, 140 yards east of near corner of large barn, and 200 yards west-southwest of end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Veith" (N 9° 21' W) .....	0	00	00	..... $\frac{5}{8}$ mile.
Right chimney of house .....	68	23	..	..... $1\frac{1}{2}$ miles.
Near peak of barn .....	74	39	..	..... $1\frac{1}{2}$ miles.
Near peak of barn .....	149	02	..	..... $\frac{3}{4}$ mile.
Left chimney of house .....	168	10	..	..... $\frac{7}{8}$ mile.
Left chimney of house .....	189	25	..	..... $\frac{3}{4}$ mile.
Center of draw of Slaughter Creek bridge .....	205	46	..	..... $1\frac{1}{2}$ miles.
Near corner of large barn .....	275	24	..	..... 140 yards.
Left edge of house .....	296	55	..	..... $\frac{5}{8}$ mile.
Near peak of barn .....	333	27	..	..... $\frac{5}{8}$ mile.
Right chimney of house on Hooper Point .....	343	01	..	..... $\frac{5}{8}$ mile.

VEITH.

*General locality.*—Southern shore of Little Choptank River on Hooper Point at western side of entrance to Slaughter Creek about 2 miles south of Ragged Point. (See Charts Nos. 36, 37, and 38.)

*Immediate locality.*—Observed station is on a marsh about 1 foot above high water, 25 yards west of shore, 30 yards south of shore, 50 yards north-west of shore, 6 yards east of edge of larger pond in marsh, 25 yards north of edge of smaller pond in marsh, and 125 yards east of an orchard.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Ragged Point 3" (N 7° 23' E) .....	0	00	00	..... 2 miles.
Left chimney of house .....	23	31	..	..... $3\frac{1}{2}$ miles.
Tangent of Susquehanna Point .....	48	15	..	..... $2\frac{1}{2}$ miles.
Right chimney of house .....	75	11	..	..... $1\frac{1}{2}$ miles.
Near peak of barn .....	172	27	..	..... $\frac{1}{2}$ mile.
Left chimney of house .....	173	28	..	..... $\frac{1}{2}$ mile.
Near chimney of house .....	208	22	..	..... $\frac{1}{2}$ mile.
Center of old windmill .....	221	47	..	..... $\frac{1}{2}$ mile.
Near chimney of house on Hooper Point .....	272	12	..	..... $\frac{1}{8}$ mile.
Near peak of barn .....	353	05	..	..... $3\frac{1}{2}$ miles.

CAN.

*General locality.*—Southern shore of Little Choptank River on a point about 2 miles east of the southeastern end of James Island, and 1 mile west of entrance to Slaughter Creek. (See Charts No. 36, 37, and 38.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 9 yards southwest of shore, 17 yards southeast of end of point, 20 yards east of shore, and 180 yards north-northwest of a house among trees. Cement monument marking reference station is 9.25 meters S 6° 58' E of observed station.

*Marks.*—Observed station is center of 4 inch tile pipe set in cement and projecting 2 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Skid" (N 89° 23' W).....	0	00	00	2 miles.
Chimney on near end of old house.....	7	40	..	2 miles.
Chimney on end of small addition to house..	38	23	..	2¼ miles.
Near peak of barn on Hills Point.....	83	31	..	4½ miles.
Near peak of house.....	106	27	..	4¾ miles.
Left chimney of house.....	132	18	..	3¾ miles.
Middle chimney of house.....	164	57	..	3¾ miles.
Left chimney of house.....	210	48	..	180 yards.
REFERENCE STATION.....	262	25	00	9.25 meters.
Near peak of large barn.....	328	01	..	1¼ miles.
Left chimney of large house on north end of Taylor Island.....	345	56	..	1¾ miles.
Tangent to north end of Taylor Island.....	356	20	..	1¾ miles.

## SKID.

*General locality.*—Eastern shore of Chesapeake Bay, on extreme southern end of James Island, about 8½ miles north-northeast of Cove Point Light and 4 miles southwest of Ragged Point. (See Charts Nos. 36, 37, and 38.)

*Immediate locality.*—Observed station is on land about 5 feet above high water, 33 yards west of shore, 22 yards northeast of shore, and 60 yards northwest of extreme end of point. Four-inch tile pipe marking old reference station is 148.83 meters N 9° 35' W of observed station and cement monument marking new reference station is 58.70 meters N 9° 59' W of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe with top 6 inches below surface of ground. Subsurface mark is center of 4-inch tile pipe buried with top 2 inches below base of surface pipe. Old reference station is nail in center of 4-inch tile pipe filled with and set in cement projecting 3 inches above surface of ground. New reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Can" (S 89° 25' E).....	0	00	00	2 miles.
Near peak of barn with metal roof.....	24	25	..	¾ mile.
Left chimney of house.....	28	22	..	¾ mile.
Left chimney of house.....	39	31	..	1 mile.
Near peak of house.....	67	27	..	1½ miles.
Right chimney of house.....	85	19	..	¾ mile.
Tangent of north end of Taylor Island.....	107	44	..	¼ mile.
Tangent of end of woods.....	224	23	..	¾ mile.
Left chimney of large house.....	259	49	..	¼ mile.
OLD REFERENCE STATION (TILE PIPE).....	259	49	10	148.83 meters.
NEW REFERENCE STATION (MONUMENT).....	259	25	40	58.70 meters.
"Rede" (Right chimney of house).....	274	23	40	¾ mile.
Right tangent of woods on Casons Point....	333	28	..	5½ miles.
Chimney on near end of house on Hooper Point.....	355	32	..	2¾ miles.

## REDE.

*General locality.*—Southwestern shore of Little Choptank River on James Island about 3 miles west-northwest of Hooper Point. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is on two-story house on the east side of James Island and on the south side of Oyster Creek at its mouth.

*Marks.*—Eastern chimney of two-story house.

*References.*—None necessary.

## JAMES.

*General locality.*—Eastern side of Chesapeake Bay on northeast end of James Island at south side of entrance to Little Choptank River. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 8 yards west of shore, 11 yards northwest of shore, 85 yards south of shore, and 75 yards east of pine woods. Cement monument marking reference station is 19.48 meters S 84° 17' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Robins" (N 23° 14' E).....	0	00	00	2¾ miles.
Near peak of house.....	12	37	..	3½ miles.
Chimney on near end of house.....	48	42	..	3¼ miles.
Near peak of barn.....	89	01	..	4¾ miles.
Near chimney of house on Hooper Point....	100	36	..	3 miles.
Left peak of long barn.....	107	05	..	3½ miles.
Near peak of barn.....	146	09	..	2½ miles.
REFERENCE STATION.....	241	03	00	19.48 meters.
"Sharps Island Light".....	320	02	40	7¾ miles.
Right edge of old hotel on Sharps Island....	321	43	..	6¼ miles.
Left tangent of woods on Cook Point.....	357	29	..	7 miles.

## NELSON 3.

*General locality.*—Northern shore of Choptank River on Nelson Island, between the entrance to Harris and Broad Creeks. (See Progress map.)

*Immediate locality.*—Observed station is on southwest point of island on marsh about 2 feet above high water, 28 yards north-northeast of extreme end of point, 45 yards northwest of edge of marsh, and 14 yards east of marsh. Cement monument marking reference station is 32.27 meters N 32° 05' E of observed station.

*Marks.*—Observed station is center of nail in 3-inch square stub in tile pipe flush with ground. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	°	'	''	
"Choptank River Light" (S 56° 09' E).....	0	00	00	5½ miles.
"Large Water Tank".....	10	09	50	7½ miles.
Right chimney of house.....	31	48	..	7 miles.
Near chimney outside of house.....	45	44	..	5¾ miles.
Near peak of barn on Cook Point.....	67	40	..	5¼ miles.
Left peak of hotel on Sharps Island.....	98	03	..	7¾ miles.
"Sharps Island Light".....	109	04	20	7¾ miles.
Chimney of house.....	137	36	..	4 miles.
Stack of cannery at Tilghman Island.....	153	43	..	3½ miles.
Windmill at Tilghman Island.....	155	12	..	3½ miles.
Chimney of house on Change Point.....	185	37	..	1¾ miles.
Left peak of house.....	197	50	..	1½ miles.
Chimney of house.....	254	10	..	2¾ miles.
"St. Michaels Church Spire".....	259	55	10	6¼ miles.
REFERENCE STATION.....	268	13	20	32.27 meters.
Left peak of building.....	293	43	..	2¾ miles.
Near peak of house with three chimneys....	335	18	..	3 miles.

## ANNETTE.

*General locality.*—Western shore of Broad Creek about  $\frac{3}{4}$  mile north of Nelson Point, and on south side of entrance to Balls Creek. (See Progress map.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, and 4 yards west of shore. Cement monument marking reference station is 9.39 meters N  $75^{\circ} 59'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 3 inches above surface of ground.

*References.*—

	o	/	"	
"Myrtle" (N $15^{\circ} 29'$ E).....	0	00	00	..... $\frac{5}{8}$ mile.
South chimney of house .....	18	39	..	..... $3\frac{3}{4}$ miles.
South chimney of house .....	29	53	..	..... $3\frac{3}{4}$ miles.
South gable of barn .....	35	01	..	..... $3\frac{1}{2}$ miles.
Chimney of house .....	36	35	..	..... $3\frac{1}{2}$ miles.
South gable of barn .....	72	54	..	..... 2 miles.
West chimney of house .....	102	19	..	..... $3\frac{3}{4}$ miles.
"Choptank River Light".....	116	34	40	..... $6\frac{1}{4}$ miles.
Water tank at Castle Haven.....	123	54	..	..... $8\frac{1}{4}$ miles.
North gable of barn on Todd Point.....	148	31	..	..... $6\frac{1}{2}$ miles.
Nail in blaze in cedar tree (10 inches diameter).....	187	26	00	..... 11.37 meters.
Nail in blaze in cedar tree (10 inches diameter).....	235	06	30	..... 16.81 meters.
REFERENCE STATION.....	268	29	40	..... 9.39 meters.

## PEARY.

*General locality.*—Eastern shore of Broad Creek about 1 mile north of entrance to Broad Creek,  $1\frac{3}{4}$  miles north of Royston Island and  $1\frac{3}{4}$  miles east-northeast of Nelson Point. (See Progress map.)

*Immediate locality.*—Observed station is on wooded shore about 6 feet above high water, 3 yards east of vertical bank which is washed by high water 100 yards south of north end of pine woods. Cement monument marking reference station is 20.93 meters N  $43^{\circ} 30'$  E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	/	"	
"Roys" (S $17^{\circ} 35'$ E).....	0	00	00	..... $1\frac{1}{2}$ miles.
Left tangent of Cook Point.....	44	53	..	..... $6\frac{1}{4}$ miles.
Right tangent of Nelson Point.....	96	09	..	..... $1\frac{3}{4}$ miles.
East chimney of house .....	117	03	..	..... 2 miles.
East gable of Parlett house.....	131	52	..	..... $2\frac{3}{4}$ miles.
South gable of barn .....	168	59	..	..... $1\frac{7}{8}$ miles.
Nail in blaze in pine tree (15 inches diameter).....	233	25	40	..... 17.49 meters.
REFERENCE STATION.....	241	04	50	..... 20.93 meters.
Nail in blaze in pine tree (15 inches diameter).....	307	35	10	..... 15.45 meters.

## IRISH.

*General locality.*—Northeastern shore of Choptank River on west side of entrance to Irish Creek about  $\frac{3}{4}$  mile northeast of Royston Island. (See Progress map.)

*Immediate locality.*—Observed station is in cultivated land, about 5 feet above high water, 13 yards east-northeast of edge of bank, 5 yards north of foot of bank, 4 yards north of a cedar tree, 10 yards west of a small cedar tree at west end of line of locust trees, and 23 yards east-southeast of rounded point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Pont" (N 13° 04' E).....	0	00	00	..... ½ mile.
Near peak of building.....	25	49	..	..... 1¼ miles.
Nail in blaze in locust tree (2 inches diameter).....	68	52	50	..... 16.33 meters.
Left peak of house.....	98	15	..	..... ¾ mile.
Left peak of barn.....	123	13	..	..... 1 mile.
Nail in blaze in cedar tree (7 inches diameter).....	152	52	10	..... 4.29 meters.
Near peak of house.....	185	06	..	..... 5 miles.
Nail in blaze in cedar tree (2 inches diameter).....	206	33	40	..... 6.24 meters.
"Sharps Island Light".....	230	10	20	..... 9 miles.
Near peak of house.....	291	12	..	..... 3¾ miles.
Near peak of barn.....	348	54	..	..... 300 yards.

## ROYS.

*General locality.*—Northeastern side of Choptank River on southern end of Royston Island, about ½ mile southwest of entrance to Irish Creek. (See Progress map.)

*Immediate locality.*—Observed station is about 5 feet above high water, 15 yards north of shore, 25 yards east of shore, and 25 yards northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Choptank River Light" (S 44° 37' E).....	0	00	00	..... 3½ miles.
"Large Water Tank".....	9	09	00	..... 5½ miles.
Peak of large barn.....	49	44	..	..... 4½ miles.
Right peak of barn.....	71	08	..	..... 5¾ miles.
Windmill.....	71	18	..	..... 5¾ miles.
"Sharps Island Light".....	109	16	30	..... 8¾ miles.
Church Spire.....	134	43	..	..... 6 miles.
Church Spire.....	134	47	..	..... 6 miles.
Large spire.....	134	57	..	..... 6 miles.
Windmill.....	146	07	..	..... 5¾ miles.
Chimney of house.....	170	03	..	..... 3 miles.
Near peak of large barn.....	200	28	..	..... 3½ miles.
Nail in blaze in oak tree (3 inches diameter).....	215	43	10	..... 10.64 meters.
Nail in blaze in oak tree (3 inches diameter).....	281	24	20	..... 6.22 meters.
Nail in blaze in cedar tree (5 inches diameter).....	358	28	40	..... 15.92 meters.

## CREEK.

*General locality.*—Northeastern shore of Choptank River on east side of entrance to Irish Creek, about ¾ mile east-northeast of Royston Island. (See Progress map.)

*Immediate locality.*—Observed station on marsh point about 1 foot above high water, 11 yards south-east of shore, 11 yards east of shore, 17 yards north-northeast of shore, and 14 yards south of cut in shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## Survey of Oyster Bars, Dorchester County, Md.

References.—	°	'	''	
"Dot" (S 17° 34' W).....	0	00	00	..... 4 $\frac{5}{8}$ miles.
Right corner of house.....	118	45	..	..... $\frac{5}{8}$ mile.
Right corner of house.....	146	12	..	..... 1 $\frac{1}{4}$ miles.
Left peak of house.....	184	09	..	..... 1 $\frac{3}{8}$ miles.
Left corner of large chimney.....	230	02	..	..... $\frac{5}{8}$ mile.
Near peak of large building.....	354	09	..	..... 5 $\frac{3}{4}$ miles.

## CORNER (CHOPTANK RIVER).

*General locality.*—Southern shore of Choptank River on east side of entrance to Chapel Creek, about 2 miles southeast of Todd Point, and 3 miles south-southwest of Choptank River Light. (See Chart No. 37.)

*Immediate locality.*—Observed station is on grassy land about 3 feet above high water, 30 yards east of shore, 30 yards south of shore, 35 yards southeast of extreme end of point, and west of small clump of small pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Dot" (N 58° 43' W).....	0	00	00	..... 2 $\frac{3}{8}$ miles.
Nail in blaze in holly tree (14 inches diameter).....	35	13	40	..... 13.81 meters.
"Choptank River Light".....	75	55	20	..... 3 miles.
Nail in blaze in pine tree (4 inches diameter).....	105	03	00	..... 3.57 meters.
Right corner of new house.....	108	42	..	..... $\frac{1}{4}$ mile.
Nail in blaze in pine tree (5 inches diameter).....	187	20	10	..... 8.21 meters.
Near peak of 2 $\frac{1}{4}$ -story house.....	308	25	..	..... $\frac{7}{8}$ mile.
Chimney outside right end of house.....	340	33	..	..... 2 miles.
Chimney outside near end of house.....	356	46	..	..... 2 $\frac{1}{4}$ miles.

## DOT.

*General locality.*—Southern shore of Choptank River on Todd Point, about 3 miles east of Cook Point, and 3 $\frac{1}{2}$  miles southwest of Choptank River Light. (See Chart No. 37.)

*Immediate locality.*—Observed station is about 4 feet above high water, 55 yards west-southwest of shore, 30 yards south-southwest of edge of bank, 40 yards south by east of point where bank meets marsh, 70 yards south by west of extreme end of point, and 200 yards northeast by north of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Choptank River Light" (S 56° 26' E).....	0	00	00	..... 3 $\frac{1}{4}$ miles.
"Large Water Tank".....	37	36	00	..... 3 $\frac{1}{2}$ miles.
Near peak of house.....	42	45	..	..... 2 $\frac{3}{4}$ miles.
Near peak of building.....	72	49	..	..... 2 $\frac{1}{4}$ miles.
Chimney outside right end of house.....	102	18	..	..... 1 $\frac{3}{8}$ miles.
Chimney outside near end of house.....	175	25	..	..... 200 yards.
Left chimney of house on Cook Point.....	212	24	..	..... 2 $\frac{3}{4}$ miles.
"Sharps Island Light".....	218	32	40	..... 7 $\frac{1}{2}$ miles.
Church Spire.....	250	04	40	..... 7 $\frac{1}{4}$ miles.
Left peak of house.....	277	10	..	..... 7 $\frac{1}{4}$ miles.
Near peak of barn.....	290	09	..	..... 7 $\frac{1}{2}$ miles.
Cupola on house.....	333	02	..	..... 3 $\frac{5}{8}$ miles.

## HUDSON.

*General locality.*—Northern shore of Little Choptank River on Casons Point, about 1 mile north of Susquehanna Point, and  $1\frac{1}{2}$  miles east-northeast of Ragged Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on sand beach about on level with high water, 2 yards south of a rail fence extending along shore, and 130 yards west-northwest of end of woods at shore. Cement monument marking reference station is 29.65 meters N  $8^{\circ} 30'$  W of observed station. Four-inch tile pipe marking old reference station is 3.99 meters N  $7^{\circ} 14'$  W of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe set in cement projecting 3 inches above surface of cement and 6 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Old reference station is center of 4-inch tile pipe projecting 3 inches above surface of ground.

*References.*—

	°	'	"	
"Jenifer" (N $1^{\circ} 41'$ W).....	0	00	00	..... $\frac{3}{4}$ mile.
Left chimney of $1\frac{1}{2}$ -story house.....	13	24	..	..... $1\frac{1}{4}$ miles.
Near peak of barn.....	30	45	..	..... $1\frac{1}{8}$ miles.
"Madison Southern M. E. Church Spire".....	145	10	30	..... $2\frac{3}{4}$ miles.
Near peak of barn.....	213	30	..	..... $3\frac{1}{2}$ miles.
Left chimney of house on Hooper Point.....	223	01	..	..... $3\frac{1}{2}$ miles.
Near peak of house.....	251	57	..	..... 5 miles.
Right chimney of house.....	327	50	..	..... $\frac{1}{4}$ mile.
Near peak of barn.....	350	21	..	..... $\frac{1}{2}$ mile.
Near peak of house.....	352	51	..	..... $\frac{3}{4}$ mile.
NEW REFERENCE STATION (CEMENT MONU- MENT).....	353	11	50	..... 29.65 meters.
OLD REFERENCE STATION (TILE PIPE).....	354	26	30	..... 3.99 meters.

## JENIFER.

*General locality.*—Western shore of Hudson Creek about  $\frac{3}{8}$  mile northwest of entrance to Back Creek and  $\frac{3}{4}$  mile north of Casons Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on edge of cultivated field about 2 feet above high water, 2 yards northeast of shore, 9 yards southwest of shore, 55 yards north by west of extreme end of marsh point, and 65 yards southeast of corner of wire fence about in line with a barn.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Henry" (N $1^{\circ} 06'$ W).....	0	00	00	..... $\frac{1}{8}$ mile.
Tangent of left end of Ross Wharf.....	8	55	..	..... 1 mile.
Near peak of barn.....	20	24	..	..... 1 mile.
Chimney on left end of house.....	32	30	..	..... $\frac{1}{2}$ mile.
Near peak of barn.....	64	33	..	..... $\frac{5}{8}$ mile.
Chimney on near end of house.....	85	48	..	..... 1 mile.
Chimney on near end of house.....	119	59	..	..... 2 miles.
"Madison Southern M. E. Church spire".....	151	57	30	..... 3 miles.
Tangent of Casons Point.....	159	58	..	..... $\frac{3}{4}$ mile.
Chimney on near end of house.....	189	26	..	..... $\frac{1}{2}$ mile.
Near peak of house.....	225	32	..	..... $\frac{1}{4}$ mile.
Lightning rod on house.....	276	57	..	..... 225 yards.
Near peak of barn.....	304	00	..	..... $\frac{1}{8}$ mile.

## HENRY.

*General locality.*—Western shore of Hudson Creek at south side of entrance to a cove about 1 mile north of Casons Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is about 2 feet above high water, 5 yards south of shore, 5 yards northwest of shore, 10 yards west of extreme end of point, and 34 yards north of wire fence at shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Mitchell" (N 3° 08' E) . . . . .	0	00	00	¼ mile.
Tangent to left end of Ross Wharf . . . . .	5	28	00	⅞ mile.
Chimney in center of small house . . . . .	17	23	00	⅜ mile.
Chimney on left end of house . . . . .	41	04	00	⅜ mile.
Near peak of barn . . . . .	56	29	00	⅞ mile.
Chimney on near end of house . . . . .	96	44	00	⅝ mile.
"Madison Southern M. E. Church spire" . . . . .	148	58	00	3 miles.
Chimney on right end of house . . . . .	209	20	00	⅞ mile.
Chimney on left end of house . . . . .	340	27	00	¼ mile.

## MITCHELL.

*General locality.*—Western shore of Hudson Creek about ⅝ mile north-northwest of entrance to Back Creek and 1¼ miles north of Casons Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is in a small grove of oak trees about 2 feet above high water, 11 yards southwest of shore, 12 yards north of shore, and 29 yards west of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Back" (N 70° 51' E) . . . . .	0	00	00	¼ mile.
Chimney on near end of house . . . . .	23	09	00	¼ mile.
Chimney on small house . . . . .	35	09	00	⅝ mile.
Chimney on right end of house . . . . .	41	36	00	⅝ mile.
Chimney on right end of house . . . . .	53	32	00	⅝ mile.
Near peak of house . . . . .	122	09	00	⅝ mile.
Near peak of barn . . . . .	133	23	00	⅝ mile.
Nail in blaze in oak tree (18 inches diameter) . . . . .	178	27	00	8.72 meters.
Nail in blaze in oak tree (16 inches diameter) . . . . .	194	51	20	14.95 meters.
Chimney on left end of house . . . . .	276	17	00	¾ mile.
Nail in blaze in oak tree (12 inches diameter) . . . . .	281	12	30	10.93 meters.
Near peak of barn . . . . .	321	03	00	⅝ mile.

## BACK.

*General locality.*—Eastern shore of Hudson Creek about ⅝ mile north of entrance to Back Creek and 1¾ miles north of Casons Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on solid ground at edge of woods about 2 feet above high water, 14 yards east of shore, 16 yards northeast of shore, 45 yards south-southeast of shore, and 175 yards north-northwest of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.



References.—	°	'	''	
"Bayly" (S 1° 40' E) .....	0	00	00	3/8 mile.
Near chimney of house .....	29	44	..	3/8 mile.
Near peak of house .....	33	20	..	3/8 mile.
Near peak of barn .....	42	53	..	1/2 mile.
Chimney on near end of house .....	72	05	..	3/8 mile.
Left chimney of house .....	151	44	..	3/4 mile.
Nail in blaze in pine tree (12 inches diameter). .....	175	02	50	8.05 meters.
Nail in blaze in pine tree (12 inches diameter). .....	226	14	50	11.19 meters.
Nail in blaze in pine tree (12 inches diameter). .....	305	13	20	16.04 meters.
Right chimney of house .....	340	53	..	175 yards.

## BAYLY.

*General locality.*—Eastern shore of Hudson Creek about 3/8 mile north of entrance to Back Creek and 1 mile north of Casons Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on marsh about on level with high water, 11 yards east of shore, 20 yards south of shore, 22 yards northeast of shore, 8 yards west of a bank 3 feet high, and 15 yards southwest of a large dead cherry tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Jenifer" (S 55° 44' W) .....	0	00	00	1/4 mile.
Near peak of house .....	9	20	..	3/8 mile.
Left peak of barn .....	23	59	..	3/8 mile.
Right chimney of house .....	73	18	..	3/8 mile.
Left chimney of house .....	103	15	..	1 1/8 miles.
Left chimney of house .....	117	03	..	..
Left chimney of house .....	129	28	..	1/4 mile.
Nail in blaze in cherry tree (4 inches diameter) .....	172	17	00	8.19 meters.
Near peak of small house .....	193	18	..	3/8 mile.

## CARRIE.

*General locality.*—Eastern shore of Hudson Creek on north side of entrance to Back Creek about 3/4 mile north of Casons Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is near edge of a cultivated field about 4 feet above high water, 15 yards east of shore, 3 yards east of edge of bank, and 160 yards north of point at north side of entrance to Back Creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Louise" (S 28° 56' E) .....	0	00	00	1/4 mile.
"Madison Southern M. E. Church Spire" .....	3	09	30	3 miles.
Left chimney of house .....	74	19	..	3/8 mile.
Chimney in center of house .....	101	56	..	3/8 mile.
Lightning rod on right end of house .....	126	31	..	3/8 mile.
Left dormer window of house .....	174	31	..	1/2 mile.
Left chimney of house .....	191	27	..	1 1/4 miles.
Nail in blaze in cedar tree (10 inches diameter) .....	196	50	50	9.35 meters.
Near peak of barn .....	229	58	..	1/2 mile.
Near end of house .....	285	09	..	1 1/4 miles.
Near peak of barn .....	306	17	..	2 miles.

## LOUISE.

*General locality.*—Eastern shore of Hudson Creek on point at south side of entrance to Back Creek about  $\frac{1}{2}$  mile north of Casons Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on sand and marsh point about 1 foot above high water, 18 yards north-northeast of shore, 22 yards southeast of shore, 30 yards northwest of shore, and 30 yards east-northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Mac" (S 64° 57' E).....	0	00	00	..... 1½ miles.
Chimney of house.....	0	39	..	..... 1½ miles.
"Madison Southern M. E. Church Spire"....	39	32	00	..... 2½ miles.
Tangent of Casons Point.....	74	06	..	..... ½ mile.
Center chimney of house.....	129	17	..	..... ½ mile.
Left end of house.....	155	13	..	..... ½ mile.
Chimney in center of house.....	172	15	..	..... ½ mile.
Near peak of barn.....	192	22	..	..... ⅝ mile.
Near peak of barn.....	280	20	..	..... ½ mile.
Right chimney of house.....	302	08	..	..... ⅝ mile.
Right chimney of house.....	338	31	..	..... 2 miles.

## GREENWELL.

*General locality.*—Northwestern shore of Little Choptank River on point of land at north side of entrance to a cove between Butter Pot Point and Cedar Point about  $\frac{3}{4}$  mile northwest of McKells Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 5 yards north of shore, 13 yards southwest of shore, and 25 yards northwest of extreme end of point. Cement monument marking reference station is 27.78 meters N 35° 11' W of observed station.

*Marks.*—Observed station is nail in pine stub projecting 12 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Ross" (N 62° 17' E).....	0	00	00	..... ¾ mile.
Near peak of barn.....	32	39	..	..... 1¾ miles.
"Madison Southern M. E. Church Spire"....	102	24	30	..... 2½ miles.
Left peak of large house.....	126	28	..	..... 2 miles.
Near peak of barn.....	155	20	..	..... 4¾ miles.
Center chimney of house.....	189	03	..	..... 1 mile.
Near peak of barn.....	253	14	..	..... ⅝ mile.
REFERENCE STATION.....	262	32	50	..... 27.78 meters.
Near peak of barn.....	309	25	..	..... ¾ mile.
Left chimney of house.....	314	49	..	..... ¾ mile.
Center chimney of house.....	344	58	..	..... ¾ mile.

## ROSS.

*General locality.*—Northwestern shore of Little Choptank River on Cedar Point about  $\frac{3}{4}$  mile north of entrance to Fishing Creek. (See Chart No. 37.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 25 yards southwest of shore, 30 yards west of shore, 60 yards north by west of extreme end of point, and 150 yards east by south of four pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Lee" (N 51° 25' E).....	0	00	00	5/8 mile.
Chimney on near peak of house.....	21	43	..	2 3/4 miles.
Near peak of barn.....	23	09	..	2 3/4 miles.
Chimney on near end of house.....	43	27	..	7/8 mile.
Near peak of barn.....	71	32	..	1 1/8 miles.
Chimney on left end of house.....	100	13	..	2 miles.
A cupola.....	101	09	..	2 miles.
Left one of four pine trees standing together..	233	19	..	150 yards.
Right chimney of 1 1/2-story house.....	272	46	..	1/8 mile.
Left chimney of house.....	292	11	..	1 1/4 miles.
Center of roof of bungalow on Cherry Island..	341	28	..	1 mile.

## PHIL.

*General locality.*—Northwestern shore of entrance to Beckwith and Phillips Creeks on point at west side of entrance to Phillips Creek about 1/4 mile northeast of Cherry Island. (See Chart No. 37.)

*Immediate locality.*—Observed station is on sand and marsh about 1 foot above high water, 12 yards southwest of shore, 33 yards north of shore, 25 yards west-northwest of extreme end of point, and 40 yards from trees along edge of cultivated field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Cherry Island Water Tank" (S 72° 48' E)..	0	00	00	3/8 mile.
Tangent of Town Point.....	64	42	..	1 1/8 miles.
Tangent of McKeils Point.....	82	21	..	1 3/4 miles.
Near peak of barn.....	102	15	..	3/4 mile.
Chimney on near end of house.....	222	19	..	1 1/4 miles.
Chimney on left end of house.....	245	00	..	1/2 mile.
Near peak of house.....	319	59	..	3/4 mile.

## DUPONT.

*General locality.*—Western shore of Beckwith Creek about 1/8 mile northwest of the northeast end of Cherry Island. (See Chart No. 37.)

*Immediate locality.*—Observed station is in a grove of small pine trees about 1 foot above high water, 17 yards west of shore, 25 yards northwest of shore, and 35 yards north of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Cherry Island Water Tank" (S 12° 29' W)...	0	00	00	3/8 mile.
Center of roof of bungalow on Cherry Island...	6	09	..	3/8 mile.
Chimney on near end of house.....	25	05	..	1 1/8 miles.
Nail in blaze in holly tree (4 inches diameter).....	34	05	30	6.55 meters.
Near end of 1 1/2-story house.....	46	39	..	7/8 mile.
Nail in blaze in cedar tree (6 inches diameter).....	106	30	50	12.84 meters.
Near peak of barn.....	205	33	..	1 mile.
Near peak of house.....	242	50	..	1/4 mile.
Between two chimneys on house.....	295	09	..	1/2 mile.
Nail in blaze in pine tree (6 inches diameter).....	297	22	40	6.60 meters.

## Survey of Oyster Bars, Dorchester County, Md.

## BECKWITH.

*General locality.*—Eastern shore of Beckwith Creek about  $\frac{1}{4}$  mile northeast of the northeast end of Cherry Island. (See Chart No. 37.)

*Immediate locality.*—Observed station is near edge of a cultivated field about 2 feet above high water, 30 yards northeast of shore, 35 yards east of shore, 35 yards southeast of shore, and about  $\frac{1}{8}$  mile south by east of small  $1\frac{1}{2}$ -story house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Cherry Island Water Tank" (S 53° 40' W)...	0	00	00	..... $\frac{1}{2}$ mile.
Chimney of small house on Cherry Island.....	4	38	..	..... $\frac{1}{2}$ mile.
Near peak of barn.....	21	51	..	..... $1\frac{1}{4}$ miles.
Nail in blaze in locust tree (4 inches diameter).	93	09	50	..... 20.32 meters.
Near peak of barn.....	97	47	..	..... $\frac{1}{2}$ mile.
Nail in blaze in locust tree (3 inches diameter).	102	49	30	..... 19.46 meters.
Near peak of barn.....	165	55	..	..... $\frac{1}{2}$ mile.
Left chimney of house.....	300	34	..	..... $\frac{1}{4}$ mile.

## CHERRY ISLAND WATER TANK.

*General locality.*—Northeastern side of Little Choptank River on Cherry Island. (See Chart No. 37.)

*Immediate locality.*—Observed station is on water tower on south end of Cherry Island.

*Marks.*—Observed station is flagstaff on water tank on Cherry Island.

*References.*—None necessary.

## LEE.

*General locality.*—North shore of upper Little Choptank River on point between Little Choptank River and Beckwiths Creek. (See Chart No. 37.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 5 yards northeast of shore, 25 yards south of shore, 66 yards east-southeast of extreme end of point, and 175 yards west-northwest of pine woods at shore. Cement monument marking reference station is 11.51 meters N 4° 54' E of observed station.

*Marks.*—Observed station is nail in 3-inch pine stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Cherry Island Water Tank" (N 4° 08' E)....	0	00	00	..... $\frac{3}{8}$ mile.
REFERENCE STATION.....	0	46	00	..... 11.51 meters.
Right chimney of house.....	23	46	..	..... $\frac{3}{8}$ mile.
Near peak of barn.....	76	32	..	..... $2\frac{1}{4}$ miles.
Near peak of barn.....	95	31	..	..... $1\frac{1}{8}$ miles.
Tangent of McKeils Point.....	201	44	..	..... $1\frac{1}{4}$ miles.
Near peak of barn.....	251	02	..	..... $\frac{3}{8}$ mile.
Left chimney of house.....	323	30	..	..... $1\frac{3}{4}$ miles.
Center of roof of bungalow on Cherry Island...	354	28	..	..... $\frac{3}{8}$ mile.

## SOLOMON.

*General locality.*—Northern shore of upper Little Choptank River on point west at side of entrance to Solomons Cove about  $1\frac{3}{8}$  miles northeast of Town Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on marsh point about on level with high water, 1 yard east of shore, 3 yards west of shore, and 5 yards north of extreme end of point. Cement monument marking reference station is 14.34 meters N 2° 39' W of observed station.

*Marks.*—Observed station is nail in cedar stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	°	'	''	
"Lee" (S 72° 38' W).....	0	00	00	..... 7/8 mile.
"Cherry Island Water Tank".....	22	45	50	..... 7/8 mile.
Near chimney of house.....	33	38	..	..... 3/8 mile.
REFERENCE STATION.....	104	42	20	..... 14.34 meters.
Chimney of house.....	124	37	..	..... 1/4 mile.
Right peak of barn.....	201	41	..	..... 1 1/2 miles.
Near peak of barn.....	254	10	..	..... 1/2 mile.
Near peak of barn.....	303	39	..	..... 1/2 mile.
Chimney on near end of house.....	357	56	..	..... 1 1/2 miles.

## SETH.

*General locality.*—Northern shore of upper Little Choptank River opposite entrance to Smiths Cove, and about 1/2 mile east of Solomons Cove. (See Chart No. 37.)

*Immediate locality.*—Observed station is on marsh point about on level with high water, 3 yards northwest of shore, 5 yards northeast of shore, and 100 yards west-southwest of extreme end of point. Cement monument marking reference station is 24.90 meters N 26° 06' W of observed station.

*Marks.*—Observed station is nail in cedar stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	°	'	''	
"Adam" (S 21° 04' W).....	0	00	00	..... 1/4 mile.
Near peak of barn.....	12	11	..	..... 1/2 mile.
Middle chimney of house.....	14	52	..	..... 1/2 mile.
Chimney on center of house.....	32	07	..	..... 3/4 mile.
Chimney on near end of house.....	54	58	..	..... 2 1/2 miles.
REFERENCE STATION.....	132	50	30	..... 24.90 meters.
Chimney on left end of house.....	181	37	..	..... 3/4 mile.
Chimney on right end of house.....	194	13	..	..... 1 1/4 miles.
Near peak of large house.....	208	17	..	..... 3/4 mile.
Chimney on near end of small house.....	236	50	..	..... 1/2 mile.
Right chimney of house.....	263	57	..	..... 5/8 mile.
Right peak of barn.....	321	40	..	..... 1 mile.

## ADAM.

*General locality.*—Southeastern shore of upper Little Choptank River about 1/2 mile west of entrance to Smith Cove. (See Chart No. 37.)

*Immediate locality.*—Observed station is on marsh point about on level with high water, 3 yards south of shore, 3 yards southwest of shore, and 6 yards east of shore. Cement monument marking reference station is 27.50 meters S 33° 31' E of observed station.

*Marks.*—Observed station is nail in cedar stub projecting 5 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	°	'	''	
"Seth" (N 21° 03' E).....	0	00	00	..... 1/4 mile.
Chimney on 1 1/2-story house.....	1	10	..	..... 1 1/8 miles.
Chimney on right end of house.....	11	50	..	..... 1 1/2 miles.
Near peak of large house.....	19	50	..	..... 1 mile.
Chimney on near end of small house.....	42	36	..	..... 1 mile.
Near peak of barn.....	47	07	..	..... 1 mile.
Near peak of barn.....	49	58	..	..... 1 mile.
REFERENCE STATION.....	125	25	30	..... 27.50 meters.
Near peak of barn.....	204	36	..	..... 1/4 mile.
Near chimney of house.....	211	16	..	..... 1/4 mile.
Near peak of barn.....	244	05	..	..... 2 miles.

## Survey of Oyster Bars, Dorchester County, Md.

## LAYTON.

*General locality.*—Southeast shore of Little Choptank River about  $\frac{1}{2}$  mile south of Solomons Cove and  $1\frac{1}{4}$  miles east-northeast of Town Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is about 1 foot above high water, 2 yards east of edge of bank 1 foot high, 23 yards west of shore, 24 yards south-southwest of shore, 30 yards northwest of shore, 18 yards north of a graveyard, and 150 yards northeast of a house. Cement monument marking reference station is 17.13 meters S  $45^{\circ} 02'$  E of observed station.

*Marks.*—Observed station is nail in locust stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	'	"	
"Lee" (N $79^{\circ} 26'$ W).....	0	00	00	..... 1 mile.
Right chimney of house.....	3	36	..	..... $1\frac{3}{4}$ miles.
"Cherry Island Water Tank".....	19	34	10	..... 1 mile.
Chimney on center of house.....	82	18	..	..... $\frac{7}{8}$ mile.
Nail in blaze in cedar tree (8 inches diameter).....	108	55	40	..... 3.85 meters.
Chimney on near end of small house.....	144	51	..	..... $1\frac{1}{4}$ miles.
Nail in blaze in cedar tree (6 inches diameter).....	167	51	40	..... 6.49 meters.
Near chimney of house.....	172	50	..	..... $\frac{1}{4}$ mile.
REFERENCE STATION.....	214	23	30	..... 17.13 meters.
Near chimney of house.....	306	53	..	..... 150 yards.
Near peak of barn.....	346	20	..	..... $1\frac{1}{2}$ miles.

## DAVID.

*General locality.*—Southern shore of upper Little Choptank River on point about  $\frac{5}{8}$  mile northeast of Town Point and  $\frac{3}{8}$  mile southeast of Lee Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on a marsh point about on level with high water, 3 yards west of shore, 3 yards east of shore, 3 yards south of extreme end of point, and 100 yards north of pine woods. Cement monument marking reference station is 15.24 meters S  $2^{\circ} 58'$  E of observed station.

*Marks.*—Observed station is a nail in 3-inch pine stub flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	'	"	
"Town" (S $47^{\circ} 24'$ W).....	0	00	00	..... $\frac{5}{8}$ mile.
Tangent of Butter Pot Point.....	12	18	..	..... $1\frac{3}{4}$ miles.
Near peak of barn.....	32	37	..	..... $1\frac{1}{2}$ miles.
Center chimney of house.....	34	46	..	..... $1\frac{3}{8}$ miles.
Near peak of barn.....	49	57	..	..... 1 mile.
Chimney on near end of house.....	93	55	..	..... 2 miles.
Left end of barn roof.....	147	58	..	..... $\frac{5}{8}$ mile.
Near peak of barn.....	203	42	..	..... 2 miles.
REFERENCE STATION.....	309	37	30	..... 15.24 meters.

## TOWN.

*General locality.*—Southeastern shore of Little Choptank River on northeast side of entrance to Fishing Creek on Town Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on a small marsh point on the north side of Town Point about 1 foot above high water, 9 yards east of shore, 14 yards southwest of shore, 14 yards south-southeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe with top 2 inches below base of monument.

References.—	°	'	''	
"Lee" (N 8° 42' E).....	0	00	00	5/8 mile.
Peak of barn showing through trees.....	111	53	..	5/8 mile.
Tangent of Casons Point.....	236	40	..	1 3/4 miles.
Near peak of barn.....	268	16	..	2 miles.
Near peak of large barn.....	270	18	..	1 mile.
Center chimney of house.....	274	20	..	1 mile.
Left chimney of house.....	300	39	..	5/8 mile.
Right chimney of house.....	318	44	..	1 1/8 miles.
Center chimney of house.....	342	06	..	1 3/8 miles.
Center of near side of roof of bungalow on Cherry Island.....	356	30	..	1 mile.

## SWEP.

*General locality.*—Northeastern shore of Fishing Creek about 3/4 mile east-northeast of McKeils Point and 1/4 mile east-southeast of Town Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on firm land about 1 foot above high water, 9 yards northeast of shore, 10 yards northwest of shore, 7 yards north of extreme end of point, and 30 yards southwest by south of near corner of a dairy.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Hugh" (S 8° 20' E).....	0	00	00	1/2 mile.
Near chimney of house.....	2	23	..	1 1/8 miles.
Chimney on right end of house.....	41	48	..	7/8 mile.
Tangent of McKeils Point.....	75	01	..	3/4 mile.
Center chimney of house.....	116	11	..	1 1/4 miles.
Tangent of Town Point.....	116	20	..	1/4 mile.
Near corner of dairy.....	214	18	..	30 yards.
Nail in apple tree (10 inches diameter).....	221	54	10	13.14 meters.
Near peak of house.....	301	55	..	1/4 mile.

## HUGH.

*General locality.*—Eastern shore of Fishing Creek about 3/4 mile southeast of Town Point and 3/4 mile northwest of Windmill Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on high marsh about 2 feet above high water, 12 yards northeast of shore, 13 yards southeast of shore, and 17 yards east of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Etta" (S 64° 09' E).....	0	00	00	1/2 mile.
Near peak of barn.....	136	28	..	5/8 mile.
Near chimney of house.....	138	34	..	1/2 mile.
Tangent of McKeils Point.....	168	46	..	1/2 mile.
Near peak of barn.....	175	17	..	2 1/2 miles.
Near peak of barn.....	185	52	..	1 3/8 miles.
Left chimney of house.....	188	25	..	1 3/8 miles.
Middle chimney of house.....	205	46	..	1 1/2 miles.
Left chimney of house.....	236	05	..	1/2 mile.
Nail in blaze in twin dead cedar tree.....	252	02	30	13.64 meters.

## ETTA.

*General locality.*—Northeastern shore of Fishing Creek at east side of entrance to a small creek about  $\frac{1}{4}$  mile north of Windmill Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 8 yards east of shore, 9 yards northeast of shore, 11 yards southeast of shore, and 100 yards west of a barn.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Mary" (S 1° 38' E) . . . . .	0	00	00	..... $\frac{1}{4}$ mile.
Cupola on Brooks barn . . . . .	28	39	..	..... $\frac{3}{4}$ mile.
Center of cupola on Brooks workshop . . . . .	31	45	..	..... $\frac{3}{4}$ mile.
Right chimney of house . . . . .	47	13	..	..... $\frac{5}{8}$ mile.
Left peak of house . . . . .	96	59	..	..... 1 mile.
Chimney on near end of house . . . . .	134	04	..	..... $\frac{1}{8}$ mile.
Near peak of house . . . . .	144	11	..	..... $\frac{3}{8}$ mile.
Near peak of large part of house . . . . .	217	34	..	..... $\frac{1}{8}$ mile.
Peak of barn . . . . .	258	47	..	..... 100 yards.

## MARY.

*General locality.*—Northeastern shore of Fishing Creek on Windmill Point, about  $1\frac{1}{2}$  miles southeast of Little Choptank River entrance to Fishing Creek. (See Chart No. 37.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 11 yards northwest of shore, 17 yards southeast of shore, and 18 yards east of shore. Cedar stub marking old station "Windmill Point" is 12.60 meters S 82 22' W of observed station.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Neil" (S 86° 09' E) . . . . .	0	00	00	..... $\frac{5}{8}$ mile.
Near peak of house . . . . .	23	41	..	..... $\frac{5}{8}$ mile.
Right chimney of house . . . . .	30	19	..	..... $1\frac{1}{4}$ miles.
Right chimney of house . . . . .	47	26	..	..... $\frac{5}{8}$ mile.
Right chimney of house . . . . .	100	37	..	..... $\frac{1}{2}$ mile.
Left chimney of Brooks house . . . . .	125	56	..	..... $\frac{5}{8}$ mile.
Cupola on Brooks workshop . . . . .	132	58	..	..... $\frac{5}{8}$ mile.
Right chimney of house . . . . .	156	43	..	..... $\frac{1}{2}$ mile.
"Windmill Point" (cedar stub) . . . . .	168	31	20	..... 12.60 meters.
Near peak of barn . . . . .	212	09	..	..... $2\frac{1}{4}$ miles.

## NEIL.

*General locality.*—Northern shore of Fishing Creek about  $\frac{5}{8}$  mile east of Windmill Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on third marsh point east of Windmill Point about 1 foot above high water, 3 yards north of shore, 5 yards northeast of shore, 5 yards northwest of shore, 70 yards south-southeast of gate to yard of farm house, and 115 yards south of farmhouse. Cement monument marking reference station is 26.10 meters N 5° 41' E of observed station.

*Marks.*—Observed station is nail in cedar stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	'	''	
"Tom" (S 68° 55' W) . . . . .	0	00	00	..... $\frac{3}{4}$ mile.
Cupola on Brooks barn . . . . .	3	45	..	..... 1 mile.
Center of Brooks workshop cupola . . . . .	4	35	..	..... 1 mile.
Chimney of house . . . . .	41	02	..	..... $\frac{1}{4}$ mile.



References—Continued.

	°	'	"	
Near chimney of house . . . . .	93	07		110 yards.
Cupola on barn . . . . .	106	02		140 yards.
REFERENCE STATION . . . . .	116	45	30	26.10 meters.
Near chimney of house . . . . .	185	52		3/8 mile.
Near peak of house . . . . .	199	48		1 mile.
Lightning rod on right end of house . . . . .	307	25		3/4 mile.
Near peak of house . . . . .	351	38		7/8 mile.

KIRBY.

*General locality.*—Northern shore of Fishing Creek opposite entrance to Church Creek about 1 mile east of Windmill Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on solid land about 1 foot above high water, 5 yards north of shore, 6 yards northeast of shore, 10 yards east of shore, 45 yards southwest of wire fence, and 125 yards south of a small house. Cement monument marking reference station is 19.99 meters N 5° 25' E of observed station.

*Marks.*—Observed station is nail in stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of the ground.

References.—

	°	'	"	
"Neil" (S 85° 03' W) . . . . .	0	00	00	3/8 mile.
Left chimney of large house . . . . .	9	29		3/8 mile.
Cupola on barn . . . . .	17	20		3/8 mile.
Near peak of house . . . . .	69	50		125 yards.
Right chimney of house . . . . .	79	22		3/4 mile.
REFERENCE STATION . . . . .	100	21	40	19.99 meters.
Near peak of house . . . . .	162	42		1/2 mile.
Two chimneys of house nearly in range . . . . .	186	31		3/4 mile.
Right chimney of house . . . . .	281	32		3/8 mile.
Left chimney of house . . . . .	327	52		3/4 mile.
Center lightning rod of house . . . . .	332	48		1/2 mile.
Cupola on Brooks barn . . . . .	351	25		1 3/8 miles.

PAUL, (LITTLE CHOPTANK RIVER).

*General locality.*—Northern shore of Fishing Creek, about 1 1/8 miles northeast of Deep Water Point. (See Progress map.)

*Immediate locality.*—Observed station is near edge of a garden about 1 foot above high water, 8 yards north of shore, 10 yards west of shore, 13 yards northeast of shore, and 40 yards southeast of a 1 1/2-story house. Cement monument marking reference station is 8.53 meters N 28° 53' W of observed station.

*Marks.*—Observed station is nail in locust stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—

	°	'	"	
"Neil" (S 76° 32' W) . . . . .	0	00	00	1 7/8 miles.
Cupola on barn . . . . .	7	37		1 1/2 miles.
Near corner of house . . . . .	47	49		40 yards.
REFERENCE STATION . . . . .	74	35	00	8.53 meters.
Near chimney of house . . . . .	168	51		1/2 mile.
Near peak of barn . . . . .	190	58		1 1/2 miles.
Right chimney of house . . . . .	243	15		1/2 mile.
Near peak of barn . . . . .	258	13		1/2 mile.
Near peak of barn . . . . .	321	55		1 1/8 miles.
Left chimney of house . . . . .	343	18		1 3/8 miles.
Near peak of house . . . . .	352	35		1 3/4 miles.
Cupola on Brooks barn . . . . .	358	14		2 miles.

## CHURCH CREEK (NO. 1 WEST).

*General locality.*—Western shore of Church Creek, about  $\frac{3}{8}$  mile south of Fishing Creek. (See Chart No. 37.)

*Immediate locality.*—Observed station is near edge of cultivated land about 2 feet above high water, 3 yards south of shore, 20 yards northwest of shore, and 30 yards east of extreme end of point. Cement monument marking reference station is 14.60 meters S  $4^{\circ}$  47' W of observed station.

*Marks.*—Observed station is nail in stub projecting 2 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Kirby" (N $1^{\circ}$ 27' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Near peak of left one of two barns.....	26	38	..	..... 1 mile.
Near peak of barn.....	41	32	..	..... 1 mile.
Chimney of $1\frac{1}{2}$ -story house.....	131	24	..	..... $\frac{1}{2}$ mile.
REFERENCE STATION.....	186	13	40	..... 14.60 meters.
Chimney on near end of house.....	228	21	..	..... 200 yards.
Chimney on left end of house.....	300	05	..	..... $\frac{1}{2}$ mile.
Right chimney of large house.....	326	54	..	..... $\frac{3}{4}$ mile.
Chimney on left end of $1\frac{1}{2}$ -story house.....	356	27	..	..... $\frac{3}{8}$ mile.

## AUSTIN.

*General locality.*—Southern shore of Fishing Creek, on a point about  $\frac{5}{8}$  mile east-southeast of Windmill Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is at edge of young orchard about 3 feet above high water, 18 yards south of shore, 35 yards southwest of shore, 2 yards southwest of edge of bank next to marsh, 10 yards east of edge of bank, and 75 yards north-northwest of near corner of a two-story house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Tom" (S $86^{\circ}$ 17' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Left chimney of house.....	9	38	..	..... 1 mile.
Left chimney of house.....	108	10	..	..... $\frac{1}{4}$ mile.
Chimney on left end of house.....	149	11	..	..... $\frac{1}{2}$ mile.
Near peak of $1\frac{1}{2}$ -story house.....	158	55	..	..... $1\frac{1}{8}$ miles.
Near peak of house.....	172	21	..	..... 1 mile.
Nail in blaze in persimmon tree (10 inches diameter).....	213	14	50	..... 4.86 meters.
Near corner of house.....	237	36	..	..... 75 yards.
Near peak of house.....	347	06	..	..... $\frac{3}{4}$ mile.
Cupola on Brooks barn.....	358	49	..	..... $\frac{1}{4}$ mile.
Center of cupola on Brooks workshop.....	359	18	..	..... $\frac{3}{8}$ mile.

## TOM.

*General locality.*—Southwestern shore of Fishing Creek, on a point of land between two coves, about  $\frac{1}{4}$  mile south of Windmill Point, and  $1\frac{1}{2}$  miles southeast of Little Choptank River. (See Chart No. 37.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 9 yards southwest of end of point, and 10 yards southeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Brooks" (S 89° 03' W).....	0	00	00	1/4 mile.
Left chimney of house.....	20	00	00	3/8 mile.
Near peak of barn.....	58	43	00	2 3/4 miles.
Chimney on middle of house.....	145	02	00	5/8 mile.
Chimney on left end of large house.....	154	12	00	3/4 mile.
Chimney on near end of house.....	162	17	00	1 1/8 miles.
Center lightning rod on large house.....	181	03	00	5/8 mile.
Near chimney of house.....	205	55	00	1/2 mile.
Center of cupola on barn.....	288	51	00	1/2 mile.
Left chimney of house.....	300	30	00	125 yards.
Cupola on Brooks barn.....	353	38	00	1/4 mile.
Center of cupola on Brooks workshop.....	355	15	00	1/4 mile.

BROOKS.

*General locality.*—Southwestern shore of Fishing Creek, near Brooks shipyard, about 1/4 mile southwest of Windmill Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on marsh about 8 yards south of shore, 11 yards southeast of shore, 15 yards northeast of shore, and 50 yards north by west of northeast end of large workshop.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Doctor" (N 2° 28' E).....	0	00	00	3/8 mile.
Near peak of barn.....	26	34	00	3/4 mile.
Cupola on center of large barn.....	66	29	00	1 mile.
Left chimney of large house.....	68	35	00	1 mile.
Near peak of house.....	77	38	00	2 miles.
Lightning rod on near end of house.....	87	10	00	1 mile.
Chimney on near end of house.....	103	31	00	100 yards.
Weather vane on barn cupola.....	127	20	00	75 yards.
Cupola on workshop.....	182	11	00	45 yards.
Chimney on near end of house.....	328	00	00	1/2 mile.

DOCTOR.

*General locality.*—Western shore of Fishing Creek on a prominent point about 1 mile southeast of Little Choptank River. (See Chart No. 37.)

*Immediate locality.*—Observed station is on sand and marsh about 1 foot above high water, 30 yards southwest of shore, 30 yards northwest of shore, and 25 yards west of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Eleanor" (N 81° 04' W).....	0	00	00	1/2 mile.
Tangent of McKeils Point.....	32	51	00	7/8 mile.
Middle dormer window of house.....	34	24	00	2 miles.
Near peak of barn.....	50	52	00	2 miles.
Left chimney of house.....	111	40	00	3/8 mile.
Right chimney of house.....	131	21	00	1/2 mile.
Near peak of barn.....	193	51	00	1 mile.
Left chimney of house.....	209	16	00	1 mile.
Right chimney of house.....	252	13	00	3/8 mile.
Weather vane on barn cupola.....	257	22	10	3/8 mile.
Cupola on Brooks workshop.....	263	41	00	3/8 mile.

## ELEANOR.

*General locality.*—Southwestern shore of Fishing Creek about  $\frac{5}{8}$  mile south-southeast of McKeils Point, and 1 mile south of Town Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on sandy land at edge of woods about 10 yards southwest by south of shore, 15 yards west-northwest of shore, 28 yards west-southwest of extreme end of small marsh point, and 70 yards west-northwest of shore end of fence extending into water at a marsh point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of the ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Laney" (N 14° 32' W).....	0	00	00	..... $\frac{1}{2}$ mile.
"Cherry Island Water Tank".....	19	14	20	..... $2\frac{1}{4}$ miles.
Middle dormer window of house.....	34	35	..	..... 1 mile.
Near peak of barn.....	37	51	..	..... 1 mile.
Left chimney of house.....	48	56	..	..... 1 mile.
Right chimney of house.....	85	35	..	..... $\frac{3}{8}$ mile.
Right end of barn roof.....	94	16	..	..... 1 mile.
Nail in blaze in cedar tree (10 inches diameter).....	201	41	00	..... 17.95 meters.
Nail in blaze in cedar tree (10 inches diameter).....	288	22	20	..... 6.70 meters.
Nail in blaze in cedar tree (6 inches diameter).....	315	02	00	..... 8.40 meters.
Near peak of house.....	355	30	..	..... $\frac{1}{4}$ mile.

## LANEY.

*General locality.*—Southeastern shore of Little Choptank River on southwestern side of entrance to Fishing Creek on the northeast end of McKeils Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on a marsh point 35 yards southeast of shore, 50 yards northwest of shore, and 35 yards south-southwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Mac" (S 77° 08' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Chimney of house.....	34	50	..	..... 2 miles.
Near peak of barn.....	54	23	..	..... 1 mile.
Left chimney of house.....	83	48	..	..... $1\frac{1}{8}$ miles.
Center of roof of bungalow on Cherry Island... ..	112	23	..	..... $1\frac{3}{8}$ miles.
"Cherry Island Water Tank".....	113	38	30	..... $1\frac{5}{8}$ miles.
Near peak of barn.....	152	37	..	..... $\frac{5}{8}$ mile.
Right chimney of house.....	231	03	..	..... $1\frac{3}{4}$ miles.
Cupola on barn.....	247	50	..	..... $1\frac{1}{8}$ miles.
Near chimney of house.....	273	13	..	..... $\frac{1}{4}$ mile.

## MAC.

*General locality.*—Southeastern shore of Little Choptank River on northeast side of Tobacco Stick Bay on McKeils Point. (See Chart No. 37.)

*Immediate locality.*—Observed station is on west side of McKeils Point about 3 feet above high water, 16 yards east of edge of bank, 20 yards southeast of edge of bank, 25 yards northeast of edge of bank, and 150 yards south-southwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Madison Southern M. E. Church Spire" (S 4° 37' E).....	0	00	00	1 7/8 miles.
Spire of M. P. Church at Madison.....	1	28	10	1 7/8 miles.
Tangent of Casons Point.....	89	42		1 1/8 miles.
Center chimney of house.....	103	58		2 3/4 miles.
Near peak of house.....	113	03		1 1/2 miles.
Chimney on center of house.....	117	11		1 5/8 miles.
Near peak of large barn.....	140	40		1 1/8 miles.
Near peak of barn.....	147	24		1 3/8 miles.
Near peak of barn.....	151	55		1 mile.
Left chimney of house.....	155	45		1 mile.
Center of near side of roof of bungalow on Cherry Island.....	203	35		1 3/4 miles.
Right chimney of house.....	242	57		7/8 mile.
Near corner of house.....	302	24		5/8 mile.

#### MADISON SOUTHERN M. E. CHURCH SPIRE.

*General locality.*—Southern shore of Little Choptank River in the town of Madison at the head of Tobacco Stick Bay. (See Chart No. 37.)

*Immediate locality.*—Observed station is on structure known as Southern M. E. Church, which is the tallest of three spires in the town of Madison.

*Marks.*—Observed station is spire on Southern M. E. Church.

*References.*—None necessary.

#### TOBACCO STICK.

*General locality.*—Southern shore of Little Choptank River on the northern end of point between Woolford Creek and Tobacco Stick Bay. (See Chart No. 37.)

*Immediate locality.*—Observed station is about in the center of a shell pile near end of point about 1 foot above high water, 13 yards southeast of shore, 14 yards south of shore, and 30 yards southwest of shore. Cement monument marking reference station is 21.35 meters S 29° 34' E of observed station and about in range with Madison Southern M. E. Church Spire. Four-inch tile pipe marking old reference station is 2.84 meters N 76° 30' E of observed station.

*Marks.*—Observed station is nail in 6-inch cedar stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Old reference station is 4-inch tile pipe set in cement.

*References.*—

	°	'	''	
"Madison Southern M. E. Church Spire" (S. 29° 53' E).....	0	00	00	1 3/4 miles.
NEW REFERENCE STATION (CEMENT MONU- MENT).....	0	18	10	21.35 meters.
Right end of roof of cannery.....	8	49		1 mile.
Tangent of James Point.....	122	14		5 1/2 miles.
Chimney on left end of house.....	165	56		1 3/8 miles.
Chimney on left end of house.....	189	40		3 miles.
Near peak of barn.....	211	16		1 3/8 miles.
"Cherry Island Water Tank".....	234	58	50	2 3/4 miles.
Tangent of McKeils Point.....	240	46		1 mile.
OLD REFERENCE STATION (TILE PIPE).....	286	22	50	2.84 meters.
Near peak of old barn.....	344	51		2 miles.

## WOOL.

*General locality.*—Southeastern shore of Little Choptank River on Susquehanna Point  $\frac{1}{4}$  mile west of entrance to Woolford Creek. (See Chart No. 37.)

*Immediate locality.*—Observed station is on sand and marsh land about 1 foot above high water, 10 yards south of shore, 17 yards southwest of shore, and 22 yards east of shore. Cement monument marking reference station is 24.03 meters S  $18^{\circ} 12'$  E of observed station. Four-inch tile pipe marking old reference station is 27.12 meters S  $58^{\circ} 31'$  W of observed station.

*Marks.*—Observed station is nail in center of 4-inch tile pipe set in cement with top flush with surface of ground. Reference station is center of point of triangle on standard cement monument projecting 4 inches above surface of ground. Old reference station is nail in center of 4-inch tile pipe set in cement projecting about 3 inches above surface of ground.

*References.*—

	°	'	"	
"Veith" (S $55^{\circ} 49'$ W).....	0	00	00	2 $\frac{3}{8}$ miles.
OLD REFERENCE STATION (TILE PIPE).....	2	41	30	27.12 meters.
Near peak of large house on Hooper Point...	3	25	..	2 $\frac{1}{2}$ miles.
Near peak of house.....	26	27	..	4 $\frac{7}{8}$ miles.
Tangent of northeast end of James Island....	39	27	..	4 $\frac{3}{4}$ miles.
Right chimney of house.....	70	08	..	2 miles.
Left chimney of 1 $\frac{1}{2}$ -story house.....	106	10	..	1 $\frac{1}{4}$ miles.
Near peak of barn.....	136	18	..	2 $\frac{1}{8}$ miles.
Left chimney of house.....	147	47	..	2 miles.
"Cherry Island Water Tank".....	159	33	00	3 $\frac{1}{4}$ miles.
Right chimney of house.....	285	27	..	$\frac{1}{2}$ mile.
NEW REFERENCE STATION (CEMENT MONU- MENT).....	285	58	40	24.03 meters.

## POV.

*General locality.*—Southern shore of Little Choptank River on extreme end of point about  $\frac{1}{4}$  mile north of entrance to Parsons Creek about 2 miles south-southeast of Ragged Island, and  $\frac{1}{4}$  miles east of Hooper Point. (See Charts Nos. 37 and 38.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 4 yards south of shore, 4 yards southeast of shore, and 8 yards southwest of shore. Tile pipe marking old reference station is 64.66 meters S  $65^{\circ} 17'$  E of observed station. Cement monument marking new reference station is 31.15 meters S  $23^{\circ} 40'$  E of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe projecting 12 inches above surface of ground. Old reference station is nail in center of 4-inch tile pipe set in cement. New reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Hudson" (N $19^{\circ} 04'$ E).....	0	00	00	2 $\frac{3}{8}$ miles.
Chimney on near peak of house.....	60	38	..	$\frac{3}{8}$ mile.
Chimney on right end of same house.....	61	49	..	$\frac{3}{8}$ mile.
Right chimney of house.....	95	10	..	$\frac{1}{4}$ mile.
OLD REFERENCE STATION (TILE PIPE).....	95	39	20	64.66 meters.
Near peak of barn.....	100	50	..	$\frac{1}{4}$ mile.
NEW REFERENCE STATION (MONUMENT)....	137	15	40	31.15 meters.
Near peak of large house.....	246	47	..	1 $\frac{1}{2}$ miles.
Near peak of house.....	258	48	..	4 miles.
Chimney of house.....	263	44	..	4 miles.
Chimney on left end of house.....	328	17	..	2 $\frac{3}{4}$ miles.
Left side of 1 $\frac{1}{2}$ -story house.....	352	08	..	2 $\frac{3}{8}$ miles.

## NOBLEE.

*General locality.*—Eastern side of Slaughter Creek about  $\frac{1}{2}$  mile northeast of Slaughter Creek Bridge, and  $\frac{1}{4}$  mile inshore. (See Chart No. 38.)

*Immediate locality.*—Observed station is in edge of cultivated field on south side of road leading from Madison to Taylor Island, about 250 yards east of shore, 3 yards south of wire fence between field and road, 85 yards west-southwest of farm boundary stone in fence corner near road, and 135 yards east-northeast of barn on same side of road as station.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Finish" (S 14° 52' W).....	0	00	00	..... $\frac{5}{8}$ mile.
Near peak of barn.....	7	23	..	..... $\frac{1}{4}$ mile.
Right chimney of house.....	13	22	..	..... $\frac{1}{8}$ mile.
Center of canning house ventilators.....	19	39	..	..... $\frac{3}{8}$ mile.
Center of draw of Slaughter Creek Bridge....	33	58	..	..... $\frac{1}{2}$ mile.
Near peak of Taylor Island wharf house.....	36	18	..	..... $\frac{1}{2}$ mile.
Near peak of store at Taylor Island.....	42	16	..	..... $\frac{3}{8}$ mile.
Near peak of barn.....	44	41	..	..... 135 yards.
Nail in blaze in cedar tree (4 inches diameter).....	65	07	30	..... 15.98 meters.
Near chimney of house.....	99	02	..	..... 250 yards.
Spindle on barn cupola.....	116	56	..	..... 250 yards
Near chimney of house.....	175	04	..	..... $\frac{5}{8}$ mile.
Near peak of house.....	201	47	..	..... 1 mile.
Middle chimney of house.....	315	01	..	..... $\frac{1}{4}$ mile.

## FINISH.

*General locality.*—Eastern shore of Slaughter Creek about  $\frac{3}{8}$  mile southeast of Slaughter Creek Bridge. (See Chart No. 38.)

*Immediate locality.*—Observed station is in corner of cultivated field, about 50 yards east of shore, 12 yards east of wire fence between field and marsh, 14 yards north of wire fence between field and woods, and 17 yards northeast of fence corner.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Taylor" (S 87° 18' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Taller stack of canning house at Taylor Island.	21	10	..	..... $\frac{1}{2}$ mile.
Near peak of large dwelling at Taylor Island.	29	09	..	..... $\frac{1}{2}$ mile.
Left chimney of house nearest Slaughter Creek Bridge.....	36	42	..	..... $\frac{1}{2}$ mile.
Near peak of Taylor Island wharf house....	49	57	..	..... $\frac{3}{8}$ mile.
Center of draw of Slaughter Creek Bridge....	51	00	..	..... $\frac{3}{8}$ mile.
Near peak of old canning house.....	82	10	..	..... $\frac{3}{8}$ mile.
Near peak of barn.....	105	31	..	..... $\frac{5}{8}$ mile.
Nail in blaze in pine tree (8 inches diameter).	225	56	10	..... 20.18 meters.
Nail in blaze in pine tree (12 inches diameter)	246	19	10	..... 16.15 meters.
Nail in blaze in pine tree (8 inches diameter).	294	38	50	..... 19.55 meters.

## TAYLOR.

*General locality.*—Western shore of Slaughter Creek about  $\frac{1}{4}$  mile south of Slaughter Creek Bridge. (See Chart No. 38.)

*Immediate locality.*—Observed station is on hard land at edge of marsh about 1 foot above high water, 22 yards northwest of shore, 28 yards southwest of shore, and 29 yards west of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Harrington" (N 2° 37' E).....	0	00	00	..... $\frac{3}{4}$ mile.
Left side of Taylor Island wharf house.....	8	46	..	..... $\frac{1}{4}$ mile.
Spindle on cupola on barn.....	23	35	..	..... $\frac{3}{4}$ mile.
Near peak of barn.....	30	50	..	..... $\frac{3}{4}$ mile.
Near peak of old canning house.....	37	40	..	..... $\frac{3}{8}$ mile.
Left chimney of large house.....	38	34	..	..... $\frac{1}{2}$ mile.
Near peak of barn.....	50	14	..	..... $\frac{5}{8}$ mile.
Nail in blaze in pine tree (5 inches diameter).....	180	39	30	..... 10.27 meters.
Nail in blaze in pine tree (5 inches diameter).....	252	27	30	..... 5.83 meters.
Near peak of house.....	275	43	..	..... $\frac{3}{8}$ mile.
Taller stack of canning house at Taylor Island.....	311	10	..	..... $\frac{3}{8}$ mile.
Left chimney of house nearest Slaughter Creek Bridge.....	344	59	..	..... $\frac{1}{4}$ mile.
Nail in blaze in pine tree (4 inches diameter).....	302	46	40	..... 4.35 meters.

## HARRINGTON.

*General locality.*—Western shore of Slaughter Creek about  $\frac{3}{8}$  mile north of Slaughter Creek Bridge. (See Chart No. 38.)

*Immediate locality.*—Observed station is on a marsh point at south side of entrance to a creek about on level with high water, 20 yards southwest of shore, 26 yards northwest of shore, 27 yards west of extreme end of point, and 300 yards southeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Whitewash" (N 22° 53' E).....	0	00	00	..... $\frac{7}{8}$ mile.
Chimney on near end of house.....	24	52	..	..... $\frac{3}{4}$ mile.
Spindle on cupola on barn.....	60	29	..	..... $\frac{3}{8}$ mile.
Near peak of barn.....	81	00	..	..... $\frac{1}{2}$ mile.
Near peak of barn.....	115	46	..	..... $\frac{3}{8}$ mile.
Near peak of old canning house.....	124	48	..	..... $\frac{1}{2}$ mile.
Center of draw of Slaughter Creek Bridge.....	149	55	..	..... $\frac{3}{8}$ mile.
Near gable of house nearest west end of Slaughter Creek Bridge.....	169	26	..	..... $\frac{1}{2}$ mile.
Taller stack of canning house at Taylor Island.....	181	26	..	..... $\frac{1}{2}$ mile.
Left chimney of house.....	282	29	20	..... 300 yards.



## TRAVERS 2.

*General locality.*—Eastern shore of Chesapeake Bay on western side of Taylor Island about 4 miles south of James Point. (See Chart No. 38.)

*Immediate locality.*—Observed station is about 4 feet above high water in a field which was once under cultivation but is now covered with water bushes, about 40 yards east of shore and 15 feet north of a wire fence which starts at the shore and runs east. A stone used as an old reference mark stands 9.41 meters N 26° 53' E of observed station, and the cement monument marking new reference station is 9.52 meters N 77° 20' W of observed station.

*Marks.*—Observed station is a granite post projecting above the ground with crosslines running approximately north to south and east to west. New reference station is center point of triangle on standard cement monument. Old reference station is a cross on a granite post projecting above the ground with one of the crosslines running in the direction of Cove Point Light.

*References.*—

	0	'	"	
"Cove Point Light" (S 26° 15' W).....	0	00	00	..... 6½ miles.
Governors Run Wharf.....	77	12	..	..... 9½ miles.
Tangent of woods at water's edge.....	123	40	..	..... ½ mile.
Near peak of 2-story house.....	173	23	..	..... ¼ mile.
OLD REFERENCE STONE (GRANITE POST).....	180	38	20	..... 9.41 meters.
Chimney of 1½-story house.....	195	47	..	..... ¼ mile.
NEW REFERENCE STATION (CEMENT MONU- MENT).....	256	24	50	..... 9.52 meters.
Near corner of small cabin.....	271	32	..	..... ¼ mile.
Near chimney of house among trees.....	300	54	..	..... ½ mile.
Near peak of small house.....	304	54	..	..... ¾ mile.

## DUNNOCK.

*General locality.*—Eastern shore of Chesapeake Bay about 5¼ miles east of Cove Point Light, and 2¾ miles north-northwest of north end of Barren Island. (See Chart No. 38.)

*Immediate locality.*—Observed station is on a marsh about 1 foot above high water, 70 yards from shore in line with Cedar Point Light, 108 yards from shore in line with Cove Point Light, and 250 yards from a clump of woods at shore known locally as "Cattle Island Woods." Cement monument marking reference station is 35.18 meters N 88° 14' E of observed station and nearly in line with Cove Point Light.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

	0	'	"	
"Cedar Point Light" (S 36° 47' W).....	0	00	00	..... 7¾ miles.
Roof of house.....	43	41	..	..... 6 miles.
Flagstaff at Cove Point Light.....	51	21	..	..... 5¼ miles.
"Cove Point Light".....	51	33	40	..... 5¼ miles.
"Point of Rocks".....	67	13	10	..... 7¼ miles.
Near peak of barn.....	168	39	..	..... ½ mile.
Chimney of house.....	172	34	..	..... ½ mile.
REFERENCE STATION.....	231	26	40	..... 35.18 meters.
Peak of barn.....	241	08	..	..... 1¼ miles.
Chimney of house.....	256	20	..	..... 1¼ miles.

## COVE POINT LIGHT.

*General locality.*—Western shore of Chesapeake Bay on Cove Point about 5 miles north of entrance to Patuxent River. (See Chart No. 38.)

*Immediate locality.*—Observed station is on tower known as "Cove Point Light," which is near a detached dwelling and a detached fog-signal house.

*Marks.*—Observed station is center point of lantern on Cove Point Light.

*References.*—

"Cedar Point Light" (S 7° 16' E)..... 0 00 00 ..... 6 miles.

## POINT OF ROCKS.

*General locality.*—Western shore of Chesapeake Bay on Point of Rocks, about 2¾ miles northwest of Cove Point Light. (See Chart No. 38.)

*Immediate locality.*—Observed station is in dense woods on a bluff about 90 feet high, 5 yards west of edge at extreme point, 8 yards south of edge of bluff, and 5 yards northwest of edge of bluff. Cement monument marking reference station is 9.42 meters S 66° 44' W of observed station.

*Marks.*—Observed station is nail in center of round stake 4 inches in diameter with top flush with surface of ground driven into a 6-inch tile pipe with top 6 inches below surface of ground. Subsurface mark was reported in 1898 as a 6-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

"Cove Point Light" (S 43° 26' E).....	0	00	00	.....	2¾ miles.
Center nail in blaze of tree (13 inches diameter).....	19	19	40	.....	5.64 meters.
Center nail in blaze of tree (13 inches diameter).....	00	05	30	.....	5.62 meters.
REFERENCE STATION.....	110	09	30	.....	9.42 meters.
Nail in blaze in tree (9 inches diameter).....	126	35	40	.....	4.16 meters.
Right tangent Governors Run Wharf.....	186	20	20	.....	7½ miles.
Tangent of main woods.....	249	57	..	.....	8½ miles.
Left peak of large house.....	297	45	20	.....	6 miles.
North peak of large house.....	312	17	30	.....	6¾ miles.

## CEDAR POINT LIGHT.

*General locality.*—Western shore of Chesapeake Bay on Cedar Point at south side of entrance to Patuxent River, about 3¼ miles east-southeast of Drum Point Light and 6 miles south by east of Cove Point Light. (See Chart No. 39.)

*Immediate locality.*—Observed station is on a square tower on a square brick dwelling known as Cedar Point Lighthouse.

*Marks.*—Observed station is center point of lantern on Cedar Point Lighthouse.

*References.*—

"Cove Point Light" (N 7° 16' W)..... 0 00 00 ..... 6 miles.

## HOOPER ISLAND LIGHT.

*General locality.*—Eastern side of Chesapeake Bay offshore about 3½ miles west of Hoopers Island, and 4 miles south of Barren Island. (See Chart No. 39.)

*Immediate locality.*—Observed station is on Hoopers Island Lighthouse.

*Marks.*—Observed station is center point of lantern on conical tower on cylindrical foundation, known as Hooper Island Lighthouse.

*References.*—

"Cedar Point Light" (N 65° 04' W)..... 0 00 00 ..... 7 miles.

## SOUTH.

*General locality.*—Eastern side of Chesapeake Bay on western shore of Barren Island, about  $4\frac{3}{4}$  miles north of Hooper Island Light and 6 miles east of Cedar Point Light. (See Chart No. 39.)

*Immediate locality.*—Observed station is on sandy marsh about 1 foot above high water and 4 yards east of rapidly washing shore. Cement monument marking reference station is 101.21 meters N  $72^{\circ} 40' 1\frac{1}{2}$  of observed station.

*Marks.*—Observed station is nail in cedar stub about 8 inches in diameter and 4 feet long with top projecting about 20 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. "South Secondary" is marked the same as the observed station except top was badly burned, only projecting 3 inches above surface of ground.

*References.*—

	°	'	"	
"Hooper Island Light" (S $8^{\circ} 10' E$ ) . . . . .	0	00	00	..... $4\frac{3}{4}$ miles.
"Cedar Point Light" . . . . .	80	50	20	..... 6 miles.
Tangent to Hog Point . . . . .	90	00	..	..... $7\frac{1}{2}$ miles.
"Cove Point Light" . . . . .	131	08	10	..... $7\frac{3}{4}$ miles.
Tangent of shore north of station . . . . .	170	00	..	..... 1 mile.
REFERENCE STATION (CEMENT MONUMENT) . . . . .	260	50	50	..... 101.21 meters.
"SOUTH SECONDARY" (CEDAR STUB) . . . . .	260	50	50	..... 100.25 meters.
Left chimney of house . . . . .	301	39	..	..... $2\frac{1}{2}$ miles.
Dead pine tree . . . . .	346	57	..	..... 90 yards.

## NORTH.

*General locality.*—Eastern side of Chesapeake Bay on western shore of Barren Island about  $\frac{3}{8}$  mile south of north end of island and 7 miles east-southeast of Cove Point Light. (See Chart No. 39.)

*Immediate locality.*—Observed station is on hard land surrounded by water bushes and scrub pines about 2 feet above high water, and 50 yards east-southeast of point where three large pine trees stand near shore. Cement monument marking reference station is 48.71 meters N  $72^{\circ} 39' E$  of observed station.

*Marks.*—Observed station is center one of four nails in cedar stub 8 inches in diameter and 4 feet in length with top projecting about 8 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Station called "North Secondary" is marked the same as the observed station except the top of cedar post is about 18 inches above surface of ground.

*References.*—

	°	'	"	
"Cove Point Light" (N $64^{\circ} 08' W$ ) . . . . .	0	00	00	..... 7 miles.
Near peak of house . . . . .	54	47	..	..... $2\frac{7}{8}$ miles.
Nail in blaze in pine tree (6 inches diameter) . . . . .	74	57	50	..... 8.18 meters.
Nail in blaze in pine tree (8 inches diameter) . . . . .	116	17	20	..... 14.15 meters.
Nail in blaze in pine tree (5 inches diameter) . . . . .	132	36	10	..... 9.99 meters.
REFERENCE STATION (CEMENT MONUMENT) . . . . .	136	47	00	..... 48.71 meters.
NORTH SECONDARY (CEDAR STUB) . . . . .	136	47	00	..... 49.95 meters.
Nail in blaze in pine tree (5 inches diameter) . . . . .	186	10	20	..... 5.98 meters.
"Cedar Point Light" . . . . .	306	08	30	..... $6\frac{1}{4}$ miles.

## MINT.

*General locality.*—Eastern shore of Tar Bay on Charity Point at north side of entrance to Fishing Creek, about  $\frac{5}{8}$  mile west of Fishing Creek bridge, and  $1\frac{5}{8}$  miles east of north end of Barren Island. (See Chart No. 39.)

*Immediate locality.*—Observed station is on shell bank about 4 feet above high water, 2 yards east of shore, 11 yards southwest of small wild cherry tree, 13 yards west-southwest of another small wild cherry tree, and just west of a dense growth of small trees and brush. Cement monument marking reference station is 21.85 meters N  $52^{\circ} 05' E$  of observed station.

## Survey of Oyster Bars, Dorchester County, Md.

*Marks.*—Observed station is center of 4-inch tile pipe with top 7 inches below surface of ground. Subsurface mark is center of 4-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Hosier Memorial Church Spire" (S 21° 24' E)	0	00	00	1 1/4 miles.
"Mt. Zion M. E. Church Spire"	6	41	50	2 1/4 miles.
Chimney on middle of house	7	52	..	1 1/4 miles.
"Hooper Island Light"	27	22	10	6 1/4 miles.
Near peak of house	58	05	..	1 1/2 miles.
Chimney on outside of near end of 2-story house	64	06	..	1 1/2 miles.
Chimney of shanty	72	50	..	1 1/2 miles.
Tangent of north end of Barren Island	112	00	..	1 1/4 miles.
Red Beacon	122	25	20	1 1/4 miles.
Black Beacon	123	37	40	1 1/4 miles.
"Cove Point Light"	130	29	40	8 1/4 miles.
Left tangent of Cattle Island woods	160	00	..	4 miles.
Nail in blaze in wild cherry tree (3 inches diameter)	233	20	00	10.34 meters.
REFERENCE STATION	253	28	50	21.85 meters.
Nail in blaze in wild cherry tree (5 inches diameter)	266	50	10	11.86 meters.
Left chimney of large 2-story house	356	07	..	3/8 mile.

## KEENES.

*General locality.*—Eastern shore of Honga River on Keenes Point, about 1 1/4 miles north-northeast of Fishing Creek Bridge and 3/4 mile east of Cedar Point. (See Charts Nos. 39 and 40.)

*Immediate locality.*—Observed station is on marsh with dense growth of water bushes alongshore, about 1 foot above high water, 20 yards north of shore, 30 yards east of shore, and 35 yards south of cultivated land.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Kerwin" (S 79° 28' E)	0	00	00	1 1/4 miles.
Near peak of barn	159	38	..	1 mile.
Chimney on right end of house	161	04	..	1 mile.
Near peak of barn	196	20	..	2 miles.
Left tangent of trees along edge of cultivated land	211	00	..	65 yards.
Center one of group of three large pine trees	282	14	..	1/2 mile.
Right tangent of trees along edge of cultivated land	344	00	..	60 yards.

## GUNNERS.

*General locality.*—Western shore of Honga River on Gunners Island on point at northern side of entrance to Gunners Cove, about 3/8 mile north of Long Point and 1 1/8 miles southeast of Fishing Creek Bridge. (See Charts Nos. 39 and 40.)

*Immediate locality.*—Observed station is on a marsh with water bushes alongshore, about 1 foot above high water, 23 yards southwest of shore, 28 yards south of shore, 70 yards northwest of extreme end of point, and 170 yards northeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting about 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Kerwin" (N 38° 20' E).....	0	00	00	..... 2 miles.
Near peak of barn.....	52	33	..	..... 2½ miles.
Chimney on left end of house.....	78	15	..	..... 2 miles.
Right tangent to Wroten Island.....	112	37	..	..... 1½ miles.
Center of draw of bridge.....	134	43	..	..... 2⅞ miles.
"Mount Zion M. E. Church Spire".....	170	44	30	..... 1¾ miles.
Left edge of house.....	239	35	..	..... 1½ miles.
Near peak of house.....	247	12	..	..... 1½ miles.
Center of draw of Fishing Creek Bridge.....	274	40	..	..... 1½ miles.
Right edge of old windmill.....	275	13	..	..... 1¼ miles.
Near peak of small house.....	279	50	..	..... 1¼ miles.

HOSIER MEMORIAL CHURCH SPIRE.

*General locality.*—Eastern shore of Tar Bay on Upper Hooper Island, about 5⅜ miles north by east of Hooper Island Light and 1 mile south of Fishing Creek. (See Charts Nos. 39 and 40.)

*Immediate locality.*—Observed station is on church known as Hosier Memorial Church.

*Marks.*—Observed station is center of spire.

*References.*—None necessary.

MOUNT ZION M. E. CHURCH SPIRE.

*General locality.*—Eastern shore of Tar Bay on Upper Hooper Island, about 1¾ miles northwest of Ferry Point and 2 miles south of entrance to Fishing Creek. (See Charts Nos. 39 and 40.)

*Immediate locality.*—Observed station is on a church known as Mount Zion M. E. Church.

*Marks.*—Observed station is center of spire on Mount Zion M. E. Church.

*References.*—None necessary.

BRIDGE.

*General locality.*—Eastern shore of Chesapeake Bay and western shore of Honga River on Ferry Point at southern end of Upper Hooper Island, about 3¾ miles northeast by north of Hooper Island Light. (See Charts Nos. 39 and 40.)

*Immediate locality.*—Observed station is on a marsh point, about 1 foot above high water, 50 yards west of river shore, 55 yards south of river shore, 85 yards east of shore of bay, 75 yards northeast by north of second telephone pole north of bridge, and 80 yards north-northeast of bridge tender's cabin.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Mount Zion M. E. Church Spire" (N 44° 47' W).....	0	00	00	..... 1½ miles.
Near peak of oyster house.....	13	28	..	..... 1½ miles.
"Hosier Memorial Church Spire".....	14	59	00	..... 2½ miles.
Left tangent of Wroten Island.....	58	12	..	..... 2 miles.
Near peak of barn.....	68	33	..	..... 1½ miles.
Center of roof of old windmill.....	122	20	..	..... 3¾ miles.
Outside chimney of right end of house.....	164	03	..	..... 1 mile.
Chimney in center of large house.....	171	15	..	..... 1¼ miles.
Chimney in center of house.....	185	25	..	..... 2 miles.
"Hooper Island Light".....	262	51	50	..... 3¾ miles.

APPLEGARTH.

*General locality.*—Eastern shore of Chesapeake Bay on south end of Hooper Island, about 3½ miles east of Hooper Strait Light. (See Chart No. 40.)

*Immediate locality.*—Observed station is on marsh, about 1 foot above high water and 150 yards north of shore.

## Survey of Oyster Bars, Dorchester County, Md.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Hooper Strait Light" (S 83° 45' E).....	0	00	00	3½ miles.
"Point no Point Light".....	132	34	10	10½ miles.
"Hooper Island Light".....	189	11	30	6 miles.
Left one of row of large pine trees.....	192	20	..	½ mile.
"Hoopersville Methodist Church Cupola"....	214	53	30	2¾ miles.
Chimney of house.....	230	05	..	¾ mile.
Chimney in middle of house.....	246	47	..	¾ mile.
"Hopkins Memorial Church Cupola".....	257	45	00	¾ mile.
Chimney in center of house.....	259	52	..	¾ mile.
Chimney of abandoned house.....	271	25	..	½ mile.
Near peak of house showing over roof.....	278	06	..	½ mile.
Right tangent of clump of pine trees.....	295	33	..	300 yards.

## HOPKINS MEMORIAL CHURCH CUPOLA.

*General locality.*—Eastern shore of Chesapeake Bay in small village of Applegarth on Lower Hooper Island, about 2¾ miles southeast by east of Hooper Island Wharf, and 3¼ miles east-southeast of Hooper Strait Light. (See Chart No. 40.)

*Immediate locality.*—Observed station is on church known as Hopkins Memorial Church.

*Marks.*—Observed station is center of bell cupola.

*References.*—None necessary.

## HOOPERSVILLE METHODIST CHURCH CUPOLA.

*General locality.*—Eastern shore of Chesapeake Bay in town of Hoopersville on Middle Hooper Island, about ¼ mile southwest of Hooper Island Wharf. (See Chart No. 40.)

*Immediate locality.*—Observed station is on church known as Hoopersville Methodist Church.

*Marks.*—Observed station is center of bell cupola.

*References.*—None necessary.

## BENTLEY.

*General locality.*—Southwestern shore of Honga River on the north side of Bentley Point about 2 miles south of Wroten Island, and 1½ miles east of drawbridge at Ferry Point. (See Chart No. 40.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 30 yards southwest of shore, 45 yards east of shore, and 50 yards southeast by south of a small marsh point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Hoopersville M. E. Church Cupola" (S 30° 29' W).....	0	00	00	2¼ miles.
Near peak of house.....	9	38	..	¾ mile.
Center of draw of Hooper Island bridge.....	97	12	..	1½ miles.
Peak of draw-tender's cabin.....	99	26	..	1½ miles.
"Mount Zion M. E. Church Spire".....	116	08	50	3½ miles.
Near peak of oyster house.....	120	37	..	4¼ miles.
Near peak of large house.....	125	37	..	3¼ miles.
Left tangent to Wroten Island.....	142	00	..	1½ miles.
Right edge of barn.....	151	40	..	1¾ miles.
Left chimney of house.....	171	32	..	2½ miles.
Center of old windmill.....	236	48	..	2½ miles.
"Hopkins Memorial Church Cupola".....	326	59	40	4 miles.
Stack of oyster house at Hooper Island Wharf.	347	51	..	2½ miles.

## KERWIN.

*General locality.*—Northeastern shore of Honga River about  $2\frac{1}{4}$  miles east-northeast of Fishing Creek Bridge, and  $1\frac{1}{2}$  miles east of Keenes Point. (See Chart No. 40.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 60 yards east of shore, 60 yards northwest of shore, and 55 yards north-northeast of end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Mount Zion M. E. Church Spire" (S 34°	0	00	00	..... $3\frac{3}{8}$ miles.
04' W) .....	0	00	00	..... $3\frac{3}{8}$ miles.
"Hosier Memorial Church Spire" .....	14	29	00	..... 3 miles.
Chimney on outside of end of house .....	29	01	..	..... 3 miles.
Right chimney of house .....	31	37	..	..... $2\frac{1}{4}$ miles.
Center of draw of Fishing Creek Bridge .....	35	32	..	..... $2\frac{1}{4}$ miles.
Stack of Fishing-Creek Crab House .....	36	26	..	..... $2\frac{1}{4}$ miles.
Center of old windmill on Fishing Creek .....	37	02	..	..... $2\frac{1}{4}$ miles.
Tangent of woods .....	70	14	..	..... 250 yards.
Stove pipe on left edge of house .....	163	11	..	..... 1 mile.
Near chimney of house .....	230	31	..	..... $\frac{1}{8}$ mile.
Center of draw of Hooper Island Bridge .....	337	43	..	..... $4\frac{3}{8}$ miles.

## WROTEN.

*General locality.*—Northeastern shore of Honga River on southern shore of Wroten Island about  $2\frac{1}{2}$  miles north-northwest of Bentley Point. (See Chart No. 40.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 40 yards west of shore, 55 yards northwest of shore, and 100 yards north of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Charles" (S 65° 22' E) .....	0	00	00	..... $1\frac{1}{4}$ miles.
Chimney on right end of house .....	78	32	..	..... $2\frac{3}{8}$ miles.
Center of draw of Hooper Island Bridge .....	98	49	..	..... 2 miles.
"Mount Zion M. E. Church Spire" .....	144	29	50	..... $2\frac{1}{4}$ miles.
Right edge of house in trees .....	161	54	..	..... $\frac{5}{8}$ mile.
Near peak of barn .....	174	13	..	..... $\frac{3}{8}$ mile.
Near peak of house .....	270	56	..	..... $\frac{3}{4}$ mile.
Chimney on left end of house .....	321	04	..	..... $1\frac{1}{2}$ miles.

## CHARLES.

*General locality.*—Northeastern shore of Honga River about  $1\frac{3}{4}$  miles north of Bentley Point, and  $2\frac{1}{2}$  miles east-northeast of drawbridge at Ferry Point. (See Chart No. 40.)

*Immediate locality.*—Observed station is on firm land about 1 foot above high water, 20 yards east-southeast of shore, 30 yards northwest of shore, 50 yards north-northeast of shore, and 40 yards southwest by south of large tree near bend in a rail fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Lakes" (S 70° 54' E).....	0	00	00	1 mile.
Left edge of barn roof.....	33	11	..	2¼ miles.
"Hopkins Memorial Church Cupola".....	56	20	10	5½ miles.
Center of draw of Hooper Island Bridge.....	133	10	..	2½ miles.
Left edge of drawtender's cabin.....	134	47	..	2½ miles.
Chimney on right end of house.....	154	55	..	3 miles.
"Mount Zion M. E. Church Spire".....	162	11	20	3¾ miles.
Left peak of oyster house.....	162	18	..	3¾ miles.
Tangent of south end of Wroten Island.....	162	52	..	1½ miles.
Chimney on left end of house.....	166	07	..	1½ miles.
Chimney on end of house.....	170	05	..	1¾ miles.
Nail in blaze in tree (6 inches diameter).....	322	22	10	19.93 meters.
Nail in blaze in tree (6 inches diameter).....	248	59	50	12.63 meters.

## LAKES.

*General locality.*—Northeastern shore of Honga River on a point at northern side of entrance to Lakes Cove about 1½ miles north-northeast of Bentley Point. (See Chart No. 40.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 26 yards north of shore, 65 yards northeast of shore, and 70 yards east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Asquith" (S 6° 08' W).....	0	00	00	1¾ miles.
"Mount Zion M. E. Church Spire".....	89	20	50	4¾ miles.
Chimney on outside of house.....	182	40	..	¾ mile.
Between two dormer windows of house.....	242	00	..	1¾ miles.
Left chimney of house.....	273	34	..	¾ mile.

## ASQUITH.

*General locality.*—Eastern shore of Honga River on Asquith Island, about 2½ miles northeast of Hoopersville, and ¾ mile north of Windmill Point. (See Chart No. 40.)

*Immediate locality.*—Observed station is on strip of sandy marsh between a pond and river about 2 feet above high water, 3 yards west of shore of pond, 11 yards east of shore of river, and 50 yards south of end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe with top about 2 inches below base of monument.

References.—	°	'	"	
"Hoopersville Methodist Church cupola" (S 44° 57' W).....	0	00	00	2¼ miles.
Near peak of house.....	4	12	..	2 miles.
Near peak of barn.....	9	06	..	2¼ miles.
Near peak of small barn.....	38	24	..	1¾ miles.
Nail in blaze in pine tree (15 inches diam- eter).....	87	59	40	6.04 meters.
Left side of old windmill.....	154	51	..	2 miles.
Near peak of house.....	157	50	..	2½ miles.
Nail in blaze in pine tree (12 inches diam- eter).....	320	06	10	17.08 meters.
Nail in blaze in pine tree (15 inches diam- eter).....	336	50	00	7.48 meters.
Tangent to outside end of Hooper Island wharf.....	352	20	..	1¾ miles.



## WINDMILL 2.

*General locality.*—Eastern shore of Honga River on Windmill Point, about  $1\frac{1}{8}$  miles east-northeast of Hoopersville. (See Chart No. 40.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 25 yards north-northeast of end of point, 35 yards east of shore, and 30 yards northwest of shore. Cement monument marking reference station is 19.78 meters N  $36^{\circ} 41'$  E of observed station.

*Marks.*—Observed station is nail in stub in 4-inch tile pipe with top of pipe 4 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	/	"	
"Hoopersville Methodist Church Cupola" (S $64^{\circ} 22'$ W) . . . . .	0	00	00	1 $\frac{1}{8}$ miles.
Two house chimneys about in line . . . . .	1	24	..	1 $\frac{3}{8}$ miles.
Center of store doorway in Hoopersville . . . . .	3	54	..	1 $\frac{3}{8}$ miles.
Near peak of house . . . . .	53	59	..	2 miles.
"Mount Zion M. E. Church spire" . . . . .	61	25	40	5 $\frac{1}{4}$ miles.
"Hosier Memorial Church Spire" . . . . .	68	09	30	6 miles.
Tangent to Bentley Point . . . . .	91	46	..	1 $\frac{1}{2}$ miles.
Near gable of house . . . . .	149	52	..	1 $\frac{1}{2}$ miles.
REFERENCE STATION . . . . .	152	19	10	10.75 meters.
Near peak of cabin . . . . .	183	42	..	1 $\frac{1}{2}$ miles.
"Toddville M. E. Church Spire" . . . . .	184	01	20	4 $\frac{3}{4}$ miles.
Center gable of house . . . . .	185	00	..	3 $\frac{1}{2}$ miles.
St. Thomas Church Spire" . . . . .	211	06	20	4 $\frac{1}{2}$ miles.
Left tangent Hooper Island Wharf . . . . .	356	25	..	1 $\frac{1}{4}$ miles.

## PAUL (HONGA RIVER).

*General locality.*—Eastern shore of Honga River on Paul Point at northwestern side of entrance to Fox Creek, about  $1\frac{1}{2}$  miles east-northeast of Windmill Point, and  $\frac{3}{4}$  mile southwest of Wingate Point. (See Chart No. 40.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 7 yards west of shore, 13 yards northwest of shore, 25 yards north-northeast of extreme end of point, 50 yards north-northwest of a small marsh island, and 55 yards east-northeast of a cabin.

*Marks.*—Observed station is center of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	"	
"St. Thomas Church Spire" (S $71^{\circ} 18'$ E) . . . . .	0	00	00	3 miles
Left side of small cabin on Crab Point . . . . .	32	05	..	1 $\frac{3}{4}$ miles.
"Hopkins Memorial Church Cupola" . . . . .	91	26	30	2 $\frac{1}{2}$ miles.
Between two stacks on oyster house on Hooper Island Wharf . . . . .	136	08	..	3 miles.
"Hoopersville Methodist Church Cupola" . . . . .	137	23	20	3 $\frac{1}{4}$ miles.
Near corner of cabin . . . . .	150	05	..	53 yards.
Near peak of house . . . . .	195	41	..	1 mile.
Peak of barn . . . . .	241	26	..	2 miles.
Center one of three chimneys on large house . . . . .	273	57	..	1 $\frac{1}{2}$ miles.
Chimney of Wingate Wharf waiting room . . . . .	304	38	..	5 $\frac{1}{2}$ mile.
"Toddville M. E. Church Spire" . . . . .	319	46	00	3 $\frac{1}{4}$ miles.
Flagstaff on hall at Bishop Head . . . . .	359	29	..	2 $\frac{1}{2}$ miles.

## TODDVILLE M. E. CHURCH SPIRE.

*General locality.*—On neck of land between Fishing Bay and Honga River in town of Toddville, about  $2\frac{1}{2}$  miles east of Wingate wharf. (See Chart No. 40.)

*Immediate locality.*—Observed station is on church known as Toddville M. E. Church.

*Marks.*—Observed station is center of spire.

*References.*—None necessary.

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## DUCK (HONGA RIVER).

*General locality.*—Eastern shore of Fox Creek on Piney Point, at north side of entrance to Duck Point Cove, about  $\frac{3}{4}$  mile southeast of Wingate Point. (See Chart No. 40.)

*Immediate locality.*—Observed station is on a marsh point 1 foot above high water, 50 yards south of shore, 50 yards north of shore, and 65 yards east-northeast of end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"St. Thomas Church Spire" (S 63° 20' E).....	0	00	00	..... 1 $\frac{3}{4}$ miles.
Near peak of small cabin.....	75	13	..	..... 1 mile.
Left tangent of Hooper Island.....	88	10	..	..... 3 miles.
"Hopkins Memorial Church Cupola".....	104	51	00	..... 3 $\frac{1}{2}$ miles.
"Hoopersville Methodist Church Cupola".....	137	20	50	..... 4 $\frac{3}{8}$ miles.
Left chimney of house.....	158	40	..	..... 2 miles.
Left edge of cabin on Paul Point.....	159	29	..	..... 1 $\frac{1}{2}$ miles.
Tangent of outside end of Wingate Wharf.....	185	52	..	..... $\frac{7}{8}$ mile.
Chimney on waiting room Wingate Wharf.....	186	26	..	..... $\frac{7}{8}$ mile.
Front peak of store building.....	214	04	..	..... $\frac{3}{4}$ mile.
Peak of oyster house.....	222	46	..	..... $\frac{3}{4}$ mile.
Near gable of house.....	245	39	..	..... 1 mile.
Outside chimney of house.....	318	18	..	..... 1 $\frac{1}{4}$ miles.

## ST. THOMAS CHURCH SPIRE.

*General locality.*—Eastern shore of Honga River in town of Bishop Head, about 2 $\frac{1}{2}$  miles southeast by east of Wingate Wharf, and 2 $\frac{3}{4}$  miles north of Hooper Strait Light. (See Chart No. 40.)

*Immediate locality.*—Observed station is on church known as St. Thomas Church.

*Marks.*—Observed station is center of spire.

*References.*—None necessary.

## NORMAN.

*General locality.*—Eastern shore of Honga River, about 2 $\frac{1}{2}$  miles north-northwest of Hooper Strait Light, and  $\frac{1}{2}$  mile south of Crab Point. (See Chart No. 40.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 60 yards east of shore, 70 yards northeast of shore, and 80 yards southeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Hooper Strait Light" (S 35° 11' E).....	0	00	00	..... 2 $\frac{1}{2}$ miles.
Right tangent of woods.....	12	00	..	..... 400 yards.
Left edge of small house.....	28	29	..	..... 5 $\frac{1}{4}$ miles.
Tangent of lower end of Hooper Island.....	76	12	..	..... 2 miles.
"Hopkins Memorial Church Cupola".....	99	57	20	..... 2 $\frac{1}{4}$ miles.
"Hoopersville M. E. Church Cupola".....	127	47	30	..... 4 $\frac{3}{8}$ miles.
Between two stacks on oyster house at Hoopers Island Wharf.....	130	27	..	..... 3 $\frac{3}{8}$ miles.
Left tangent of woods.....	184	14	..	..... 400 yards.
Front peak of store building.....	205	33	..	..... 2 $\frac{1}{2}$ miles.
Near peak of house.....	216	57	..	..... 3 miles.
Left one of two chimneys close together.....	248	22	..	..... 2 miles.
Near peak of canning house.....	250	36	..	..... 2 miles.
Flagstaff on hall at Bishop Head.....	284	30	..	..... 1 $\frac{3}{4}$ miles.
"St. Thomas Church Spire".....	285	07	50	..... 1 $\frac{3}{4}$ miles.

## HOOPER STRAIT LIGHT.

*General locality.*—Northern side of Hooper Strait at eastern side of entrance to Honga River about 2½ miles west-northwest of southern end of Bishop Head, and 3 miles east-southeast of Lower Hooper Island. (See Chart No. 40.)

*Immediate locality.*—Observed station is on hexagonal, screw-pile structure known as Hooper Strait Light.

*Marks.*—Observed station is center of lantern on Hooper Strait Light.

*References.*—

"Head" (S 82° 30' E)..... 0 00 00 ..... 2½ miles.

## CRAB.

*General locality.*—Western shore of upper Tangier Sound on eastern side of Bloodsworth Island, about 1 mile southeast of entrance to Piney Island Cove, 1 mile northeast of entrance to Great Cove, and 2½ miles southwest of Sharkfin Shoal Light. (See Chart No. 41.)

*Immediate locality.*—Observed station is about 1 foot above high water, 15 yards southwest of shore, 35 yards west of shore, and 150 yards south-southwest of a crab house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

"Sharkfin Shoal Light" (N 45° 25' E)..... 0 00 00 ..... 2½ miles.  
 Left end of large house near Stump Point... 6 11 .. ..... 7½ miles.  
 End of roof of house on bluff..... 31 36 .. ..... 6¼ miles.  
 End of Deal Island Wharf..... 53 03 .. ..... 3¾ miles.  
 Large house..... 72 35 .. ..... 4¼ miles.  
 Aspen tree near "Joshua"..... 88 06 .. ..... 5½ miles.  
 Tall pine tree..... 165 00 40 ..... 1½ miles.

## HEAD.

*General locality.*—Upper end of Tangier Sound, on eastern side of southern part of peninsula known as Bishop Head, situated between Hooper Strait and Fishing Bay. (See Chart No. 41.)

*Immediate locality.*—Observed station is on marsh behind water bushes which skirt shore, about 15 yards southwest of shore, and ½ mile north of extreme south end of Bishop Head. Cement monument marking reference station is 13.41 meters N 20° 37' E of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

"Sharkfin Shoal Light" (S 60° 41' E)..... 0 00 00 ..... 2¾ miles.  
 Crab-house flagstaff..... 50 30 .. ..... 3¼ miles.  
 Large pine tree..... 97 42 .. ..... 2 miles.  
 REFERENCE STATION..... 139 55 40 ..... 13.41 meters.  
 Near gable of 2½-story house..... 140 24 .. ..... ¼ mile.  
 Chimney of house..... 156 44 .. ..... ⅙ mile.  
 Chimney of house..... 208 28 .. ..... 1½ miles.  
 Chimney of end of house..... 238 53 .. ..... 3 miles.  
 Right side of Nanticoke Point woods..... 326 56 .. ..... 7½ miles.

## CROCH.

*General locality.*—Western shore of Fishing Bay about 4½ miles northwest of Sharkfin Shoal Light, and ¼ mile north-northeast of entrance to Tedious Creek. (See Chart No. 41.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 45 yards southwest of shore, 50 yards west of shore, 60 yards northwest of shore, and 150 yards north of a small marsh island covered with water bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Sharkfin Shoal Light" (S 39° 09' E) . . . . .	0	00	00	4½ miles.
Right chimney of house . . . . .	36	59	..	2½ miles.
Right peak of house . . . . .	59	35	..	1½ miles.
Chimney in middle of large building . . . . .	79	02	..	1½ miles.
Chimney in middle of house . . . . .	92	51	..	1½ miles.
Near peak of house . . . . .	120	11	..	¾ mile.
Near peak of house . . . . .	142	41	..	¾ mile.
Chimney outside of right end of house . . . . .	197	39	..	1¾ miles.
Between two chimneys of house nearly in line . . . . .	204	40	..	1¼ miles.
Near peak of house . . . . .	219	18	..	1 mile.
Chimney outside of right end of house . . . . .	241	56	..	4 miles.

## ROAST.

*General locality.*—Western shore of Fishing Bay on Roasting Ear Point, about 5¼ miles north-northwest of Sharkfin Shoal Light, 4½ miles north of Bishop Head, and ¾ mile northeast of entrance to Goose Creek. (See Chart No. 41.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 40 yards northwest of shore, 40 yards west of shore, and 70 yards south by west of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Sharkfin Shoal Light" (S 21° 41' E) . . . . .	0	00	00	5¾ miles.
Left chimney of house on Bishop Head . . . . .	30	05	..	4¾ miles.
Near peak of house . . . . .	45	23	..	3 miles.
Chimney on left end of house . . . . .	69	15	..	2 miles.
Smokepipe on near house . . . . .	73	36	..	1¾ miles.
Tallest one of five pine trees . . . . .	95	24	..	1 mile.
Stack of canning house on Farm Creek . . . . .	151	29	..	2½ miles.
Stack of canning house on Elliott Island . . . . .	219	33	..	2 miles.
Chimney outside of near end of house . . . . .	229	35	..	1¾ miles.
Chimney in middle of house . . . . .	233	01	..	2 miles.
Between two gables of large house . . . . .	236	00	..	2 miles.
Windmill . . . . .	240	04	..	2 miles.

## FARM.

*General locality.*—Western shore of Fishing Bay on point at south side of entrance to Cedar Creek, about 1½ miles west of Fishing Point, and ¾ mile northeast of entrance to Farm Creek. (See Chart No. 41.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 20 yards south of shore, 60 yards northwest of shore, 45 yards west-southwest of extreme end of point, 10 yards east-north-east of a small pond in marsh, and 300 yards south by east of a small oyster watch house on opposite side of Cedar Creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Toddville M. E. Church Spire" (S 45° 58' W) . . . . .	0	00	00	1¾ miles.
Chimney in middle of house . . . . .	4	03	..	2 miles.
Stack of canning house on Farm Creek . . . . .	9	31	..	1½ miles.
Near corner of small shanty . . . . .	51	13	..	¾ mile.
Smoke pipe on small shanty . . . . .	84	12	..	¾ mile.
Left chimney of house . . . . .	204	34	..	4½ miles.
Stack of canning house at Elliott Island . . . . .	239	29	..	1¾ miles.
Near peak of house . . . . .	322	22	..	2¼ miles.

## THORO.

*General locality.*—Western shore of Fishing Bay about  $\frac{3}{4}$  mile northeast of entrance to Thoroughfare Creek, and  $1\frac{1}{2}$  miles north of Fishing Point on the western end of Elliott Island. (See Chart No. 41.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 40 yards northwest of shore, 50 yards north-northeast of shore, 55 yards northeast by north of shore, and 130 yards east-northeast of entrance to a small creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Toddville M. E. Church Spire" (S 48° 30' W).....	0	00	00	..... 3½ miles.
Chimney in center of house .....	2	08	..	..... 3 miles.
Lone poplar tree .....	262	14	..	..... 2 miles.
Chimney on right end of house .....	271	02	..	..... 2 miles.
Lightning rod on near peak of large house.....	274	35	..	..... 1¾ miles.
Spire of church on Elliott Island .....	280	52	50	..... 1¾ miles.
Center one of three chimneys on house .....	281	54	..	..... 1¾ miles.
Stack of canning house on Elliott Island.....	306	00	50	..... 1½ miles.

## HIGH.

*General locality.*—Southeastern shore of Upper Fishing Bay on Elliott Island, about  $\frac{3}{8}$  mile east-northeast of extreme end of Fishing Point. (See Chart No. 41.)

*Immediate locality.*—Observed station is on high sandy land in a grove of pine trees, about 30 yards east-southeast of edge of bank, and 35 yards west-northwest of near corner of west one of five sheds in a row.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Farm" (N 84° 52' W).....	0	00	00	..... 1½ miles.
Nail in blaze in pine tree (18 inches diameter).....	174	17	10	..... 17.83 meters.
Nail in blaze in pine tree (12 inches diameter).....	219	59	10	..... 5.58 meters.
Near corner of shed with metal roof (west one of five in a row).....	235	38	..	..... 33 yards.
Left chimney of house .....	257	34	..	..... 100 yards.
Right chimney of house .....	274	56	..	..... ¾ mile.
Nail in blaze in pine tree (15 inches diameter).....	312	40	20	..... 10.28 meters.

## ELLIOTT.

*General locality.*—Eastern shore of Fishing Bay on Fishing Point at the extreme western end of Elliott Island about  $5\frac{1}{2}$  miles north-northwest of Clay Island, and opposite entrance to Farm Creek. (See Chart No. 41.)

*Immediate locality.*—Observed station is on sandy marsh about 1 foot above high water, 16 yards south of shore, 20 yards north of shore, 30 yards east-northeast of extreme end of sandy point, 185 yards west-southwest of a sand ridge near trees and brush, and 290 yards northwest of a canning house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Toddville M. E. Church Spire" (S 73° 11' W)	0	00	00	2 7/8 miles.
Chimney on right end of house	5	55		2 miles.
Tangent of high bluff	167	31		1/4 mile.
Left edge of old building	250	24		
Stack of canning house at Elliott Island	256	29	42	290 yards.
Small house in trees	326	19		2 5/8 miles.

## EAR.

*General locality.*—Eastern shore of Fishing Bay, about 6 1/8 miles north of Sharkfin Shoal Light, 1 3/4 miles east-northeast of Roasting Ear Point, and 1 3/4 miles southeast of Fishing Point, on Elliott Island. (See Chart No. 41.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 20 yards northeast of shore, 30 yards north by west of shore, and 40 yards east by south of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Sharkfin Shoal Light" (S 5° 49' E)	0	00	00	6 1/4 miles.
Chimney on left end of house	31	23		5 1/8 miles.
Chimney in middle of large building	46	21		5 miles.
Near peak of barn	70	22		2 1/2 miles.
"Toddville M. E. Church Spire"	102	12	30	3 3/4 miles.
Stack of canning house at Elliott Island	145	59		1 1/2 miles.
Chimney on right end of house	151	22		1 1/4 miles.
Near peak of house	164	03		1 1/4 miles.
Left peak of barn	197	45		1 1/4 miles.
"Nanticoke Church"	291	53	50	5 1/2 miles.

## FISH.

*General locality.*—Eastern shore of Fishing Bay, about 4 3/8 miles north of Sharkfin Shoal Light, 3 1/4 miles south-southeast of Elliott Island, and 2 1/4 miles north-northeast of point of Clay Island. (See Chart No. 41.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 50 yards northeast of shore, 60 yards east of shore, and 85 yards north-northeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Sharkfin Shoal Light" (S 1° 56' W)	0	00	00	4 3/8 miles.
Center gable of house at Bishop Head	41	59		4 1/4 miles.
Near peak of house	63	18		4 1/4 miles.
Chimney in middle of house	65	24		3 3/8 miles.
Left chimney of house	90	01		3 miles.
Near peak of house	99	21		3 miles.
Stack of canning house on Farm Creek	120	05		5 miles.
Stack of canning house on Elliott Island	146	17		3 1/2 miles.
"Nanticoke Church"	263	46	40	4 1/4 miles.

## FROG.

*General locality.*—Western side of entrance to Nanticoke River, on Frog Point, at southeastern end of Clay Island. (See Chart No. 41.)

*Immediate locality.*—Observed station is on marsh point about 20 yards west of shore, 25 yards east of shore, 25 yards from extreme end of point, and in front of water bushes. Cement monument marking reference station is 13.10 meters N 3° 11' E of observed station.

Marks.—Observed station is nail in stub flush with ground. Reference station is center point of triangle on standard cement monument.

References.—	°	'	''	
"Sharkfin Shoal Light" (S 41° 25' W).....	0	00	00	..... 3¼ miles.
Left tangent of Clay Island.....	35	17	..	..... 1¼ miles.
REFERENCE STATION.....	141	45	50	..... 13.10 meters.
Right tangent of Sandy Point.....	177	41	..	..... ¾ mile.
Chimney of house.....	179	12	..	..... 2¼ miles.
Chimney near end of large house.....	183	02	..	..... 2½ miles.
Stack of canning house.....	184	36	..	..... 2½ miles.
Land end of Nanticoke Wharf.....	184	36	..	..... 2½ miles.
End of Nanticoke Wharf house.....	186	00	..	..... 2¼ miles.
Chimney on ell end of main part of large house.....	211	27	..	..... 2¼ miles.
Right tangent of Nanticoke Point woods.....	238	44	..	..... 2¾ miles.
Large square chimney of house (Dames Quarter).....	264	17	..	..... 4 miles.
Rock Creek poplar tree.....	284	17	..	..... 3¼ miles.
Flagstaff on Deal Island Wharf.....	322	09	..	..... 4¾ miles.

COW.

General locality.—Western shore of Nanticoke River, on Mink Point, about ⅓ mile east of entrance to Cow Creek and 1¾ miles west of Roaring Point. (See Chart No. 41.)

Immediate locality.—Observed station is on very soft marsh at edge of water bushes about 5 yards west of shore, 15 yards northeast of shore, and 15 yards northwest of extreme end of point. Cement monument marking reference station is 8.68 meters N 44° 28' W of observed station.

Marks.—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

References.—	°	'	''	
"Frog" (S 6° 13' W).....	0	00	00	..... 2 miles.
A shanty.....	37	16	..	..... ¾ mile.
REFERENCE STATION.....	129	19	20	..... 6.68 meters.
A shanty.....	189	53	..	..... 1 mile.
A shanty.....	209	52	..	..... ½ mile.
Tangent of land.....	217	43	..	..... ½ mile.
Large house.....	236	48	..	..... 2½ miles.
Windmill.....	243	52	..	..... 2¾ miles.
Chimney of large house.....	254	24	..	..... 2¼ miles.
Canning house stack.....	257	28	..	..... 1¾ miles.
Canning house stack.....	275	26	..	..... 1½ miles.
Near corner of Nanticoke Wharf.....	284	49	..	..... 1½ miles.
Large house.....	297	32	..	..... 2¼ miles.
Large house.....	299	24	..	..... 2½ miles.
Right tangent of Nanticoke woods.....	310	15	..	..... 3 miles.
Left tangent of Sandy Point.....	341	48	..	..... 1½ miles.

OKAY.

General locality.—Western shore of Nanticoke River, on Marsh Point, about ⅓ mile south of Swan Creek Cove and 2 miles west of Bivalve Wharf. (See Chart No. 41.)

Immediate locality.—Observed station is on marsh about 2 feet above high water, 10 yards back from shore, and 35 yards south of shanty known as Insley's watch house.

Marks.—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

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References.—	°	'	"	
Bivalve Church (N 84° 32' E).....	0	00	00	..... 2½ miles.
Chimney of house.....	20	38	..	..... 2½ miles.
Windmill tower.....	46	41	..	..... 2½ miles.
Tangent of land.....	92	23	..	..... 1¼ miles.
Tangent of land.....	105	45	..	..... 150 yards.
Left side of watch house.....	249	17	..	..... 35 yards.
Right side of watch house.....	258	17	..	..... 35 yards.
Space between chimneys of large house.....	340	43	..	..... 3¼ miles.
Tangent of Bivalve Wharf.....	355	31	..	..... 2¼ miles.
Stack of canning house.....	359	12	..	..... 2¼ miles.

## AR.

*General locality.*—Western shore of Nanticoke River about 1½ miles northwest of Bivalve Wharf, and ¾ mile north-northeast of entrance to Longrell Creek. (See Chart No. 4r.)

*Immediate locality.*—Observed station is on marsh between two small creeks about 40 yards back from shore, 35 yards west-southwest of mouth of one creek, and 45 yards northwest of the mouth of the other creek.

*Marks.*—Observed station is center point of triangle on standard cement monument, projecting 4 inches above surface of ground.

References.—	°	'	"	
"Nanticoke Church" (S 13° 34' E).....	0	00	00	..... 3¾ miles.
Right edge Sandy Point woods.....	23	58	..	..... 4 miles.
Smoke pipe of cabin.....	42	57	..	..... 1½ miles.
Chimney of house.....	46	26	..	..... ½ mile.
Left tangent of first woods.....	81	20	..	..... 2¾ miles.
Left tangent of long thick woods.....	98	53	..	..... 1 mile.
Left edge short thick woods.....	134	11	..	..... 1 mile.
Chimney of cabin.....	247	47	..	..... ½ mile.
Houses with several gables.....	262	18	..	..... 3 miles.
Right edge Wetipquin woods.....	274	37	..	..... 2¼ miles.
Chimney of house behind trees.....	302	43	..	..... 2 miles.
Windmill.....	319	03	..	..... 2 miles.
Stack of canning house.....	320	15	..	..... 2 miles.
Chimney of house on Ragged Point.....	350	33	..	..... 2¾ miles.
Windmill.....	352	57	..	..... 3¼ miles.

## GOVER.

*General locality.*—Northwestern shore of Nanticoke River about 1¾ miles west-northwest of entrance to Wetipquin Creek and ½ mile north of a cove named Perch Haul. (See Progress map.)

*Immediate locality.*—Observed station is on a point of marsh covered with grass and water bushes, about 15 yards northwest of extreme end of point, 200 yards east-northeast of a shanty among bushes and small trees, ¼ mile east of a clump of about 50 pine trees, and ¼ mile southeast of another clump of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—	°	'	"	
Bivalve Church (S 21° 30' E).....	0	00	00	..... 2¾ miles.
Tangent of land.....	35	24	..	..... 1 mile.
Left side of opening in woods.....	72	06	..	..... 2 miles.
Two pine trees together.....	83	07	..	..... ¾ mile.
Center of shanty.....	98	26	..	..... 200 yards.
Clump of pine trees.....	123	56	..	..... ¼ mile.
Clump of pine trees.....	176	20	..	..... ¼ mile.



References—Continued.

	°	'	"	
Inside edge of cove.....	201	45	.....	100 yards.
Clump of small pine trees.....	255	31	.....	¼ mile.
Tangent to point of land.....	269	35	.....	1½ miles.
Left tangent of Sandy Hill Wharf.....	276	02	.....	3 miles.
Large house.....	286	27	.....	3¾ miles.
Left edge of pine woods near Wetipquin Creek.....	328	13	.....	2 miles.

STREETT.

*General locality.*—Northwestern shore of Nanticoke River on point on southwest side of entrance to Jacks Creek. (See Progress map.)

*Immediate locality.*—Observed station is on a marsh and grass point about 7 yards west from its extreme end and 4 yards from each side of point to north and south. Cement monument marking reference station is 11.89 meters N 60° 22' W of observed station.

*Marks.*—Observed station is nail in pine stub flush with ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—

	°	'	"	
"Earle" (S 45° 01' E).....	0	00	00	..... 1 mile.
A shanty.....	0	41	.....	1 mile.
Large house.....	27	08	.....	2½ miles.
Canning-house stack at Tyaskin.....	33	42	.....	1¾ miles..
Large building.....	36	42	.....	1¾ miles.
Point of marsh.....	47	33	.....	100 yards.
First of four trees.....	135	01	.....	½ mile.
REFERENCE STATION.....	164	39	00	..... 11.89 meters.
Point of marsh.....	255	02	.....	30 yards.
House on the other side of Jacks Creek.....	258	13	.....	½ mile.
Left tangent of Sandy Hill Wharf.....	309	38	.....	1¼ miles.
A house.....	318	08	.....	1½ miles.

EARLE.

*General locality.*—Southeastern shore of Nanticoke River about 1 mile below Sandy Hill Wharf. (See Progress map.)

*Immediate locality.*—Observed station is on sandy and grass land between the river and a pine grove about 5 feet above high water, 80 yards back from shore, 15 yards southeast of a white oak tree, about 2½ feet in diameter, 15 yards southwest of another and larger white oak tree, and 20 yards east of a shanty.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—

	°	'	"	
"Juliet" (S 41° 05' W).....	0	00	00	..... 1¼ miles..
Nail in blaze in white oak tree (2½ feet diam- eter).....	88	44	30	..... 13.98 meters.
Nail in blaze in pine tree.....	160	39	00	..... 19.05 meters.
Nail in blaze in oak tree (2½ feet diameter)..	196	35	40	..... 13.95 meters.
Nail in blaze in pine tree.....	326	01	00	..... 15.76 meters.
Right tangent of woods on other side of We- tipquin Creek.....	358	52	.....	1½ miles.

JULIET.

*General locality.*—Eastern shore of Nanticoke River on point on southwest side of entrance to Wetipquin Creek. (See Progress map.)

*Immediate locality.*—Observed station is on sand and marsh point about 100 yards southwest of entrance to Wetipquin Creek, 10 yards back from high water, 5 yards outside of several small pine trees, and 100 yards north of dense pine woods.

## Survey of Oyster Bars, Dorchester County, Md.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Earle" (N 41° 04' E).....	0	00	00	1¼ miles.
Nail in blaze in pine tree.....	29	41	30	4.92 meters.
Near point of roof of oyster house.....	40	05	..	300 yards.
Left edge of woods.....	64	21	..	200 yards.
Nail in blaze in pine tree.....	71	17	00	6.31 meters.
Nail in blaze in pine tree.....	98	20	00	6.88 meters.
Right edge of woods.....	163	52	..	200 yards.
Right tangent of Bivalve Wharf.....	170	02	..	1½ miles.
Two-story house.....	210	06	..	2½ miles.
Two-story house.....	228	37	..	¾ mile.
Opening in woods.....	230	16	..	3 miles.
House at Jacks Creek.....	324	00	..	1¾ miles.
Tangent of land.....	345	58	..	150 yards.
Tangent of land.....	354	49	..	150 yards.

## POLE.

*General locality.*—Eastern shore of Nanticoke River on wharf off town of Bivalve, located about 1¼ miles northeast of Ragged Point. (See Chart No. 41.)

*Immediate locality.*—Observed station is on western peak of a house on wharf at Bivalve about 300 yards from shore.

*Marks.*—Observed station is flagpole on peak of house.

*References.*—None necessary.

## BIVALVE CHURCH.

*General locality.*—Eastern shore of Nanticoke River about ¾ mile back from shore in town of Bivalve on main road leading to the steamer landing. (See Chart No. 41.)

*Immediate locality.*—Observed station is on Bivalve Methodist Church.

*Marks.*—Observed station is center of steeple on Bivalve Methodist Church.

*References.*—None necessary.

## RAG.

*General locality.*—Eastern shore of Nanticoke River on northern side of Ragged Point, about 2 miles north-northeast of Roaring Point. (See Chart No. 41.)

*Immediate locality.*—Observed station is on a sandy point about 25 yards back from shore, 100 yards northeast of extreme end of point, 50 yards west of a grove of pine trees, 20 yards southwest of a group of pine trees, 75 yards southwest of another group of pine trees, and 20 yards west of two 15-inch pine trees 2½ feet apart.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Nanticoke Church" (S 1° 46' E).....	0	00	00	1½ miles.
Left end of Sandy Point.....	29	17	..	3½ miles.
Chimney of house.....	51	48	..	2½ miles.
Large tree at left end of woods.....	130	20	..	3¼ miles.
Left one of two trees (opposite shore).....	169	56	..	3¼ miles.
Flagpole on Bivalve Wharf.....	201	11	..	1¼ miles.
Smoke pipe on Bivalve wharf house.....	207	14	..	1¼ miles.
Nail in stump of limb on pine tree.....	218	35	..	32.78 meters.
Nail in base in double pine tree.....	258	01	..	19.66 meters.
Nail in blaze in large pine tree.....	293	26	..	43.19 meters.
Chimney of house.....	303	29	..	135 yards.
Windmill near large house.....	344	13	..	¾ mile.
Steeple on barn.....	356	40	..	1 mile.
Large chimney of large flat-roof house.....	357	10	..	1 mile.

NANTICOKE CHURCH.

*General locality.*—Eastern shore of Nanticoke River in town of Nanticoke, about 1/8 mile back from river and 3/4 mile northeast of Roaring Point. (See Chart No. 41.)

*Immediate locality.*—Observed station is on church known as "Nanticoke Methodist Episcopal Church."

*Marks.*—Observed station is center of spire on Nanticoke Methodist Episcopal Church.

*References.*—None necessary.

ROAR.

*General locality.*—Eastern shore of Nanticoke River on Roaring Point, about 1/4 mile north from outer end of Roaring Point Wharf. (See Chart No. 41.)

*Immediate locality.*—Observed station is on a sandy knoll about 5 feet above high water, 20 yards south of shore, 40 yards north of shore, 30 yards east of extreme end of point, and 150 yards from pine woods which stand inshore from station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"
"Frog" (S 39° 02' W).....	0	00	00
Two shanties.....	19	17	..
One shanty.....	30	20	..
A shanty.....	71	32	..
A shanty.....	98	53	..
Barn steeple.....	117	41	..
A shanty.....	121	25	..
A house.....	144	42	..
Twin trees on Ragged Point.....	159	30	..
Chimney of house.....	175	23	..
Windmill.....	184	04	..
Gambrel-roof house.....	184	32	..
Canning-house stack.....	195	11	..
Land end of wharf.....	271	58	..
Large house.....	293	38	..
Right tangent of Nanticoke Point woods.....	297	22	..
Right tangent of Nanticoke Wharf.....	304	52	..
Left tangent of Sandy Point.....	359	51	..

NANTI.

*General locality.*—Eastern side of Nanticoke River about 1/2 mile northwest of Nanticoke Point, and 1 1/4 miles northwest of Great Shoals Light. (See Chart No. 41.)

*Immediate locality.*—Observed station is on grass land about 2 feet above high water, 20 yards back from shore, and about midway between house near poplar trees about 1/4 mile north of station and the edge of woods on Nanticoke Point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"
"Sharkfin Shoal Light" (S 65° 14' W).....	0	00	00
Tangent of Sandy Point.....	51	33	..
Left end of Nanticoke Wharf.....	89	45	..
Near chimney of house.....	96	51	..
Chimney of house.....	101	08	..
Near chimney of house nearest woods.....	116	56	..
Tree high above woods.....	119	53	..
Right end of heavy woods.....	134	03	..
Right end of scant woods.....	147	11	..
Wild cherry tree.....	178	24	..
Left end of woods.....	227	46	..
Right end of woods.....	269	45	..
Poplar tree Dames Quarter.....	307	28	..
Tangent of Haines Point.....	330	55	..

## WHITE.

*General locality.*—Eastern side of entrance to Nanticoke River on Stump Point, about  $2\frac{3}{4}$  miles southeast of Roaring Point and  $1\frac{3}{8}$  miles northwest of Great Shoal Light. (See Chart No. 41.)

*Immediate locality.*—Observed station is on sand and grass point about 2 feet above high water, 3 yards east of shore, 20 yards northwest of shore, 15 yards north of extreme end of point, 40 yards west of a cove, 100 yards northwest of a point of land, and 100 yards southwest of a dense pine woods. Cement monument marking reference station is 16.63 meters N  $3^{\circ} 13'$  E of observed station.

*Marks.*—Observed station is a nail in a pine stub about 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Great Shoals Light" (S $44^{\circ} 16'$ E).....	0	00	00	..... $1\frac{1}{4}$ miles.
Poplar tree at Dames Quarter.....	65	08	..	..... $2\frac{1}{2}$ miles.
Tangent of Hall Point.....	86	06	..	..... $3\frac{3}{4}$ miles.
Tangent of Sandy Point.....	164	17	..	..... 3 miles.
Left end of pine woods.....	172	27	..	..... 100 yards.
Right end of pine woods.....	213	21	..	..... 150 yards.
REFERENCE STATION.....	227	29	00	..... 16.63 meters.
Largest one in clump of about 12 pine trees..	247	23	..	..... $\frac{3}{8}$ mile.
Chimney of cabin on Ellis Point.....	279	05	..	..... 2 miles.
A house.....	311	54	..	..... $\frac{1}{2}$ mile.
Point of land.....	335	02	..	..... 100 yards.

## GREAT SHOALS LIGHT.

*General locality.*—Entrance to Monie Bay and Wicomico River about halfway between Long Point and Mollies Point. (See Progress map.)

*Marks.*—Observed station is center of black lantern on square screw pile structure known as "Great Shoals Light."

*Reference.*—

	o	'	"	
"Sharkfin Shoal Light" (S $81^{\circ} 50'$ W).....	0	00	00	..... $5\frac{7}{8}$ miles.

## ROOM.

*General locality.*—Eastern shore of upper Tangier Sound on Halls Point about  $1\frac{1}{8}$  miles northeast of Haines Point, and  $2\frac{5}{8}$  miles east-southeast of Sharkfin Shoal Light. (See Chart No. 41.)

*Immediate locality.*—Observed station is on a locust and mulberry fringed bluff about 15 feet high, 5 yards back from edge of bluff, 15 yards west-northwest of a barn, 15 yards from a wagon road parallel with shore, and 25 yards east of clump of mulberry trees. Cement monument marking reference station is 21.45 meters S  $18^{\circ} 30'$  W of observed station and almost in line with large mulberry tree.

*Marks.*—Observed station is nail in center of stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sharkfin Shoal Light" (N $70^{\circ} 00'$ W).....	0	00	00	..... $2\frac{1}{2}$ miles.
Gable on near side of house on Bishop Head..	3	01	..	..... $5\frac{1}{2}$ miles.
Near end of roof of large $2\frac{1}{2}$ -story house....	12	53	..	..... $7\frac{1}{4}$ miles.
Left tangent of Clay Island.....	39	18	..	..... $3\frac{1}{2}$ miles.
Left side of Sandy Point woods.....	70	08	..	..... 4 miles.
Roaring Point Wharf.....	85	22	..	..... 5 miles.
Near chimney on end of large house.....	94	36	..	..... $4\frac{1}{4}$ miles.
Right side of Nanticoke woods.....	110	28	..	..... $3\frac{3}{4}$ miles.
"Mount Vernon Church".....	127	18	..	..... 7 miles.
Near corner of barn.....	137	06	..	..... 15.96 meters.
Right-hand corner of barn.....	152	08	..	..... 18.11 meters.
REFERENCE STATION.....	268	30	00	..... 21.45 meters.
Large cedar tree.....	276	30	..	..... 100 yards.
Two-inch iron pipe.....	279	38	30	..... 9.21 meters.

SHARKFIN SHOAL LIGHT.

*General locality.*—Northern end of Tangier Sound about equally distant from entrances of Hooper Strait, Fishing Bay, and Nanticoke River. (See Chart No. 41.)

*Immediate locality.*—Observed station is on hexagonal, screw-pile structure known as Sharkfin Shoal Lighthouse.

*Marks.*—Observed station is center point of lantern on Sharkfin Shoal Light.

*Reference.*—

“Great Shoals Light” (N 81° 45' E) . . . . . 0 00 00 . . . . . 5½ miles.

HAINES.

*General locality.*—Eastern shore of upper Tangier Sound on Haines Point about ⅝ mile north of Deal Island Wharf, and 2½ miles southeast of Sharkfin Shoal Light. (See Chart No. 41.)

*Immediate locality.*—Observed station is on sand and grass point about 5 feet above high water, 20 yards back from shore, 3 yards west of a barb-wire fence, 20 yards south of a clump of locust and water bushes, and about on range with left edge of clump of trees and bushes and Sharkfin Shoal Light. Cement monument marking reference station is 9.64 meters N 77° 43' E of observed station.

*Marks.*—Observed station is nail in pine stub in center of a drain tile with top broken off below surface. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	/	"	
“Sharkfin Shoal Light” (N 45° 58' W) . . . . .	0	00	00	. . . . . 2½ miles.
Left of bushes . . . . .	39	57	..	. . . . . 20 yards.
Left of Sandy Point woods . . . . .	53	38	..	. . . . . 4¾ miles.
Chimney of 2½-story house . . . . .	75	04	..	. . . . . ½ mile.
Chimney of house . . . . .	85	49	..	. . . . . 350 yards.
Chimney on end of cottage . . . . .	99	00	..	. . . . . ¾ mile.
REFERENCE STATION . . . . .	123	40	40	. . . . . 9.64 meters.
Pine tree . . . . .	148	37	30	. . . . . 2.14 meters.
Large square chimney of house . . . . .	152	49	..	. . . . . 400 yards.
Right one of five large pine trees . . . . .	184	40	..	. . . . . 300 yards.
Halfway between chimneys of store on Deal Island . . . . .	213	08	..	. . . . . ¾ mile.
“Deal Island Church” . . . . .	217	00	..	. . . . . 1½ miles.
Black gum tree . . . . .	223	49	..	. . . . . 6.70 meters.
Right end of Deal Island wharf . . . . .	234	10	..	. . . . . ½ mile.
“Hooper Strait Light” . . . . .	343	34	..	. . . . . 7½ miles.

DEAL ISLAND CHURCH.

*General locality.*—Western side of upper Tangier Sound on Deal Island on main road about ¼ mile inshore, and ¾ mile south of bridge across Laws Thoroughfare. (See Chart No. 41.)

*Immediate locality.*—Observed station is on Deal Island Methodist Church.

*Marks.*—Observed station is center of steeple on Deal Island Methodist Church.

*References.*—None necessary.

SOLOMONS LUMP LIGHT.

*General locality.*—Kedge Straits about ½ mile north of Smith Island and about 1½ miles south of South Marsh. (See Progress map.)

*Immediate locality.*—Observed station is on square tower on northerly side of a caisson and octagonal structure known as “Solomons Lump Light.”

*Marks.*—Observed station is center of black lantern on square tower.

*References.*—

“James Island Light” (S 42° 12' E) . . . . . 0 00 00 . . . . . 7¾ miles.

## HOLLAND ISLAND BAR LIGHT.

*General locality.*—Easterly side of Chesapeake Bay off entrance to Kedge Straits, about  $2\frac{3}{4}$  miles south of Holland Island, and  $3\frac{3}{4}$  miles northwest of Smith Island. (See Chart No. 42.)

*Immediate locality.*—Observed station is on hexagonal, screw-pile structure known as Holland Island Bar Light.

*Marks.*—Observed station is center point of lantern on Holland Island Bar Light.

*References.*—

“Solomons Lump Light” (S  $72^{\circ} 06' E$ ) . . . . . 0 00 00 . . . . .  $4\frac{3}{4}$  miles.

## HOLLAND ISLAND CHURCH SPIRE.

*General locality.*—Eastern side of Chesapeake Bay on Holland Island about  $3\frac{1}{2}$  miles north of Holland Island Bar Light. (See Chart No. 42.)

*Immediate locality.*—Observed station is on church known as Holland Island Church.

*Marks.*—Observed station is center of spire on Holland Island Church.

*References.*—None necessary.

## OKAHANIKAN.

*General locality.*—Eastern shore of Chesapeake Bay on western side of Bloodworth Island about  $\frac{3}{8}$  mile south of point at south side of entrance to Okahanikan Cove, and  $2\frac{3}{4}$  miles south-southeast of Hooper Strait Light. (See Chart No. 42.)

*Immediate locality.*—Observed station is on sandy marsh about 2 feet above high water, 40 yards southeast of shore, 40 yards east of shore, and 35 yards west of water bushes between sand and soft marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

“Hooper Strait Light” (N $17^{\circ} 15' E$ ) . . . . .	0	00	00	. . . . .	$2\frac{3}{4}$ miles.
Peak of barn . . . . .	4	50	..	. . . . .	4 miles.
Left chimney of large house . . . . .	34	48	..	. . . . .	$3\frac{3}{4}$ miles.
Deal Island church spire . . . . .	89	30	40	. . . . .	8 miles.
Chimney on small house . . . . .	160	00	..	. . . . .	..
Chimney of house on Billys Island . . . . .	166	50	..	. . . . .	$1\frac{1}{4}$ miles.
Tangent to north end of Billys Island . . . . .	173	03	..	. . . . .	1 mile.
“Hooper Island Light” . . . . .	280	55	40	. . . . .	10 miles.
“Hopkins Memorial Church Cupola” . . . . .	306	24	20	. . . . .	$4\frac{1}{2}$ miles.
Chimney in center of house . . . . .	308	48	..	. . . . .	$4\frac{1}{2}$ miles.
Chimney on right end of house . . . . .	351	16	..	. . . . .	5 miles.

## SENATOR.

*General locality.*—Western shore of Tangier Sound on southern side of Holland Straits and on extreme northeastern point of South Marsh. (See Progress map.)

*Immediate locality.*—Observed station is on marshland about 35 yards from north side of point, 30 yards from east side of point, 10 yards north of a small pool of water, and 5 yards northeast of another small pool of water. No permanent reference points near station.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

“Sharkfin Shoal Light” (N $16^{\circ} 21' E$ ) . . . . .	0	00	00	. . . . .	$4\frac{3}{4}$ miles.
Chimney on house . . . . .	31	30	..	. . . . .	$4\frac{3}{4}$ miles.
Left-hand chimney of crab house on Deal Island . . . . .	50	19	..	. . . . .	$3\frac{1}{2}$ miles.
Right end of large oyster house on Deal Island . . . . .	81	59	..	. . . . .	$3\frac{1}{2}$ miles.
Lone pine tree . . . . .	201	35	..	. . . . .	$1\frac{7}{8}$ miles.

MILES.

*General locality.*—Western shore of Tangier Sound on eastern side of the lower half of South Marsh just south of the middle one of three creeks on this shore of the island. (See Progress map.)

*Immediate locality.*—Observed station is on a marsh point about 75 yards south of entrance to a small creek, 50 yards south of the north side of the point, and 60 yards west of its extreme end.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	''	
"Sharkfin Shoal Light" (N 8° 33' E).....	0	00	00	..... 7¾ miles.
"Deal Island Church".....	29	26	..	..... 5¼ miles.
End of roof of house among trees, Deal Island.	33	48	..	..... 4¼ miles.
Tangent of near point of land.....	155	35	..	..... ¼ mile.
"Solomons Lump Light".....	178	56	55	..... 3¼ miles.
First large tree (third from left).....	231	57	..	..... ⅞ mile.
Lone pine tree.....	330	27	..	..... 4¼ miles.

FOG 2.

*General locality.*—Eastern shore of Chesapeake Bay and southern shore of Kedge Straits on northwest point of Smith Island known as Fog Point. (See Progress map.)

*Immediate locality.*—Observed station is among myrtle bushes on the north side of a sand and grass point about 1 foot above high water. 65 yards southwest from extreme end of point, 6 yards south-south-east from shore, and 50 yards east-northeast from the remains of old "Fog Point Lighthouse." Cement monument marking reference station is 15.26 meters S 0° 40' W from observed station and about in line with a lone cherry tree one-fourth mile distant.

*Marks.*—Observed station is nail in center of tile pipe with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	''	
"Solomons Lump Light" (N 59° 22' E).....	0	00	00	..... 1¾ miles.
Tangent of point of land.....	13	08	..	..... ¾ mile.
Large tree near two smaller ones.....	22	41	..	..... 1½ miles.
Lone pine tree.....	89	28	..	..... 1 mile.
REFERENCE STATION.....	121	18	30	..... 15.26 meters.
Large lone cherry tree.....	121	26	..	..... ¼ mile.
First one of two trees.....	133	43	..	..... ½ mile.
Old lighthouse foundation.....	193	47	..	..... 50 yards.
First tree on Holland Island.....	272	37	..	..... 5¾ miles.

POINT NO POINT LIGHT.

*General locality.*—Western side of Chesapeake Bay offshore about 1¼ miles southeast of Point No Point and 6¾ miles north-northeast of Point Lookout. (See Progress map.)

*Immediate locality.*—Observed station is on brick dwelling on a cylindrical foundation known as Point No Point Lighthouse.

*Marks.*—Observed station is center point of lantern on Point No Point Lighthouse.

*References.*—

	°	'	''	
"Cedar Point Light" (N 19° 35' W).....	0	00	00	..... 12 miles.

POINT LOOKOUT LIGHT.

*General locality.*—Western side of Chesapeake Bay on Point Lookout at northern side of entrance to Potomac River. (See Progress map.)

*Immediate locality.*—Observed station is on Point Lookout Lighthouse, which is a dwelling on shore near a fog-bell tower.

*Marks.*—Observed station is center point of a lantern on a dwelling known as Point Lookout Light-house.

*References.*—

	°	'	''	
"Smith Point Light" (S 34° 37' E).....	0	00	00	..... 13 miles.

## BOUNDARIES OF OYSTER BARS.

### EXPLANATION.

The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the designation and employment by the Department of Commerce and Labor of such officers, experts, and other technically qualified persons "as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland." The oyster laws of Maryland provide that the Maryland Shell Fish Commissioners, with the aid of such persons as may be designated by the Government, shall proceed "to have laid out, surveyed, and designated on the said charts the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts." The oyster laws of Maryland also provide in another section that there shall "be made a true and accurate survey of the natural oyster beds, bars, and rocks \* \* \* with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey."

Under the provisions of the laws quoted above the State of Maryland, in cooperation with the Department of Commerce and Labor, must define the boundaries of the natural oyster bars "as accurately as practicable" and also "with reference to fixed and permanent objects on the shore, giving courses and distances." The requirement of "as accurately as practicable" is easily fulfilled by definition of the location of the corners of the oyster bars by latitude and longitude. In fact, this method is probably the most satisfactory and accurate one that could be used for all purposes of legal definition or for relocation of the oyster-bar boundaries by competent engineers. Therefore the additional requirement of "giving courses and distances" is superfluous and is only fulfilled in the published definitions on account of the specific provisions of the law making it compulsory. This part of the description of boundaries has involved an immense amount of extra computations in order to prevent technical discrepancies between the latitude and longitude of a corner of an oyster bar and its distance and bearing from objects on shore of known latitude and longitude without adding anything to the accuracy and very little to the convenience of practical use of the descriptions of the oyster-bar boundaries.

As provided by law the boundaries of the oyster bars are all straight lines, but in the work already completed they have inclosed areas of all shapes from triangles to



complicated 14-sided figures, and of all sizes from 4 acres to 7,548 acres. The sides have varied in length from 93 to 7,529 yards, and in some cases the corners of the boundaries have been practically at the triangulation stations from which they are located, while in other instances they were over 13,600 yards from the landmarks most available for the purpose of fixing their position.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made and the magnitude of the work with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and great importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and the future.

#### METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in each county.

*Title.*—At the top of each tabular form is given the legal name of the oyster bar to be described, and the one by which it is known and designated in the published oyster records and on the oyster charts. The adopted name of the oyster bar is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the commission; and when there was no local name in common use a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the oyster bar was located.

Underneath the name, in parentheses, is given the general locality of the oyster bar and the serial number of the "Maryland Oyster Chart" on which its legal boundaries are shown.<sup>1</sup>

*First column.*—This column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar. Where a corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars, only the number of the corner of the oyster bar being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the commission as the primary technical definition of the location of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

of the survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>1</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations take into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>2</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars: One, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

(1) *Triangulation.*—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those

<sup>1</sup> The mean magnetic variation for Dorchester County was 6° 00' west of north in 1911 and increasing at the rate of 5' yearly.

<sup>2</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D.-C.

not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the Commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant, the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "Drum Point" oyster bar, which is the first one described in this publication, and assume that "Corner No. 3" is to be examined as to its position. The angle between the two landmarks "Up" and "Blind" as determined from right to left from the forward bearings from this corner is  $26^{\circ} 36'$  and the angle between "Blind" and "Myrtle" is  $60^{\circ} 12'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor (position finder), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The

second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant, then the other, until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic location of a point is attained. In fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State Fishery Force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer can take compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>1</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks, for which the bearings are published, have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used. This can be done by getting their bearings directly from the chart by parallel rulers or a protractor and then applying these new bearings in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fifth column of the tables opposite the "corner" in question. The direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

<sup>1</sup>The mean magnetic variation for Dorchester County was 6° 00' west of north in 1911 and increasing at the rate of 5' yearly.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

BOUNDARIES OF NATURAL OYSTER BARS.

DRUM POINT.

(Upper Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 38 35.96	75 57 34.20	N 77 36 W	S 77 36 E	Yards. 663 1,776 201	Up. Blind. Myrtle.
			S 75 48 W	N 75 47 E		
			S 15 36 W	N 15 36 E		
2	38 38 37.27	75 57 37.42	N 80 05 W	S 80 06 E	571 1,706 241	Up. Blind. Myrtle.
			S 73 40 W	N 73 39 E		
			S 7 24 E	N 7 24 W		
3	38 38 52.76	75 57 27.92	S 62 27 W	N 62 26 E	918 792 1,576	Up. Myrtle. Hut.
			S 16 09 W	N 16 09 E		
			S 11 58 W	N 11 58 E		
4	38 38 50.12	75 57 22.04	S 70 55 W	N 70 54 E	1,025 770 1,531	Up. Myrtle. Hut.
			S 29 14 W	N 29 14 E		
			S 18 22 W	N 18 22 E		

CABIN CREEK ENTRANCE.

(Upper Choptank River—Chart No. 35.)

1	38 38 02.66	75 58 13.40	N 17.08 E	S 17 08 W	1,323 970 1,824	Up. Blind. Raccoon.
			N 44 54 W	S 44 55 E		
			S 84 07 W	N 84 07 E		
2	38 38 07.42	75 58 17.50	N 24 17 E	S 24 17 W	1,215 781 1,741	Up. Blind. Raccoon.
			N 47 35 W	S 47 36 E		
			S 78 30 W	N 78 29 E		
3	38 38 14.37	75 58 05.06	N 11 00 E	S 11 00 W	886 951 2,116	Up. Blind. Raccoon.
			N 72 06 W	S 72 07 E		
			S 74 03 W	N 74 02 E		
4	38 38 10.08	75 58 01.20	N 3 47 E	S 3 47 W	1,017 1,098 2,181	Up. Blind. Raccoon.
			N 66 33 W	S 66 34 E		
			S 78 27 W	N 78 26 E		

## Survey of Oyster Bars, Dorchester County, Md.

## CABIN CREEK.

(Upper Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station	
			Forward	Back			
			° / ' / "	° / ' / "			
1	38 37 33.23	75 58 28.98	N 9 14 W	S 9 14 E	Yards.	Blind. Raccoon. Bank.	
			N 60 07 W	S 60 07 E	1,702		
			S 84 56 W	N 84 56 E	1,617 1,748		
2	38 37 46.60	75 58 57.78	N 21 41 E	S 21 42 W	1,322	Blind. Raccoon. Bank.	
			N 61 00 W	S 61 00 E	732		
			S 58 18 W	N 58 18 E	1,150		
3	38 38 07.18	75 58 37.02	Thence along county boundary as delineated on chart No. 35 to corner No. 3.				
			N 42 21 E	S 42 22 W	1,506	Up.	
			N 6 26 W	S 6 26 E	538	Blind.	
4	38 37 55.62	75 58 17.54	S 74 06 W	N 74 05 E	1,237	Raccoon.	
			N 18 23 E	S 18 23 W	1,584	Up.	
			N 31 54 W	S 31 54 E	1,089	Blind.	
			N 88 17 W	S 88 18 E	1,706	Raccoon.	

## TANNERS PATCH.

(Upper Choptank River—Chart No. 35.)

1	38 36 52.72	75 58 44.82	S 24 01 E	N 24 01 W	1,070	War.
			N 65 28 E	S 65 28 W	431	Wick.
			N 24 21 W	S 24 22 E	2,384	Raccoon.
2	38 37 01.20	75 58 57.24	S 31 11 E	N 31 11 W	1,475	War.
			S 81 34 E	N 81 34 W	728	Wick.
			N 19 09 W	S 19 09 E	1,997	Raccoon.
3	38 37 08.12	75 58 50.58	N 59 21 W	S 59 22 E	1,356	Bank.
			S 71 19 W	N 71 18 E	788	Spindle.
			S 30 37 W	N 30 37 E	1,102	Jam.
4	38 36 59.38	75 58 38.21	S 53 39 W	N 53 38 E	1,103	Jam.
			N 87 45 W	S 87 46 E	1,075	Spindle.
			N 56 35 W	S 56 35 E	1,793	Bank.

## DIXON.

(Upper Choptank River—Chart No. 35.)

1	38 35 46.40	75 59 12.80	S 27 19 E	N 27 19 W	1,502	Chief.	
			S 82 40 E	N 82 39 W	906	Gander.	
			N 43 01 E	S 43 02 W	1,724	War.	
2	38 36 26.90	75 58 57.27	Thence along county boundary as delineated on chart No. 35 to corner No. 2.				
			S 18 11 E	N 18 11 W	1,559	Gander.	
			S 82 07 E	N 82 07 W	772	War.	
3	38 36 21.78	75 58 45.54	N 18 31 E	S 34 31 W	1,274	Wick.	
			S 7 40 E	N 7 40 W	1,320	Gander.	
			N 81 38 E	S 81 38 W	459	War.	
4	38 35 57.08	75 58 53.42	N 18 36 E	S 18 36 W	1,290	Wick.	
			S 5 56 E	N 5 56 W	1,703	Chief.	
			S 38 58 E	N 38 58 W	611	Gander.	
			S 36 23 E	N 36 23 W	1,118	War.	

OYSTER SHELL POINT.

(Upper Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 35 05.58	76 00 08.13	N 61 54 E	S 61 55 W	Yards. 2,677 1,257 1,720	Gander. Duck. Barber.
			N 4 16 E	S 4 17 W		
			N 60 16 W	S 60 17 E		
2	38 35 14.68	76 00 30.08	N 72 03 E	S 72 04 W	3,094 1,162 1,063	Gander. Duck. Barber.
			N 35 29 E	S 35 29 W		
			N 59 07 W	S 59 07 E		
Thence along county boundary as delineated on chart No. 35 to corner No. 3.						
3	38 35 29.35	75 59 58.01	N 77 38 E	S 77 39 W	2,144 484 1,762	Gander. Duck. Barber.
			N 21 05 W	S 21 05 E		
			N 88 21 W	S 88 21 E		
4	38 35 13.00	75 59 45.02	N 60 00 E	S 60 01 W	2,021 1,129 2,189	Gander. Duck. Barber.
			N 27 18 W	S 27 19 E		
			N 74 02 W	S 74 03 E		

STATES BANK.

(Middle Choptank River—Chart No. 35.)

1	38 34 03.60	76 02 35.51	N 43 03 E	S 43 03 W	1,947 2,010 1,075	Rear. Boling. Shoal.
			N 9 06 E	S 9 06 W		
			S 89 16 W	N 89 15 E		
2	38 34 11.20	76 02 32.80	N 47 08 E	S 47 09 W	1,715 1,754 1,179	Rear. Boling. Shoal.
			N 8 06 E	S 8 07 W		
			S 76 45 W	N 76 45 E		
3	38 34 24.13	76 02 28.08	N 57 10 E	S 57 10 W	1,347 1,298 1,456	Rear. Boling. Shoal.
			N 5 22 E	S 5 22 W		
			S 60 58 W	N 60 58 E		
Thence along county boundary as delineated on Chart No. 35 to corner No. 4.						
4	38 34 18.74	76 01 58.46	S 49 58 E	N 49 58 W	926 977 1,616	Ferry. Rear. Boling.
			N 20 53 E	S 20 53 W		
			N 24 13 W	S 24 13 E		
5	38 34 10.08	76 02 02.44	S 69 33 E	N 69 33 W	860 1,287 1,851	Ferry. Rear. Boling.
			N 20 38 E	S 20 38 W		
			N 17 31 W	S 17 31 E		

SHOAL CREEK.

(Middle Choptank River—Chart No. 35.)

1	38 34 03.60	76 02 35.51	N 43 02 E	S 43 03 W	1,947 2,010 1,075	Rear. Boling. Shoal.
			N 9 06 E	S 9 06 W		
			S 89 16 W	N 89 15 E		
2	38 34 26.23	76 03 37.80	S 36 26 E	N 36 26 W	966 2,543 2,137	Shoal. Double. Cambridge.
			N 16 10 E	S 16 11 W		
			N 51 04 W	S 51 05 E		
3	38 34 38.42	76 03 29.50	N 84 51 E	S 84 52 W	2,760 2,090 2,100	Rear. Double. Cambridge.
			N 13 31 E	S 13 32 W		
			N 63 40 W	S 63 41 E		
4	38 34 11.20	76 02 32.80	N 47 08 E	S 47 09 W	1,715 1,754 1,179	Rear. Boling. Shoal.
			N 8 06 E	S 8 07 W		
			S 76 45 W	N 76 45 E		

## Survey of Oyster Bars, Dorchester County, Md.

## GREEN MARSH.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 34 36.98	76 04 07.08	N 42 10 W S 19 40 W S 49 48 E	S 42 10 E N 19 40 E N 49 48 W	1,322 591 1,766	Cambridge. East Cambridge tall stack. Shoal.
2	38 35 06.05	76 04 40.62	N 65 06 E N 7 12 W N 50 20 W	S 65 07 W S 7 13 E S 50 21 E	2,614 3,682 1,479	Double. Red. Command.
3	38 35 27.32	76 04 27.48	N 81 21 W S 25 52 W S 33 39 E	S 81 22 E N 25 52 E N 33 38 W	1,503 797 3,409	Command. Cambridge. Shoal.
4	38 34 49.95	76 03 47.52	N 68 53 W S 35 48 W S 27 47 E	S 68 53 E N 35 48 E N 27 47 W	1,507 1,225 1,783	Cambridge. East Cambridge tall stack. Shoal.

## HAMBROOKS.

(Middle Choptank River—Chart No. 35.)

1	38 35 36.96	76 04 11.95	S 87 00 W S 36 03 W N 87 58 E	N 86 59 E N 36 03 E S 87 58 W	1,900 1,289 1,613	Command. Cambridge. Double.
2	38 35 51.84	76 05 01.66	S 81 22 E N 2 34 E N 59 52 W	N 81 21 W S 2 34 W S 59 53 E	2,961 2,112 3,077	Double. Red. Howells.
3	38 36 10.60	76 05 12.54	N 71 30 E N 14 32 E N 68 58 W	S 71 31 W S 14 32 W S 68 59 E	3,391 1,526 2,544	Double. Red. Howells.
	Thence along county boundary as delineated on chart No. 35					to corner No. 1.

## TURTLE BACK.

(Middle Choptank River—Chart No. 35.)

1	38 35 43.90	76 05 21.78	N 14 47 E N 49 35 W S 64 58 W	S 14 47 W S 49 36 E N 64 57 E	2,457 2,796 3,052	Red. Howells. Howard.
2	38 35 58.78	76 05 55.86	N 39 11 E N 43 06 W S 46 06 W	S 39 12 W S 43 06 E N 46 05 E	2,419 1,797 2,586	Red. Howells. Howard.
3	38 36 09.56	76 05 26.90	N 26 46 E N 64 34 W S 50 39 W	S 26 46 W S 64 35 E N 50 38 E	1,693 2,208 3,401	Red. Howells. Howard.
	Thence along county boundary as delineated on Chart No. 35					to corner No. 3.



*Survey of Oyster Bars, Dorchester County, Md.*

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SANDY HILL LUMPS.

*(Middle Choptank River—Chart No. 35.)*

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 35 30.92	76 06 04.28	N 84 27 E N 24 03 W N 66 29 W	S 84 28 W S 24 04 E S 66 31 E	1,082 2,465 4,143	Command. Howells. Toot.
2	38 35 36.38	76 06 08.12	S 86 08 E N 23 36 W N 68 21 W	N 86 08 W S 23 36 E S 68 22 E	1,181 2,256 3,979	Command. Howells. Toot.
3	38 35 42.82	76 05 56.38	S 71 07 E N 33 16 W N 72 40 W	N 71 06 W S 33 17 E S 72 41 E	916 2,212 4,199	Command. Howells. Toot.
4	38 35 35.45	76 05 51.45	S 86 15 E N 32 38 W N 70 05 W	N 86 15 W S 32 39 E S 70 07 E	738 2,492 4,402	Command. Howells. Toot.

SANDY HILL.

*(Middle Choptank River—Chart No. 35.)*

1	38 35 18.80	76 06 32.90	N 74 22 E N 5 19 W N 55 53 W	S 74 23 W S 5 19 E S 55 54 E	1,904 2,672 3,674	Command. Howells. Toot.
2	38 35 23.28	76 07 29.58	N 83 49 E N 26 32 E N 21 12 W	S 83 50 W S 26 32 W S 21 13 E	3,353 2,804 6,209	Command. Howells. Chlora.
Thence from corner No. 2 along the mean low water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 35 29.62	76 07 39.76	N 87 39 E N 33 33 E N 19 31 W	S 87 41 W S 33 33 W S 19 32 E	3,607 2,754 5,916	Command. Howells. Chlora.
4	38 36 15.38	76 07 16.76	N 85 21 W S 6 45 E S 65 01 E	S 85 22 E N 6 44 W N 66 00 W	1,888 2,369 3,395	Toot. Howard. Command.
5	38 35 49.78	76 06 23.68	N 72 49 W S 37 06 W S 71 31 E	S 72 50 E N 37 06 E N 71 30 W	3,439 1,868 1,676	Toot. Howard. Command.

## Survey of Oyster Bars, Dorchester County, Md.

## COMMANDER.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38° 35' 05.62	76° 07' 06.25	N 11 34 E	S 11 34 W	3, 169	Howells. Trappe. Toot.
			N 4 25 W	S 4 25 E	5, 262	
			N 40 45 W	S 40 45 E	3, 308	
Thence from corner No. 1 along the mean low water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38° 35' 10.24	76° 07' 15.66	S 57 55 E	N 57 55 W	294	Howard. Command. Black Beacon.
			N 74 53 E	S 74 54 W	3, 072	
			N 1 00 W	S 1 00 E	4, 607	
3	38° 35' 13.00	76° 07' 13.01	S 35 41 E	N 35 41 W	397	Howard. Command. Black Beacon.
			N 76 15 E	S 76 16 W	2, 981	
			N 1 54 W	S 1 54 E	4, 514	
4	38° 35' 09.10	76° 07' 04.21	N 72 29 E	S 72 30 W	2, 792	Command. Howells. Toot.
			N 11 00 E	S 11 01 W	3, 043	
			N 42 49 W	S 42 50 E	3, 256	

## HORN POINT.

(Middle Choptank River—Chart No. 35.)

1	38° 36' 01.54	76° 08' 51.30	N 1 04 W	S 1 04 E	4, 501	Chlora. Large water tank. Le Compte.
			N 36 28 W	S 36 29 E	3, 859	
			N 89 02 W	S 89 03 E	1, 819	
2	38° 36' 05.80	76° 08' 59.82	N 1 51 E	S 1 51 W	4, 358	Chlora. Large water tank. Le Compte.
			N 34 57 W	S 34 58 E	3, 611	
			S 85 57 W	N 85 57 E	1, 598	
3	38° 36' 31.46	76° 08' 34.36	S 66 39 W	N 66 39 E	2, 469	Le Compte. Toot. Howells.
			S 23 54 E	N 23 54 W	425	
			N 85 58 E	S 85 59 W	2, 976	
4	38° 36' 46.21	76° 08' 32.40	S 57 32 W	N 57 29 E	2, 748	Le Compte. Toot. Howells.
			S 7 44 E	N 7 44 W	895	
			S 84 21 E	N 84 20 W	2, 929	
5	38° 36' 22.66	76° 08' 05.67	S 31 11 E	N 31 11 W	3, 037	Howard. Howells. Chlora.
			N 77 05 E	S 77 06 W	2, 266	
			N 18 50 W	S 18 50 E	4, 001	
6	38° 36' 14.90	76° 08' 21.45	S 40 25 E	N 40 25 W	3, 070	Howard. Howells. Chlora.
			N 73 42 E	S 73 43 W	2, 735	
			N 12 11 W	S 12 11 E	4, 143	
Thence from corner No. 6 along the mean low water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

LE COMPTE.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 36 31.46	76 08 34.36	S 66 39 W	N 66 39 E	2,469	Le Compte. Toot. Howells.
			S 23 54 E	N 23 54 W	425	
			N 85 58 E	S 85 59 W	2,976	
2	38 37 03.90	76 09 04.60	S 35 18 W	N 35 17 E	2,538	Le Compte. Toot. Howells.
			S 33 16 E	N 33 15 W	1,769	
			S 76 47 E	N 76 45 W	3,869	
3	38 37 24.00	76 08 54.36	S 32 17 W	N 32 17 E	3,252	Le Compte. Toot. Howells.
			S 17 59 E	N 17 59 W	2,271	
			S 65 55 E	N 65 52 W	3,829	
4	38 37 52.86	76 09 25.36	N 47 35 E	S 47 36 W	1,106	Chlora. Landeye. Large Water Tank.
			N 2 15 E	S 2 15 W	3,304	
			S 64 59 W	N 64 58 E	1,538	
Thence along county boundary as delineated on Chart No. 35 to corner No. 5.						
5	38 37 17.02	76 08 23.70	S 45 23 W	N 45 22 E	3,580	Le Compte. Toot. Howells.
			S 3 16 W	N 3 16 E	1,929	
			S 63 42 E	N 63 41 W	2,994	
6	38 36 46.21	76 08 32.40	S 57 32 W	N 57 29 E	2,748	Le Comte. Toot. Howells.
			S 7 44 E	N 7 44 W	895	
			S 84 21 E	N 84 20 W	2,929	

CASTLE HAVEN CREEK.

(Middle Choptank River—Chart No. 35.)

1	38 36 53.06	76 09 52.72	S 6 28 W	N 6 28 E	1,717	Le Compte. Toot. Large Water Tank.
			S 63 33 E	N 63 32 W	2,509	
			N 26 06 W	S 26 05 E	1,521	
Thence from corner No. 1 along the mean low water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 37 21.68	76 10 13.20	N 87 52 E	S 87 54 W	4,619	Black Beacon. Chlora. Large Water Tank.
			N 49 12 E	S 49 13 W	2,750	
			N 17 38 W	S 17 38 E	4,210	
3	38 37 39.00	76 10 00.38	S 68 37 W	N 68 37 E	502	Large Water Tank. Toot. Black Beacon.
			S 42 33 E	N 42 32 W	3,620	
			S 84 30 E	N 84 28 W	4,297	
4	38 37 17.41	76 09 30.56	N 66 31 W	S 66 32 E	1,360	Large Water Tank. Le Compte. Toot.
			S 17 09 W	N 17 08 E	2,644	
			S 40 34 E	N 40 33 W	2,551	

## Survey of Oyster Bars, Dorchester County, Md.

## CASTLE HAVEN.

(Outer Choptank River—Charts Nos. 35 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
	38 36 51.26	76 12 04.64	N 60 26 W S 20 37 W N 63 10 E	S 60 27 E N 20 37 E S 63 11 W	3,767 114 3,161	Dot. Corner. Large Water Tank.
2	38 36 58.50	76 12 39.54	S 68 22 E N 27 15 E N 55 32 W	N 68 22 W S 27 16 W S 55 33 E	950 5,426 2,855	Corner. Choptank River Light. Dot.
3	38 37 32.00	76 12 49.04	S 37 29 E N 36 32 E N 76 59 W	N 37 28 W S 36 33 W S 77 00 E	1,865 4,597 2,158	Corner. Choptank River Light. Dot.
4	38 37 28.60	76 12 09.40	N 79 13 W S 3 36 E N 86 45 E	S 79 14 E N 3 36 W S 86 46 W	3,208 1,368 2,952	Dot. Corner. Large Water Tank.
5	38 38 28.84	76 10 46.48	S 31 49 W S 35 07 E S 81 02 E	N 31 48 E N 35 07 W N 81 00 W	3,998 1,928 2,999	Corner. Castle. Chlora.
6	38 37 38.70	76 09 49.62	N 50 00 E N 30 04 W N 73 59 W	S 50 01 W S 30 05 E S 73 59 E	1,903 4,008 410	Chlora. Choptank River Light. Castle.
Thence from corner No. 6 along the mean low water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

## COOK POINT.

(Outer Choptank River—Charts Nos. 36 and 37.)

1	38 38 15.20	76 16 26.68	S 68 09 W S 75 07 E N 31 13 E	N 68 09 E N 75 06 W S 31 15 W	1,768 3,782 7,853	Chef. Dot. Roys.
2	38 38 37.80	76 17 47.96	S 19 43 E S 73 22 E N 23 34 W	N 19 42 W N 73 20 W S 23 35 E	1,508 6,059 6,020	Chef. Dot. Bar.
3	38 38 48.40	76 17 48.16	S 16 08 E S 70 12 E N 24 57 W	N 16 07 W N 70 10 W S 24 58 E	1,850 6,174 5,692	Chef. Dot. Bar.
4	38 38 52.80	76 17 30.32	S 1 15 E S 67 14 E N 16 58 E	N 1 15 W N 67 12 W S 16 59 W	1,026 5,788 6,768	Chef. Dot. Nelson 3.
5	38 39 47.20	76 17 08.36	N 16 44 E N 82 51 W S 8 09 W	S 16 45 W S 82 53 E N 8 09 E	4,845 5,233 3,798	Nelson 3. Black. Chef.
6	38 39 51.12	76 16 42.84	N 9 05 E N 84 56 W S 17 19 W	S 9 05 W S 84 59 E N 17 19 E	4,564 5,890 4,077	Nelson 3. Black. Chef.
7	38 39 29.28	76 16 17.40	S 30 52 W S 44 30 E N 42 12 E	N 30 51 E N 44 29 W S 42 13 W	3,678 4,863 5,694	Chef. Dot. Roys.

RED BUOY.

(Outer Choptank River—Charts Nos. 36 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 38 11.38	76 18 33.10	N 87 13 W	S 87 16 E	Yards.	Sharps Island Light. Jere. Chef.
			S 67 19 W	N 67 17 E	6,366	
			S 72 44 E	N 72 44 W	5,679 1,783	
2	38 38 19.61	76 18 47.52	N 89 42 W	S 89 44 E	5,975	Sharps Island Light. Jere. Chef.
			S 63 05 W	N 63 03 E	5,449	
			S 68 50 E	N 68 49 W	2,235	
3	38 38 49.02	76 18 11.33	S 59 17 W	N 59 15 E	6,765	Jere. Brannock. Chef.
			S 20 05 E	N 20 03 W	8,467	
			S 32 04 E	N 32 04 W	2,123	
4	38 38 33.14	76 18 06.04	S 63 51 W	N 63 50 E	6,635	Jere. Brannock. Chef.
			S 20 27 E	N 20 26 W	7,916	
			S 38 00 E	N 38 00 W	1,603	

SPEEDDEN.

(Entrance Choptank River—Charts Nos. 36 and 37.)

1	38 37 10.14	76 18 16.06	S 82 55 E	N 82 54 W	2,363	Cook Point Windmill. Chef. Jere.
			N 39 11 E	S 39 12 W	1,982	
			S 88 45 W	N 88 43 E	5,693	
2	38 37 31.92	76 18 50.81	S 79 48 W	N 79 46 E	4,848	Jere. Brannock. Chef.
			S 36 26 E	N 36 25 W	6,653	
			N 69 45 E	S 69 46 W	2,314	
3	38 37 45.32	76 19 01.38	S 73 44 W	N 73 43 E	4,680	Jere. Brannock. Chef.
			S 36 05 E	N 36 04 W	7,183	
			N 81 53 E	S 81 54 W	2,476	
4	38 37 49.56	76 18 55.20	S 72 40 W	N 72 38 E	4,876	Jere. Brannock. Chef.
			S 34 22 E	N 34 21 W	7,207	
			N 84 51 E	S 84 52 W	2,297	
5	38 37 32.40	76 18 24.66	S 80 54 W	N 80 52 E	5,533	Jere. Brannock. Chef.
			S 31 16 E	N 31 14 W	6,281	
			N 62 02 E	S 62 03 W	1,675	
6	38 37 13.42	76 18 10.90	S 79 41 E	N 79 40 W	2,245	Cook Point Windmill. Chef. Jere.
			N 38 03 E	S 38 03 W	1,810	
			S 87 41 W	N 87 39 E	5,832	

## Survey of Oyster Bars, Dorchester County, Md.

## DUPONT.

(Chesapeake Bay—Off Tripps Bay—Charts Nos. 36 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	38 36 45.00	76 17 27.32	S 24 48 E	N 24 47 W	4,152	Brannock. Cook Point Windmill. Chef.
			N 62 11 E	S 62 12 W	1,193	
			N 0 54 W	S 0 54 E	2,384	
2	38 36 54.84	76 17 46.20	S 28 39 E	N 28 38 W	4,674	Brannock. Cook Point Windmill. Chef.
			N 81 46 E	S 81 47 W	1,572	
			N 12 42 E	S 12 42 W	2,103	
3	38 37 01.20	76 17 40.40	S 25 49 E	N 25 48 W	4,794	Brannock. Cook Point Windmill. Chef.
			N 89 34 E	S 89 35 W	1,402	
			N 9 32 E	S 9 32 W	1,863	
4	38 36 50.60	76 17 22.10	S 22 03 E	N 22 02 W	4,271	Brannock. Cook Point Windmill. Chef.
			N 68 09 E	S 68 09 W	989	
			N 4 34 W	S 4 34 E	2,201	

## DIAMOND.

(Chesapeake Bay—Vicinity Sharps Island—Charts Nos. 36 and 37.)

1	38 36 10.60	76 20 02.68	S 65 58 E	N 65 55 W	6,410	Brannock. Chef. Jere.
			N 48 58 E	S 49 00 W	5,398	
			N 56 43 W	S 50 44 E	3,434	
2	38 36 39.40	76 20 43.16	S 62 38 E	N 62 36 W	7,797	Brannock. Chef. Sharps Island Light.
			N 63 26 E	S 63 28 W	5,750	
			N 40 31 W	S 40 32 E	4,489	
Thence along county boundary as delineated on charts Nos. 36 and 37 to corner No. 3.						
3	38 36 58.72	76 20 27.22	S 56 56 E	N 56 53 W	7,761	Brannock. Chef. Sharps Island Light.
			N 67 52 E	S 67 54 W	5,096	
			N 50 24 W	S 50 26 E	4,332	
4	38 36 58.28	76 18 45.32	N 88 00 E	S 88 02 W	3,121	Cook Point Windmill. Chef. Sharps Island Light.
			N 46 18 E	S 46 19 W	2,802	
			N 65 19 W	S 65 21 E	6,641	
5	38 36 10.72	76 19 10.96	S 59 45 E	N 59 45 W	5,191	Brannock. Chef. Jere.
			N 37 23 E	S 37 23 W	4,454	
			N 66 05 W	S 66 06 E	4,637	

## BRANNOCK.

(Chesapeake Bay Off Tripps Bay—Charts Nos. 36 and 37.)

1	38 36 09.83	76 17 22.46	S 31 58 E	N 31 58 W	3,046	Brannock. Cook Point Windmill. Jere.
			N 28 00 E	S 28 01 W	1,974	
			N 74 58 W	S 75 01 E	7,361	
2	38 36 20.52	76 17 36.43	S 33 57 E	N 33 56 W	3,550	Brannock. Cook Point Windmill. Chef.
			N 43 10 E	S 43 10 W	1,895	
			N 3 38 E	S 3 38 W	3,215	
3	38 36 33.12	76 17 29.46	S 28 05 E	N 28 05 W	3,810	Brannock. Cook Point Windmill. Chef.
			N 49 16 E	S 49 17 W	1,468	
			N 0 24 E	S 0 24 W	2,783	
4	38 36 17.62	76 17 08.98	S 23 49 E	N 23 48 W	3,111	Brannock. Cook Point Windmill. Jere.
			N 21 04 E	S 21 04 W	1,586	
			N 77 34 W	S 77 37 E	7,644	

Survey of Oyster Bars, Dorchester County, Md.

MILL POINT.

(Chesapeake Bay—Off Tripps Bay—Charts Nos. 36 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 35 40.00	76 17 36.81	S 51 37 E	N 51 37 W	2,542	Brannock. Cook Point Windmill. Jere.
			N 25 25 E	S 25 26 W	3,043	
			N 60 35 W	S 66 38 E	7,333	
2	38 35 48.78	76 17 54.30	S 52 39 E	N 52 38 W	3,088	Brannock. Cook Point Windmill. Jere.
			N 35 49 E	S 35 49 W	3,024	
			S 67 17 W	N 67 15 E	6,793	
3	38 35 54.00	76 17 43.40	S 46 35 E	N 46 34 W	2,983	Brannock. Cook Point Windmill. Jere.
			N 33 03 E	S 33 03 W	2,715	
			N 60 34 W	S 69 36 E	6,995	
4	38 35 51.00	76 17 37.50	S 45 54 E	N 45 53 W	2,801	Brannock. Cook Point Windmill. Jere.
			N 29 08 E	S 29 08 W	2,722	
			N 60 15 W	S 69 17 E	7,176	

HILLS POINT.

(Chesapeake Bay—Off Entrance Little Choptank River—Charts Nos. 36 and 37.)

1	38 34 30.62	76 19 27.02	S 45 17 E	N 45 17 W	1,458	Robins. Cook Point Windmill. Jere.
			N 39 42 E	S 39 43 W	6,611	
			N 35 58 W	S 35 59 E	6,494	
2	38 34 51.17	76 20 00.00	S 48 00 E	N 47 59 W	2,569	Robins. Chef. Jere.
			N 32 45 E	S 32 46 W	7,397	
			N 32 48 W	S 32 50 E	5,428	
3	38 34 58.06	76 20 10.62	S 48 18 E	N 48 17 W	2,933	Robins. Cook Point Windmill. Jere.
			N 52 16 E	S 52 18 W	6,798	
			N 31 33 W	S 31 35 E	5,082	
4	38 35 24.58	76 19 14.73	S 14 01 E	N 14 01 W	2,932	Robins. Cook Point Windmill. Jere.
			N 50 02 E	S 50 03 W	5,086	
			N 50 18 W	S 50 20 E	5,379	
5	38 34 34.56	76 19 06.60	S 23 09 E	N 23 08 W	1,260	Robins. Cook Point Windmill. Jere.
			N 36 37 E	S 36 39 W	6,173	
			N 40 22 W	S 40 24 E	6,722	

HILLS POINT NORTH.

(Chesapeake Bay—Off Entrance Little Choptank River—Charts Nos. 36 and 37.)

1	38 34 24.41	76 21 25.20	S 22 18 E	N 22 18 W	5,815	James. Robins. Jere.
			S 78 54 E	N 78 52 W	4,244	
			N 07 10 W	S 07 10 E	5,588	
2	38 34 46.64	76 21 30.20	S 20 54 E	N 20 53 W	6,550	James. Robins. Jere.
			S 69 58 E	N 60 56 W	4,573	
			N 06 42 W	S 06 43 E	4,748	
3	38 35 01.72	76 20 25.88	S 51 21 E	N 51 20 W	3,321	Robins. Chef. Jere.
			N 38 37 E	S 38 39 W	7,507	
			N 28 12 W	S 28 13 E	4,775	
4	38 34 52.64	76 20 20.36	S 54 09 E	N 54 08 W	3,019	Robins. Chef. Jere.
			N 36 20 E	S 36 22 W	7,662	
			N 28 01 W	S 28 02 E	5,114	

## Survey of Oyster Bars, Dorchester County, Md.

## HILLS POINT SOUTH.

(Chesapeake Bay—Off Entrance Little Choptank River—Charts Nos. 36 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 32 34.80	76 20 25.80	S 20 38 E N 41 59 E N 13 51 W	N 20 37 W S 42 00 W S 13 52 E	1,798 3,875 9,433	James. Robins. Jere.
2	38 33 49.88	76 21 52.36	S 34 43 E N 85 56 E N 0 16 E	N 34 41 W S 85 58 W S 0 16 W	5,128 4,896 6,628	James. Robins. Jere.
3	38 34 51.17	76 20 00.00	S 48 00 E N 32 45 E N 32 48 W	N 47 59 W S 32 46 W S 32 50 E	2,569 7,397 5,428	Robins. Chef. Jere.
4	38 34 00.00	76 20 16.80	S 4 57 E N 89 50 E N 21 39 W	N 4 57 W S 89 51 W S 21 40 E	4,573 3,353 6,766	James. Robins. Jere.
5	38 33 42.30	76 20 49.25	S 17 35 E N 79 22 E N 13 23 W	N 17 34 W S 79 23 W S 13 23 E	4,152 3,269 7,078	James. Robins. Jere.
6	38 33 03.70	76 20 13.40	S 6 33 E N 49 55 E N 17 32 W	N 6 33 W S 49 56 W S 17 33 E	2,675 2,958 8,586	James. Robins. Jere.

## JAMES POINT.

(Chesapeake Bay—Vicinity James Point—Chart No. 36.)

1	38 31 41.59	76 22 01.56	S 40 31 E N 88 00 E N 47 39 E	N 40 30 W S 88 01 W S 47 41 W	4,170 3,171 6,937	Skid. James. Robins.
2	38 31 42.18	76 22 32.00	S 47 47 E N 88 42 E N 51 54 E	N 47 46 W S 88 43 W S 51 56 W	4,747 3,977 7,539	Skid. James. Robins.
3	38 32 42.94	76 23 10.08	S 40 49 E S 68 33 E N 69 27 E	N 40 47 W N 68 31 W S 69 29 W	6,923 5,355 7,414	Skid. James. Robins.
4	38 33 25.78	76 22 59.76	S 54 10 E N 80 09 E N 4 00 E	N 54 08 W S 80 11 W S 4 01 W	5,811 6,768 9,966	James. Robins. Sharps Island Light.
5	38 33 23.00	76 21 58.38	S 43 01 E N 76 03 E N 1 27 E	N 43 00 W S 76 05 W S 1 27 W	4,523 5,197 7,538	James. Robins. Jere.
6	38 32 34.30	76 21 42.68	S 58 00 E N 57 59 E N 1 24 W	N 57 59 W S 58 01 W S 1 24 E	3,148 5,457 9,179	James. Robins. Jere.



TRIVERS.

(Chesapeake Bay—Vicinity James Island—Charts Nos. 36 and 38.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 28 46.52	76 21 27.48	S 65 42 E	N 65 40 W	Yards. 2,920 3,276 16,871	Travers 2. Skid. Jere.
			N 33 28 E	S 33 28 W		
			N 2 08 W	S 2 08 E		
2	38 29 39.12	76 22 04.88	S 50 50 E	N 50 48 W	4,711 2,957 15,090	Travers 2. Skid. Jere.
			N 71 04 E	S 71 05 W		
			N 1 23 E	S 1 23 W		
3	38 30 11.68	76 21 53.40	S 39 25 E	N 39 24 W	5,272 2,497 13,986	Travers 2 Skid. Jere.
			S 86 50 E	N 86 49 W		
			N 0 15 E	S 0 15 W		
4	38 29 47.76	76 21 39.72	S 42 25 E	N 42 24 W	4,425 2,233 14,799	Travers 2. Skid. Jere.
			N 72 35 E	S 72 36 W		
			N 1 10 W	S 1 10 E		
5	38 29 33.16	76 21 43.34	S 48 00 E	N 47 59 W	4,146 2,511 15,291	Travers 2. Skid. Jere.
			N 62 28 E	S 62 29 W		
			N 0 47 W	S 0 47 E		
6	38 29 03.00	76 21 17.52	S 53 45 E	N 53 44 W	2,972 2,669 16,329	Travers 2. Skid. Jere.
			N 35 18 E	S 35 19 W		
			N 3 07 W	S 3 08 E		

MARSHALL.

(Oyster Creek—Charts Nos. 36, 37, and 38.)

1	38 29 21.71	76 19 59.20	N 44 12 E	S 44 14 W	7,422 3,036 1,636	Ragged Point 3. Rede. Skid.
			N 7 40 W	S 7 41 E		
			N 19 00 W	S 19 01 E		
2	38 29 28.62	76 20 07.94	N 46 44 E	S 46 46 W	7,423 2,781 1,351	Ragged Point 3. Rede. Skid.
			N 3 35 W	S 3 35 E		
			N 12 55 W	S 12 55 E		
3	38 29 27.76	76 19 56.36	N 44 54 E	S 44 56 W	7,224 2,844 1,480	Ragged Point 3. Rede. Skid.
			N 9 44 W	S 9 44 E		
			N 24 16 W	S 24 17 E		

## Survey of Oyster Bars, Dorchester County, Md.

## OYSTER CREEK.

(Little Choptank River—Charts Nos. 36, 37, and 38.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 29 35.52	76 20 04.10	N 47 32 E	S 47 34 W	7,190	Ragged Point 3. Rede. Skid.
			N 6 11 W	S 6 11 E	2,557	
			N 20 26 W	S 20 26 E	1,154	
2	38 29 36.92	76 20 09.58	N 48 35 E	S 48 37 W	7,267	Ragged Point 3. Rede. Skid.
			N 2 59 W	S 2 59 E	2,499	
			N 14 00 W	S 14 00 E	1,065	
3	38 29 41.12	76 20 07.64	N 49 10 E	S 49 12 W	7,137	Ragged Point 3. Rede. Skid.
			N 4 25 W	S 4 25 E	2,361	
			N 19 07 W	S 19 07 E	945	
4	38 29 39.60	76 20 02.20	N 48 05 E	S 48 07 W	7,061	Ragged Point 3. Rede. Skid.
			N 7 43 W	S 7 43 E	2,427	
			N 25 40 W	S 25 40 E	1,048	

## GRANGER.

(Little Choptank River—Charts Nos. 36, 37, and 38.)

1	38 30 00.84	76 19 49.14	N 85 52 E	S 85 51 W	2,653	Can. Rede. Skid.
			N 21 42 W	S 21 42 E	1,818	
			N 74 07 W	S 74 07 E	831	
2	38 30 19.44	76 19 57.56	S 81 22 E	N 81 23 W	2,902	Can. Rede. Skid.
			N 22 55 W	S 22 55 E	1,153	
			S 55 16 W	N 55 16 E	702	
3	38 30 22.59	76 19 46.56	N 55 58 E	S 56 00 W	5,840	Ragged Point 3. Rede. Skid.
			N 37 46 W	S 37 47 E	1,208	
			S 59 46 W	N 59 46 E	1,005	
4	38 30 04.26	76 19 38.61	N 88 10 E	S 88 11 W	2,369	Can. Rede. Skid.
			N 31 09 W	S 31 09 E	1,838	
			N 84 03 W	S 84 04 E	1,085	

## CATORS.

(Little Choptank River—Charts Nos. 36, 37, and 38.)

1	38 30 11.58	76 19 20.12	S 84 48 E	N 84 47 W	1,885	Can. James. Skid.
			N 19 22 W	S 19 23 E	3,335	
			S 85 06 W	N 85 05 E	1,575	
2	38 30 19.24	76 19 35.42	S 79 21 E	N 79 20 W	2,323	Can. Rede. Skid.
			N 44 06 W	S 44 07 E	1,487	
			S 71 20 W	N 71 20 E	1,228	
3	38 30 40.44	76 19 12.60	N 31 00 W	S 31 00 E	2,535	James. Rede. Skid.
			N 77 50 W	S 77 50 E	1,678	
			S 57 55 W	N 57 55 E	2,087	
4	38 30 36.74	76 19 05.30	N 33 07 W	S 33 07 E	2,744	James. Rede. Skid.
			N 75 24 W	S 75 24 E	1,894	
			S 63 22 W	N 63 22 E	2,194	

## HENPECK.

(Little Choptank River—Charts Nos. 36, 37, and 38.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 30 17.80	76 18 41.76	N 35 52 W	S 35 52 E	3,623	James. Rede. Skid.
			N 65 34 W	S 65 35 E	2,699	
			S 82 24 W	N 82 23 E	2,608	
2	38 30 26.75	76 18 49.68	N 35 59 W	S 35 59 E	3,256	James. Rede. Skid.
			N 70 04 W	S 70 05 E	2,391	
			S 74 47 W	N 74 46 E	2,462	
3	38 30 45.98	76 18 15.24	S 68 30 W	N 68 29 E	3,533	Skid. Can. Veith.
			S 6 47 E	N 6 47 W	1,340	
			S 62 21 E	N 62 20 W	2,221	
4	38 30 38.50	76 18 03.75	S 73 49 W	N 73 47 E	3,740	Skid. Can. Veith.
			S 7 43 W	N 7 43 E	1,088	
			S 64 55 E	N 64 54 W	1,835	

## SLAUGHTER CREEK.

(Entrance Slaughter Creek—Charts Nos. 36, 37, and 38.)

1	38 29 57.14	76 16 10.23	N 32 57 E	S 32 57 W	1,009	Pov. Veith. Torrey.
			N 65 23 W	S 65 24 E	1,480	
			S 22 52 W	N 22 52 E	704	
2	38 30 06.63	76 16 36.65	N 67 07 E	S 67 08 W	1,356	Pov. Veith. Moore.
			N 65 20 W	S 65 20 E	711	
			S 32 18 W	N 32 18 E	886	
3	38 30 35.68	76 16 19.76	N 12 43 W	S 12 43 E	2,899	Ragged Point 3. Veith. Torrey.
			S 57 59 W	N 57 59 E	1,289	
			S 0 37 W	N 0 37 E	1,949	
4	38 30 06.76	76 16 03.56	N 15 40 W	S 15 41 E	3,950	Ragged Point 3. Veith. Moore.
			N 79 08 W	S 79 09 E	1,550	
			S 60 51 W	N 60 51 E	1,546	

## HOOPER.

(Entrance Slaughter Creek—Charts Nos. 36, 37, and 38.)

1	38 30 06.63	76 16 36.65	N 67 07 E	S 67 08 W	1,356	Pov. Veith. Moore.
			N 65 20 W	S 65 20 E	711	
			S 32 18 W	N 32 18 E	886	
2	38 31 09.96	76 16 54.94	S 4 59 W	N 4 59 E	1,846	Veith. Pov. Ragged Point 3.
			S 47 08 E	N 47 08 W	2,365	
			N 9 58 E	S 9 59 W	1,697	
3	38 30 53.60	76 16 11.60	S 45 29 W	N 45 28 E	1,836	Veith. Pov. Wool.
			S 28 59 E	N 28 59 W	1,208	
			N 63 35 E	S 63 36 W	2,439	
4	38 30 35.68	76 16 19.76	N 12 43 W	S 12 43 E	2,899	Ragged Point 3. Veith. Torrey.
			S 57 59 W	N 57 59 E	1,289	
			S 0 37 W	N 0 37 E	1,949	

## Survey of Oyster Bars, Dorchester County, Md.

NINE ACRES.

(Little Choptank River—Charts Nos. 36 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 30 30.04	76 17 50.80	S 31 40 W	N 31 40 E	932	Can. Veith. Ragged Point 3.
			S 69 31 E	N 69 30 W	1,409	
			N 30 27 E	S 30 27 W	3,501	
2	38 30 38.50	76 18 03.75	S 73 49 W	N 73 47 E	3,740	Skid. Can. Veith.
			S 7 43 W	N 7 43 E	1,088	
			S 64 55 E	N 64 54 W	1,835	
3	38 30 45.98	76 18 15.24	S 68 30 W	N 68 29 E	3,533	Skid. Can. Veith.
			S 6 47 E	N 6 47 W	1,340	
			S 62 21 E	N 62 20 W	2,221	
4	38 31 04.40	76 18 13.18	S 60 10 W	N 60 09 E	3,853	Skid. Can. Veith.
			S 3 03 E	N 3 03 W	1,954	
			S 49 11 E	N 49 10 W	2,527	
5	38 31 25.00	76 17 20.60	S 61 07 W	N 61 06 E	5,408	Skid. Veith. Pov.
			S 12 29 E	N 12 29 W	2,403	
			S 48 46 E	N 48 45 W	3,210	
6	38 30 55.10	76 17 24.07	S 36 10 W	N 36 10 E	2,030	Can. Veith. Pov.
			S 24 33 E	N 24 33 W	1,472	
			S 66 09 E	N 66 08 W	2,739	

## LITTLE CHOPTANK.

(Little Choptank River—Charts Nos. 36 and 37.)

1	38 30 49.58	76 18 43.36	N 48 07 W	S 48 08 E	2,794	James. Rede. Skid.
			N 88 56 W	S 88 54 E	2,415	
			S 60 53 W	N 60 52 E	2,910	
2	38 31 00.84	76 18 59.66	N 47 58 W	S 47 59 E	2,219	James. Rede. Skid.
			S 80 25 W	N 80 24 E	2,011	
			S 49 36 W	N 49 36 E	2,771	
3	38 31 28.62	76 18 41.03	S 43 37 W	N 43 36 E	3,775	Skid. Can. Pov.
			S 16 55 E	N 16 55 W	2,894	
			S 63 47 E	N 63 45 W	5,067	
4	38 31 04.40	76 18 13.18	S 60 10 W	N 60 09 E	3,853	Skid. Can. Veith.
			S 3 03 E	N 3 03 W	1,954	
			S 49 11 E	N 49 10 W	2,527	

RAGGED POINT.

(Little Choptank River—Charts Nos. 36 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 31 25.95	76 17 50.96	S 56 05 W S 29 06 E N 57 30 E	N 56 04 E N 29 06 W S 57 29 W	4,737 2,722 2,107	Skid. Veith. Ragged Point 3.
2	38 31 27.27	76 18 23.92	S 48 42 W S 42 12 E N 67 41 E	N 48 40 E N 42 11 W S 67 42 W	4,070 3,271 2,865	Skid. Veith. Ragged Point 3.
3	38 32 16.42	76 18 21.70	S 77 36 E N 11 13 W S 68 10 W	N 77 35 W S 11 13 E N 68 09 E	2,654 3,568 2,859	Ragged Point 3. Robins. James.
4	38 32 37.45	76 17 20.97	N 39 31 W S 67 25 W S 37 34 E	S 39 31 E N 07 23 E N 37 34 W	3,617 4,616 1,613	Robins. James. Ragged Point 3.
5	38 32 33.58	76 17 05.86	N 42 46 W S 70 36 W S 26 56 E	S 42 47 E N 70 34 E N 26 56 W	3,979 4,944 1,287	Robins. James. Ragged Point 3.
6	38 32 01.32	76 17 19.42	S 86 21 E N 30 18 W S 82 39 W	N 86 21 W S 30 19 E N 82 38 E	945 4,643 4,339	Ragged Point 3. Robins. James.

PEANUT HILL.

(Little Choptank River—Charts Nos. 36 and 37.)

1	38 32 16.42	76 18 21.70	S 77 36 E N 11 13 W S 68 10 W	N 77 35 W S 11 13 E N 68 09 E	2,654 3,568 2,859	Ragged Point 3. Robins. James.
2	38 32 43.02	76 19 38.07	S 17 51 W S 72 22 E N 27 02 E	N 17 50 E N 72 20 W S 27 03 W	2,059 4,842 2,922	James. Ragged Point 3. Robins.
3	38 32 55.00	76 18 55.58	S 36 37 W S 61 48 E N 5 17 E	N 36 36 E N 61 47 W S 5 17 W	2,945 3,959 2,208	James. Ragged Point 3. Robins.
4	38 32 46.79	76 18 49.44	S 42 36 W S 64 25 E N 00 57 E	N 42 35 E N 64 24 W S 00 57 W	2,836 3,689 2,476	James. Ragged Point 3. Robins.
5	38 32 47.28	76 18 09.44	N 22 29 W S 54 46 W S 54 37 E	S 22 30 E N 54 45 E N 54 36 W	2,662 3,647 2,781	Robins. James. Ragged Point 3.
6	38 32 26.44	76 18 12.20	S 68 49 E N 16 39 W S 64 15 W	N 68 48 W S 16 39 E N 64 14 E	2,510 3,300 3,226	Ragged Point 3. Robins. James.

## Survey of Oyster Bars, Dorchester County, Md.

## RAGGED POINT FLATS.

(Little Choptank River—Charts Nos. 36 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 32 33.58	76 17 05.86	N 42 46 W	S 42 47 E	Yards. 3,979 4,944 1,287	Robins. James. Ragged Point 3.
			S 70 36 W	N 70 34 E		
			S 26 56 E	N 26 56 W		
2	38 32 37.45	76 17 20.97	N 39 31 W	S 39 31 E	3,617 4,616 1,613	Robins. James. Ragged Point 3.
			S 67 25 W	N 67 23 E		
			S 37 34 E	N 37 34 W		
3	38 33 08.88	76 17 33.50	N 48 42 W	S 48 43 E	2,622 4,845 2,683	Robins. James. Ragged Point 3.
			S 54 13 W	N 54 12 E		
			S 29 22 E	N 29 21 W		
4	38 33 35.79	76 17 19.95	N 70 32 W	S 70 32 E	2,469 5,691 3,384	Robins. James. Ragged Point 3.
			S 48 55 W	N 48 53 E		
			S 16 25 E	N 16 25 W		
5	38 32 55.80	76 16 56.50	N 53 38 W	S 53 39 E	3,662 5,463 1,927	Robins. James. Ragged Point 3.
			S 64 02 W	N 64 00 E		
			S 10 01 E	N 10 01 W		

## COW ISLAND.

(Little Choptank River—Charts Nos. 36 and 37.)

1	38 33 03.34	76 18 15.64	N 24 00 W	S 24 01 E	2,100 3,863 3,247	Robins. James. Ragged Point 3.
			S 46 46 W	N 46 45 E		
			S 48 30 E	N 48 29 W		
2	38 33 12.32	76 18 18.86	N 25 29 W	S 25 31 E	1,789 4,018 3,516	Robins. James. Ragged Point 3.
			S 42 47 W	N 42 46 E		
			S 45 44 E	N 45 43 W		
3	38 33 21.90	76 17 51.22	N 49 17 W	S 49 17 E	1,981 4,763 3,294	Robins. James. Ragged Point 3.
			S 46 37 W	N 46 38 E		
			S 32 43 E	N 32 43 W		
4	38 33 08.88	76 17 33.50	N 48 42 W	S 48 43 E	2,622 4,845 2,683	Robins. James. Ragged Point 3.
			S 54 13 W	N 54 12 E		
			S 29 22 E	N 29 21 W		

BALD EAGLE.

(Little Choptank River—Charts Nos. 36 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 33 08.88	76 17 33.50	N 48 42 W S 54 13 W S 29 22 E	S 48 42 E N 54 12 E N 29 21 W	Yards. 2,622 4,845 2,683	Robins. James. Ragged Point 3.
2	38 33 21.90	76 17 51.22	N 49 17 W S 46 37 W S 32 43 E	S 49 17 E N 46 38 E N 32 43 W	1,981 4,763 3,294	Robins. James. Ragged Point 3.
3	38 33 46.72	76 17 52.96	N 72 38 W S 39 44 W S 26 52 E	S 72 39 E N 39 43 E N 26 51 W	1,524 5,343 4,052	Robins. James. Ragged Point 3.
4	38 33 35.79	76 17 19.95	N 70 32 W S 48 55 W S 16 25 E	S 70 33 E N 48 53 E N 16 25 W	2,469 5,691 3,384	Robins. James. Ragged Point 3.

CORNERS WHARF.

(Outer Choptank River—Chart No. 37.)

1	38 36 44.62	76 13 08.16	N 85 54 E N 69 52 E N 37 28 W	S 85 54 W S 69 54 W S 37 28 E	1,645 4,794 2,626	Corner. Large Water Tank. Dot.
2	38 36 55.18	76 13 39.80	S 84 30 E N 76 23 E N 23 45 W	N 84 29 W S 76 25 W S 23 45 E	2,489 5,492 1,888	Corner. Large Water Tank. Dot.
3	38 37 17.05	76 13 31.38	S 66 36 E N 83 48 E N 44 47 W	N 66 35 W S 83 50 W S 44 47 E	2,457 5,145 1,395	Corner. Large Water Tank. Dot.
4	38 37 04.90	76 12 59.10	S 68 00 E N 77 17 E N 52 38 W	N 68 00 W S 77 19 W S 52 38 E	1,519 4,377 2,301	Corner. Large Water Tank. Dot.

LOGANS HILL.

(Outer Choptank River—Chart No. 37.)

1	38 38 19.84	76 12 56.18	S 69 32 E N 54 34 E N 20 44 E	N 69 31 W S 54 35 W S 20 44 W	4,466 3,590 4,102	Large Water Tank. Choptank River Light. Benoni 2.
2	38 39 05.04	76 13 38.98	S 68 56 W S 16 26 W N 82 11 E	N 68 54 E N 16 25 E S 82 13 W	6,512 2,764 4,094	Chef. Dot. Choptank River Light.
3	38 38 48.40	76 11 45.22	Thence along county boundary as delineated on Chart No. 37 to corner No. 3.			Castle. Choptank River Light. Benoni 2.
			S 49 58 E N 43 09 E N 8 24 W	N 49 57 W S 43 10 W S 8 24 E	3,479 1,533 2,905	

## Survey of Oyster Bars, Dorchester County, Md.

## TODD POINT.

(Outer Choptank River—Chart No. 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 37 44.92	76 15 34.76	N 83 08 W S 52 43 W N 88 44 E	S 83 09 E N 52 42 E S 88 45 W	3,037 2,417 2,281	Chef. Cook Point Windmill. Dot.
2	38 38 08.08	76 16 12.40	S 78 18 W S 22 26 W S 77 25 E	N 78 17 E N 22 26 E N 77 24 W	2,061 2,429 3,357	Chef. Cook Point Windmill. Dot.
3	38 38 27.26	76 16 09.52	N 63 37 W S 63 03 W S 66 42 E	S 63 40 E N 63 03 E N 66 41 W	7,532 2,350 3,484	Black. Chef. Dot.
4	38 38 25.41	76 15 29.22	S 72 24 W S 58 22 E N 74 49 E	N 72 23 E N 58 21 W S 74 52 W	3,317 2,508 7,224	Chef. Dot. Choptank River Light.
5	38 38 59.43	76 15 27.58	S 56 08 W S 40 20 E N 83 52 E	N 56 07 E N 40 20 W S 83 55 W	3,859 3,230 6,968	Chef. Dot. Choptank River Light.
6	38 39 04.40	76 16 03.56	N 73 08 W S 44 12 W S 49 10 E	S 73 11 E N 44 11 E N 49 09 W	7,216 3,232 4,022	Black. Chef. Dot.
7	38 39 22.52	76 16 00.60	N 78 01 W S 38 31 W S 42 27 E	S 78 04 E N 38 30 E N 42 26 W	7,139 3,743 4,392	Black. Chef. Dot.
8	38 39 15.33	76 15 07.00	S 54 23 W S 27 17 E N 88 08 E	N 54 21 E N 27 17 W S 88 10 W	4,612 3,374 6,388	Chef. Dot. Choptank River Light.
9	38 39 58.32	76 15 41.88	N 41 38 E N 11 48 W N 63 59 W	S 41 39 W S 11 48 E S 64 01 E	4,344 4,356 6,387	Roys. Nelson 3. Bar.
10	38 39 08.00	76 13 46.22	Thence along county boundary as delineated on Chart No. 37 to corner No. 10.			
			N 83 52 E N 51 26 E N 1 59 W	S 83 54 W S 51 27 W S 1 59 E	4,273 3,549 4,940	Choptank River Light. Benoni 2. Roys.
11	38 38 27.40	76 13 47.20	S 79 39 W S 22 13 W S 38 36 E	N 79 36 E N 22 12 E N 38 35 W	5,957 1,493 4,285	Chef. Dot. Corner.



ALONG SHORE.

(Little Choptank River—Charts Nos. 37 and 38.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station		
			Forward	Back				
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.			
1	38 30 00.96	76 15 45.59	N 8 14 W	S 8 14 E	725	Pov.		
			N 21 06 W	S 21 07 E			4,286	Ragged Point 3.
			S 73 01 W	N 73 00 E			1,909	Moore.
2	38 30 12.16	76 15 58.60	N 35 16 E	S 35 16 W	417	Pov.		
			N 18 19 W	S 18 19 E	3,813	Ragged Point 3.		
			S 57 45 W	N 57 44 E	1,752	Moore.		
3	38 30 29.02	76 15 52.95	N 23 50 W	S 23 50 E	3,336	Ragged Point 3.		
			S 75 43 W	N 75 43 E	1,860	Veith.		
			S 47 20 W	N 47 19 E	2,219	Moore.		
4	38 30 35.38	76 15 37.42	N 31 48 W	S 31 49 E	3,339	Ragged Point 3.		
			S 73 05 W	N 73 04 E	2,315	Veith.		
			S 49 56 W	N 49 55 E	2,669	Moore.		
5	38 31 14.82	76 15 16.20	N 12 37 E	S 12 37 W	2,264	Hudson.		
			N 57 00 W	S 57 01 E	2,768	Ragged Point 3.		
			S 26 28 W	N 26 28 E	1,979	Pov.		
6	38 31 13.00	76 15 10.38	N 8 31 E	S 8 31 W	2,295	Hudson.		
			N 57 38 W	S 57 39 E	2,931	Ragged Point 3.		
			S 31 13 W	N 31 13 E	2,000	Pov.		
Thence from corner No. 6 along the mean low water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.								
7	38 30 33.14	76 15 35.20	N 31 58 W	S 31 59 E	3,434	Ragged Point 3.		
			S 75 16 W	N 75 15 E	2,351	Veith.		
			S 51 59 W	N 51 58 E	2,662	Moore.		
8	38 30 22.26	76 15 49.51	N 19 04 E	S 19 05 W	4,213	Hudson.		
			S 83 04 W	N 83 03 E	1,908	Veith.		
			S 28 49 W	N 28 48 E	1,707	Torrey.		
9	38 30 13.42	76 15 53.64	N 20 23 W	S 20 24 E	3,818	Ragged Point 3.		
			N 87 51 W	S 87 51 E	1,786	Veith.		
			S 58 47 W	N 58 46 E	1,886	Moore.		
Thence from corner No. 9 along the mean low water line of the shore to corner No. 10, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.								
10	38 30 05.66	76 15 45.58	N 10 32 W	S 10 32 E	570	Pov.		
			N 21 54 W	S 21 54 E	4,138	Ragged Point 3.		
			S 68 36 W	N 68 35 E	1,962	Moore.		

## Survey of Oyster Bars, Dorchester County, Md.

## SUSQUEHANNA.

(Little Choptank River—Chart No. 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 31 01.62	76 15 35.10	N 20 33 E N 43 00 W S 16 03 W	S 20 33 W S 43 01 E N 16 03 E	2,835 2,669 1,381	Hudson. Ragged Point 3. Pov.
2	38 31 15.74	76 15 54.62	N 34 46 E N 41 26 W S 40 51 W	S 34 46 W S 41 27 E N 40 50 E	2,651 1,970 2,689	Hudson. Ragged Point 3. Veith
3	38 31 48.07	76 15 17.22	S 16 28 W S 44 42 E N 25 36 E	N 16 28 E N 44 41 W S 25 36 W	3,017 1,058 1,206	Pov. Wool. Hudson.
4	38 31 36.00	76 15 02.28	S 26 43 W S 45 16 E N 61 53 E	N 26 43 E N 45 16 W S 61 54 W	2,784 489 2,935	Pov. Wool. Mac.

## LITTLE POLLARD.

(Little Choptank River—Chart No. 37.)

1	38 31 56.50	76 16 08.94	S 09 12 E S 63 53 E N 66 59 E	N 09 12 W N 63 52 W S 66 59 W	3,220 2,353 2,055	Pov. Wool. Hudson.
2	38 32 01.68	76 16 17.82	S 12 37 E S 62 44 E N 73 31 E	N 12 36 W N 62 43 W S 73 32 W	3,435 2,642 2,217	Pov. Wool. Hudson.
3	38 32 13.23	76 16 15.16	S 10 18 E S 54 55 E N 83 21 E	N 10 17 W N 54 54 W S 83 22 W	3,804 2,784 2,070	Pov. Wool. Hudson.
4	38 32 29.67	76 15 40.02	S 22 35 W S 36 46 E S 57 21 E	N 22 34 E N 36 45 W N 57 20 W	4,904 2,689 3,426	Veith. Wool. Tobacco Stick.
5	38 32 20.52	76 15 39.58	S 67 26 W S 35 54 E S 89 41 E	N 67 25 E N 35 53 W N 89 41 W	1,843 2,278 1,113	Ragged Point 3. Wool. Hudson.

## CASON.

(Little Choptank River—Chart No. 37.)

1	38 31 30.20	76 14 38.82	N 51 15 E N 16 21 W N 73 23 W	S 51 16 W S 16 21 E S 73 24 E	2,523 1,762 3,456	Mac. Hudson. Ragged Point 3.
2	38 32 01.19	76 15 08.99	S 88 43 W S 23 45 E S 63 45 E	N 88 42 E N 23 45 W N 63 45 W	2,513 1,395 2,007	Ragged Point 3. Wool. Tobacco Stick.
3	38 32 13.16	76 14 37.54	S 10 54 W S 36 51 E N 86 09 E	N 10 54 E N 36 50 W S 86 10 W	1,627 1,613 1,938	Wool. Tobacco Stick. Mac.
4	38 31 50.58	76 14 17.50	S 45 06 W S 39 30 E N 57 33 E	N 45 05 E N 39 29 W S 57 34 W	1,184 686 1,662	Wool. Tobacco Stick. Mac.

TOBACCO STICK.

(Little Choptank River—Chart No. 37.)

Corner of bar.	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 31 30.20	76 14 38.82	N 51 15 E	S 51 16 W	Yards. 2,523 1,762 3,456	Mac. Hudson. Ragged Point 3.
			N 16 21 W	S 16 21 E		
			N 73 23 W	S 73 24 E		
2	38 31 50.58	76 14 17.50	S 45 06 W	N 45 05 E	1,184 686 1,662	Wool. Tobacco Stick. Mac.
			S 39 30 E	N 39 29 W		
			N 57 33 E	S 57 34 W		
3	38 31 57.85	76 13 53.18	N 49 33 E	S 49 33 W	997 1,866 1,835	Mac. Hudson. Wool.
			N 66 01 W	S 66 02 E		
			S 53 54 W	N 53 54 E		
4	38 31 43.25	76 13 07.52	N 66 47 W	S 66 48 E	3,171 1,445 2,479	Hudson. Tobacco Stick. Madison Southern M. E. Church Spire.
			S 78 44 W	N 78 44 E		
			S 3 40 W	N 3 39 E		

BUTTERPOT.

(Little Choptank River—Chart No. 37.)

1	38 32 06.04	76 13 46.40	S 20 15 W	N 20 15 E	1,120 688 1,448	Tobacco Stick. Mac. Greenwell.
			N 57 23 E	S 57 23 W		
			S 15 57 W	N 15 57 E		
2	38 32 06.26	76 14 05.62	S 6 33 E	N 6 33 W	1,065 1,147 1,389	Tobacco Stick. Mac. Greenwell.
			N 71 33 E	S 71 33 W		
			N 4 35 E	S 4 35 W		
3	38 32 23.40	76 14 05.62	S 4 15 E	N 4 15 W	1,640 1,109 1,861	Tobacco Stick. Mac. Ross.
			S 78 50 E	N 78 50 W		
			N 41 26 E	S 41 26 W		
4	38 32 23.22	76 13 33.90	N 69 42 E	S 69 42 W	1,719 1,456 1,091	Swep. Ross. Greenwell.
			N 15 37 E	S 15 37 W		
			N 41 54 W	S 41 54 E		

HUDSON.

(Little Choptank River—Hudson Creek—Chart No. 37.)

1	38 32 16.77	76 14 22.62	S 22 15 W	N 22 14 E	1,857 1,524 1,539	Wool. Tobacco Stick. Mac.
			S 22 03 E	N 22 02 W		
			N 89 40 E	S 89 41 W		
2	38 32 39.68	76 14 56.00	S 3 35 W	N 3 35 E	654 599 639	Hudson. Louise. Jennifer.
			N 81 09 E	S 81 10 W		
			N 07 04 W	S 07 04 E		
3	38 32 43.46	76 14 50.61	S 13 15 W	N 13 15 E	801 452 483	Hudson. Louise. Carrie.
			S 84 20 E	N 84 20 W		
			N 22 01 E	S 22 01 W		
4	38 32 30.09	76 14 32.40	S 76 13 E	N 76 13 W	1,850 417 743	Mac. Louise. Hudson.
			N 4 30 W	S 4 30 E		
			S 03 43 W	N 03 43 E		
5	38 32 23.40	76 14 05.62	S 4 15 E	N 4 15 W	1,640 1,109 1,861	Tobacco Stick. Mac. Ross.
			S 78 50 E	N 78 50 W		
			N 41 26 E	S 41 26 W		

## Survey of Oyster Bars, Dorchester County, Md.

ROSS.

(Little Choptank River—Hudson Creek—Chart No. 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 32 49.24	76 14 47.65	S 58 08 E	N 58 08 W	Yards. 436 273 433	Louise. Carrie. Jennifer.
			N 22 07 E	S 22 07 W		
			N 43 50 W	S 43 50 E		
2	38 32 49.40	76 14 53.20	S 65 31 E	N 65 30 W	569 352 343	Louise. Carrie. Jennifer.
			N 45 12 E	S 45 13 W		
			N 26 28 W	S 26 28 E		
3	38 33 27.42	76 14 53.12	S 35 08 W	N 35 08 E	230 717 252	Mitchell. Henry. Back.
			S 12 55 W	N 12 54 E		
			S 76 55 E	N 76 55 W		
4	38 33 27.04	76 14 48.46	S 55 34 W	N 55 34 E	309 743 129	Mitchell. Henry. Back.
			S 22 27 W	N 22 27 E		
			N 70 04 E	S 70 04 W		

## McKEILS POINT.

(Little Choptank River—Chart No. 37.)

1	38 32 23.22	76 13 33.90	N 69 42 E	S 69 42 W	1,719 1,456 1,091	Swep. Ross. Greenwell.
			N 15 37 E	S 15 37 W		
			N 41 54 W	S 41 54 E		
2	38 32 23.40	76 14 05.62	S 4 15 E	N 4 15 W	1,640 1,109 1,861	Tobacco Stick. Mac. Ross.
			S 78 50 E	N 78 50 W		
			N 41 26 E	S 41 26 W		
3	38 32 46.11	76 13 59.68	S 43 30 E	N 43 30 W	1,352 1,787 2,709	Mac. Town. David.
			N 85 27 E	S 85 28 W		
			N 71 23 E	S 71 24 W		
4	38 32 49.54	76 13 19.24	N 87 51 E	S 87 51 W	711 514 1,120	Town. Ross. Greenwell.
			N 0 23 E	S 0 23 W		
			S 86 10 W	N 86 10 E		
5	38 32 33.64	76 13 10.42	N 76 06 E	S 76 06 W	1,020 1,075 1,427	Swep. Ross. Greenwell.
			N 12 22 W	S 12 22 E		
			N 71 09 W	S 71 09 E		

TOWN.

(Little Choptank River—Chart No. 37.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 32 33.64	76 13 10.42	N 76 06 E	S 76 06 W	1,020	Swep. Ross. Greenwell.
			N 12 22 W	S 12 22 E	1,075	
			N 71 09 W	S 71 09 E	1,427	
2	38 32 49.54	76 13 19.24	N 87 51 E	S 87 51 W	711	Town. Ross. Greenwell.
			N 0 23 E	S 0 23 W	514	
			S 86 10 W	N 86 10 E	1,120	
3	38 33 06.94	76 12 53.07	N 78 31 E	S 78 31 W	820	David. Lee. Ross.
			N 17 26 E	S 17 26 W	668	
			S 83 58 W	N 83 58 E	693	
4	38 32 49.12	76 12 54.85	N 11 17 E	S 11 17 W	1,263	Lee. Ross. Greenwell.
			N 50 35 W	S 50 35 E	832	
			S 88 02 W	N 88 01 E	1,765	
5	38 32 40.16	76 12 55.80	N 82 06 W	S 82 07 E	1,759	Greenwell. Laney. Hugh.
			S 18 29 W	N 18 29 E	691	
			S 40 29 E	N 40 29 W	1,129	

BRUMELL.

(Little Choptank River—Chart No. 37.)

1	38 32 49.22	76 12 54.85	N 11 17 E	S 11 17 W	1,263	Lee. Ross. Greenwell.
			N 50 35 W	S 50 35 E	832	
			S 88 02 W	N 88 01 E	1,765	
2	38 33 06.94	76 12 53.07	N 78 31 E	S 78 31 W	820	David. Lee. Ross.
			N 17 26 E	S 17 26 W	668	
			S 83 58 W	N 83 58 E	693	
3	38 33 22.38	76 12 59.57	S 9 56 E	N 9 56 W	1,098	Town. Lee. Phil.
			N 72 36 E	S 72 36 W	390	
			N 10 07 W	S 10 07 E	936	
4	38 33 30.84	76 12 18.30	S 76 50 W	N 76 49 E	740	Lee. David. Layton.
			S 10 19 W	N 10 19 E	654	
			S 62 56 E	N 62 56 W	1,045	
5	38 33 40.34	76 12 08.92	S 20 47 W	N 20 47 E	1,030	David. Layton. Adam.
			S 40 37 E	N 40 37 W	1,049	
			S 71 50 E	N 71 50 W	1,567	
6	38 33 40.06	76 11 51.16	S 41 14 W	N 41 13 E	1,267	David. Layton. Adam.
			S 15 07 E	N 15 07 W	815	
			S 64 49 E	N 64 49 W	1,125	
7	38 33 24.39	76 12 22.72	N 85 22 W	S 85 22 E	606	Lee. David. Layton.
			S 0 00 W	N 0 00 E	425	
			S 76 09 E	N 76 09 W	1,079	
8	38 33 06.62	76 12 30.04	N 45 04 E	S 45 05 W	1,603	Solomon. Lee. Ross.
			N 32 18 W	S 32 18 E	767	
			S 87 16 W	N 87 15 E	1,301	

## Survey of Oyster Bars, Dorchester County, Md.

## CHERRY ISLAND.

(Little Choptank River—Chart No. 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 33 37.86	76 12 49.59	N 34 55 E	S 34 55 W	Yards. 268 585 1,303	Cherry Island Water Tank. Phil. Ross.
			N 47 01 W	S 47 01 E		
			S 35 01 W	N 35 01 E		
2	38 33 43.24	76 13 00.47	S 20 50 W	N 20 50 E	1,388 709 821	Ross. Lee. Dupont.
			S 34 01 E	N 34 01 W		
			N 43 26 E	S 43 26 W		
3	38 33 55.38	76 12 59.62	S 20 34 E	N 20 33 W	1,064 560 573	Lee. Cherry Island Water Tank. Dupont.
			S 48 24 E	N 48 24 W		
			N 70 57 E	S 70 58 W		
4	38 33 52.58	76 12 50.28	S 7 58 E	N 7 58 W	911 326 408	Lee. Cherry Island Water Tank. Dupont.
			S 31 43 E	N 31 43 W		
			N 46 20 E	S 46 20 W		
5	38 33 45.11	76 12 53.06	N 34 38 E	S 34 38 W	647 371 1,524	Dupont. Phil. Ross.
			N 65 08 W	S 65 08 E		
			S 26 54 W	N 26 53 E		
6	38 33 42.06	76 12 46.30	N 63 27 W	S 63 27 E	576 1,528 548	Phil. Ross. Lee.
			S 34 39 W	N 34 39 E		
			S 2 11 E	N 2 11 W		

## JONES.

(Little Choptank River—Chart No. 37.)

1	38 33 19.34	76 11 33.10	N 45 53 E	S 45 53 W	1,013 795 1,929	Seth. Solomon. Lee.
			N 27 56 W	S 27 56 E		
			N 83 28 W	S 83 28 E		
2	38 33 28.68	76 11 35.12	N 63 27 E	S 63 27 W	873 503 1,382	Seth. Solomon. David.
			N 39 27 W	S 39 27 E		
			S 65 42 W	N 65 41 E		
3	38 33 29.68	76 11 28.34	N 59 20 E	S 59 20 W	699 611 586	Seth. Solomon. Layton.
			N 54 36 W	S 54 37 E		
			S 41 53 W	N 41 53 E		
4	38 33 20.58	76 11 26.24	N 39 26 E	S 39 26 W	860 863 466	Seth. Solomon. Layton.
			N 39 59 W	S 39 59 E		
			S 73 49 W	N 73 49 E		

PATTISON.

(Little Choptank River—Chart No. 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 33 41. 76	76 10 41. 62	S 88 15 W	N 88 14 E	Yards. 1, 737 638 982	Solomon. Seth. Adam.
			S 85 25 W	N 85 25 E		
			S 56 55 W	N 50 55 E		
2	38 33 44. 34	76 10 50. 16	S 84 41 W	N 84 41 E	1, 516 433 863	Solomon. Seth. Adam.
			S 71 22 W	N 71 21 E		
			S 43 46 W	N 43 46 E		
3	38 33 51. 96	76 10 42. 26	S 77 00 W	N 76 59 E	1, 764 734 1, 193	Solomon. Seth. Adam.
			S 57 28 W	N 57 28 E		
			S 42 29 W	N 42 29 E		

BARN POINT.

(Little Choptank River—Fishing Creek—Chart No. 37.)

1	38 32 06. 16	76 12 59. 56	S 63 01 E	N 63 01 W	1, 222 881 1, 367	Doctor. Hugh. Sweep.
			N 70 55 E	S 70 55 W		
			N 30 57 E	S 30 58 W		
2	38 32 29. 30	76 12 59. 39	S 39 06 E	N 39 05 W	1, 719 801 1, 305	Doctor. Sweep Ross.
			N 60 44 E	S 60 44 W		
			N 23 35 W	S 23 35 E		
3	38 32 30. 62	76 12 25. 70	N 50 50 W	S 50 51 E	1, 824 1, 070 1, 456	Ross. Laney. Eleanor.
			S 71 48 W	N 71 48 E		
			S 32 39 W	N 32 39 E		
4	38 32 07. 38	76 12 37. 00	N 5 20 E	S 5 20 W	1, 135 846 657	Sweep. Laney. Eleanor.
			N 57 55 W	S 57 56 E		
			S 47 44 W	N 47 44 E		

SALTWORK.

(Little Choptank River—Fishing Creek—Chart No. 37.)

1	38 31 54. 70	76 12 16. 39	S 33 34 E	N 33 34 W	897 597 743	Tom. Etta. Hugh.
			N 63 44 E	S 63 45 W		
			N 24 45 W	S 24 45 E		
2	38 32 00. 92	76 12 40. 06	N 87 19 E	S 87 19 W	1, 165 562 922	Etta. Hugh. Laney.
			N 34 13 E	S 34 13 W		
			N 43 38 W	S 43 38 E		
3	38 32 07. 38	76 12 37. 00	N 5 20 E	S 5 20 W	1, 135 846 657	Sweep. Laney. Eleanor.
			N 57 55 W	S 57 56 E		
			S 47 44 W	N 47 44 E		
4	38 32 02. 54	76 12 13. 75	S 75 49 W	N 75 48 E	1, 136 451 675	Eleanor. Doctor. Mary.
			S 16 25 W	N 16 25 E		
			S 45 18 E	N 45 18 W		

## Survey of Oyster Bars, Dorchester County, Md.

## FISHING CREEK.

(Little Choptank River—Fishing Creek—Chart No. 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 31 35.43	76 12 13.22	S 88 50 E	N 88 49 W	Yards. 1,449 640 502	Austin. Mary. Doctor.
			N 46 38 E	S 46 38 W		
			N 16 02 W	S 16 02 E		
2	38 31 54.70	76 12 16.39	S 33 34 E	N 33 34 W	897 597 743	Tom. Etta. Hugh.
			N 03 44 E	S 03 45 W		
			N 24 45 W	S 24 45 E		
3	38 32 02.54	76 12 13.75	S 75 49 W	N 75 48 E	1,136 451 675	Eleanor. Doctor. Mary.
			S 16 25 W	N 16 25 E		
			S 45 18 E	N 45 18 W		
4	38 31 53.92	76 12 02.43	N 89 30 W	S 89 29 E	1,402 447 732	Eleanor. Doctor. Tom.
			S 71 33 W	N 71 32 E		
			S 9 54 E	N 9 54 W		
5	38 31 36.00	76 11 50.84	S 86 44 E	N 86 43 W	857 440 865	Austin. Mary. Doctor.
			N 16 51 W	S 16 51 E		
			N 57 41 W	S 57 41 E		

## GRAPEVINE.

(Little Choptank River—Fishing Creek—Chart No. 37.)

1	38 31 38.00	76 11 16.16	N 67 40 E	S 67 40 W	883 300 1,105	Kirby. Neil. Mary.
			N 23 42 E	S 23 42 W		
			N 71 21 W	S 71 21 E		
2	38 31 44.60	76 11 16.12	S 69 45 W	N 69 44 E	1,173 344 823	Tom. Austin. Kirby.
			S 10 43 W	N 10 43 E		
			N 82 07 E	S 82 07 W		
3	38 31 45.98	76 10 45.86	S 66 00 W	N 66 00 E	947 961 992	Austin. Church Creek (No. 1. West) Paul.
			S 2 23 E	N 2 23 W		
			N 67 01 E	S 67 01 W		
4	38 31 39.04	76 10 45.65	N 55 36 E	S 55 37 W	1,100 301 728	Paul. Kirby. Neil.
			N 1 37 E	S 1 37 W		
			N 70 48 W	S 70 48 E		

## BRIDGE.

(Slaughter Creek—Chart No. 38.)

1	38 28 13.02	76 17 27.61	S 37 00 E	N 36 59 W	646 911 717	Finish. Noblee. Harrington.
			N 48 45 E	S 48 45 W		
			N 10 46 W	S 10 46 E		
2	38 28 13.55	76 17 32.20	S 7 05 W	N 7 05 E	566 995 688	Taylor. Noblee. Harrington.
			N 54 09 E	S 54 09 W		
			N 1 02 W	S 1 02 E		
3	38 28 19.52	76 17 30.80	S 7 58 W	N 7 58 E	770 860 489	Taylor. Noblee. Harrington.
			N 63 38 E	S 63 38 W		
			N 5 49 W	S 5 49 E		
4	38 28 19.43	76 17 26.28	S 25 47 E	N 25 46 W	814 756 517	Finish. Noblee. Harrington.
			N 59 23 E	S 59 23 W		
			N 19 06 W	S 19 07 E		



PUNCH ISLAND CREEK.

(Chesapeake Bay off Punch Island Creek—Chart No. 38.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 23 56.04	76 19 13.20	S 70 15 E N 5 58 W S 75 21 W	N 70 14 W S 5 59 E N 75 18 E	Yards. 3,746 8,641 6,094	Dunnock. Travers 2. Cove Point Light.
2	38 25 38.36	76 20 01.28	N 4 10 E S 42 47 W S 45 31 E	S 4 11 W N 42 45 E N 45 29 W	5,157 6,800 6,730	Travers 2. Cove Point Light. Dunnock.
3	38 26 37.92	76 19 31.38	N 7 35 W S 37 43 W S 30 48 E	S 7 35 E N 37 41 E N 30 46 W	3,163 8,848 7,828	Travers 2. Cove Point Light. Dunnock.
4	38 24 28.52	76 17 54.30	N 21 45 W S 71 44 W S 31 14 E	S 21 46 E N 71 40 E N 31 13 W	8,073 8,413 2,760	Travers 2. Cove Point Light. Dunnock.

STONE PILE.

(Chesapeake Bay off Barren Island—Chart No. 39.)

1	38 20 14.08	76 17 00.20	S 53 49 E N 70 50 E N 0 03 W	N 53 48 W S 70 49 W S 0 03 E	2,452 1,741 6,237	South. North. Dunnock.
2	38 20 36.20	76 17 00.60	S 42 17 E S 84 00 E N 0 04 E	N 42 16 W N 83 59 W S 0 04 W	2,965 1,664 5,475	South. North. Dunnock.
3	38 20 42.48	76 16 37.06	S 29 34 E S 69 28 E N 6 43 W	N 29 33 W N 69 28 W S 6 43 E	2,765 1,100 5,298	South. North. Dunnock.
4	38 20 15.24	76 16 44.80	S 46 34 E N 66 41 E N 3 50 W	N 46 33 W S 66 41 W S 3 50 E	2,162 1,345 6,194	South. North. Dunnock.

NEW DISCOVERY.

(Chesapeake Bay off Barren Island—Chart No. 39.)

1	38 17 36.82	76 16 29.76	N 83 28 E N 16 53 E N 85 30 W	S 83 30 W S 16 54 W S 85 33 E	6,554 4,029 8,928	Bridge. South. Cedar Point Light.
2	38 17 38.00	76 16 48.24	N 84 14 E N 23 32 E N 85 30 W	S 84 17 W S 23 32 W S 85 33 E	7,038 4,161 8,435	Bridge. South. Cedar Point Light.
3	38 18 29.32	76 16 48.16	S 81 41 E N 38 27 E S 82 46 W	N 81 38 W S 38 27 W N 82 43 E	7,074 2,668 8,479	Bridge. South. Cedar Point Light.
4	38 18 30.14	76 16 29.98	S 80 50 E N 29 45 E S 82 58 W	N 80 48 W S 29 45 W N 82 55 E	6,602 2,370 8,961	Bridge. South. Cedar Point Light.

## Survey of Oyster Bars, Dorchester County, Md.

## HORSE POINT CHANNEL.

(Tar Bay—Charts Nos. 39 and 40.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 17 51.82	76 13 39.72	S 23 04 W	N 23 03 E	5,460	Hooper Island Light. Bridge. [Spire. Mount Zion M. E. Church
			N 83 03 E	S 83 04 W	2,008	
			N 0 13 W	S 0 13 E	2,258	
2	38 18 15.04	76 14 06.06	S 13 53 W	N 13 53 E.	5,993	Hooper Island Light. Bridge. [Spire. Mount Zion M. E. Church
			S 78 39 E	N 78 38 W	2,747	
			N 25 07 E	S 25 07 W	1,629	
3	38 18 21.82	76 13 58.40	S 15 12 W	N 15 11 E	6,265	Hooper Island Light. Bridge. [Spire. Mount Zion M. E. Church
			S 72 50 E	N 72 49 W	2,605	
			N 21 23 E	S 21 23 W	1,339	
4	38 17 58.08	76 13 30.06	S 24 33 W	N 24 32 E	5,767	Hooper Island Light. Bridge. [Spire. Mount Zion M. E. Church
			N 88 57 E	S 88 58 W	1,737	
			N 7 22 W	S 7 22 E	2,065	

## WARE.

(Chesapeake Bay—Off Middle Hooper Island—Charts Nos. 39 and 40.)

1	38 17 07.00	76 12 30.44	N 26 08 W	S 26 08 E	4,198	Mount Zion M. E. Church Spire. Hooper Island Light. Hoopersville Methodist Church Cupola.
			S 48 29 W	N 48 27 E	5,317	
			S 41 29 E	N 41 28 W	4,076	
2	38 17 09.85	76 12 42.24	N 22 41 W	S 22 41 E	3,982	Mount Zion M. E. Church Spire. Hooper Island Light. Hoopersville Methodist Church Cupola.
			S 45 22 W	N 45 21 E	5,153	
			S 43 44 E	N 43 43 W	4,359	
3	38 17 19.64	76 12 39.00	N 25 52 W	S 25 53 E	3,716	Mount Zion M. E. Church Spire. Hooper Island Light. Hoopersville Methodist Church Cupola.
			S 43 32 W	N 43 31 E	5,448	
			S 40 04 E	N 40 03 W	4,547	
4	38 17 16.00	76 12 27.55	N 29 03 W	S 29 04 E	3,964	Mount Zion M. E. Church Spire. Hooper Island Light. Hoopersville Methodist Church Cupola.
			S 46 40 W	N 46 39 E	5,578	
			S 38 00 E	N 37 59 W	4,260	

WHITE WOOD.

(Tar Bay—Chart No. 39.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 18 42.04	76 14 17.60	S 9 33 W	N 9 32 E	6,822	Hooper Island Light.
			N 60 29 E	S 60 29 W	1,147	Mount Zion M. E. Church Spire.
			N 16 13 E	S 16 13 W	2,597	Hosier Memorial Church Spire.
2	38 18 52.52	76 14 23.00	S 7 57 W	N 7 56 E	7,150	Hooper Island Light.
			N 79 29 E	S 79 30 W	1,161	Mount Zion M. E. Church Spire.
			N 22 05 E	S 22 05 W	2,311	Hosier Memorial Church Spire.
3	38 18 55.92	76 14 14.60	S 9 33 W	N 9 33 E	7,298	Hooper Island Light.
			N 83 58 E	S 83 58 W	924	Mount Zion M. E. Church Spire.
			N 17 40 E	S 17 40 W	2,127	Hosier Memorial Church Spire.
4	38 18 45.56	76 14 08.52	S 11 20 W	N 11 20 E	6,983	Hooper Island Light.
			N 59 28 E	S 59 28 W	879	Mount Zion M. E. Church Spire.
			N 11 31 E	S 11 31 W	2,425	Hosier Memorial Church Spire.

TAR BAY.

(Tar Bay—Chart No. 39.)

1	38 19 51.60	76 14 40.56	S 42 05 E	N 42 05 W	2,399	Mount Zion M. E. Church Spire.
			N 83 38 E	S 83 38 W	1,343	Hosier Memorial Church [Spire.
			N 17 34 E	S 17 34 W	2,064	Mint.
2	38 20 00.50	76 14 52.44	S 42 45 E	N 42 44 W	2,835	Mount Zion M. E. Church Spire.
			S 84 46 E	N 84 46 W	1,657	Hosier Memorial Church [Spire.
			N 29 22 E	S 29 22 W	1,913	Mint.
3	38 20 22.52	76 14 25.54	S 5 12 W	N 5 12 E	10,157	Hooper Island Light.
			S 46 20 E	N 46 19 W	1,294	Hosier Memorial Church [Spire.
			N 13 36 E	S 13 36 W	951	Mint.
4	38 20 13.88	76 14 14.80	S 7 00 W	N 6 59 E	9,898	Hooper Island Light.
			S 47 13 E	N 47 13 W	886	Hosier Memorial Church [Spire.
			N 2 54 W	S 2 54 E	1,217	Mint.

## Survey of Oyster Bars, Dorchester County, Md.

## TUBBMANS DRAIN.

(Honga River—Charts Nos. 39 and 40.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 20 41. 16	76 12 40. 52	S 8 04 W	N 8 04 E	Yards.	Gunnars. Kerwin. Keenes.
			N 46 46 E	S 46 47 W	823	
			N 14 18 W	S 14 18 E	2, 825	
2	38 21 04. 94	76 13 32. 18	N 24 44 E	S 24 44 W	1, 797	Keenes. Mint. Gunnars.
			S 67 02 W	N 67 01 E	2, 296	
			S 37 51 E	N 37 51 W	2, 047	
3	38 21 32. 82	76 12 59. 10	S 8 24 E	N 8 24 W	2, 585	Gunnars. Kerwin. Keenes.
			N 85 41 E	S 85 42 W	2, 559	
			N 10 23 W	S 10 23 E	703	
4	38 21 31. 24	76 12 21. 72	S 13 48 W	N 13 48 E	2, 578	Gunnars. Kerwin. Keenes.
			N 81 01 W	S 81 02 E	1, 579	
			N 56 21 W	S 56 22 E	1, 344	
5	38 20 50. 92	76 12 05. 68	N 35 13 E	S 35 13 W	1, 965	Kerwin. Keenes. Gunnars.
			N 36 17 W	S 36 18 E	2, 610	
			S 42 18 W	N 42 17 E	1, 546	

## PEANUT.

(Honga River—Charts Nos. 39 and 40.)

1	38 20 50. 02	76 12 05. 68	N 35 13 E	S 35 13 W	1, 965	Kerwin. Keenes. Gunnars.
			N 36 17 W	S 36 18 E	2, 610	
			S 42 18 W	N 42 17 E	1, 546	
2	38 21 31. 24	76 12 21. 72	S 13 48 W	N 13 48 E	2, 578	Gunnars. Kerwin. Keenes.
			N 81 01 W	S 81 02 E	1, 579	
			N 56 21 W	S 56 22 E	1, 344	
3	38 21 06. 78	76 11 08. 84	S 19 20 W	N 19 19 E	1, 135	Kerwin. Gunnars. Wroten.
			S 56 38 W	N 56 37 E	3, 053	
			S 0 11 E	N 0 11 W	3, 543	

## GUM.

(Honga River—Charts Nos. 39 and 40.)

1	38 20 08. 82	76 11 36. 90	N 6 58 E	S 6 58 W	3, 048	Kerwin. Gunnars. Wroten.
			N 81 20 W	S 81 21 E	1, 826	
			S 25 29 E	N 25 29 W	1, 757	
2	38 20 11. 70	76 11 54. 90	S 36 15 E	N 36 15 W	2, 088	Wroten. Kerwin. Gunnars.
			N 16 08 E	S 16 08 W	3, 049	
			N 82 21 W	S 82 21 E	1, 339	
3	38 20 13. 24	76 12 04. 30	S 40 32 E	N 40 32 W	2, 283	Wroten. Kerwin. Gunnars.
			N 20 52 E	S 20 53 W	3, 078	
			N 83 18 W	S 83 19 E	1, 085	
4	38 20 50. 92	76 12 05. 68	N 35 13 E	S 35 13 W	1, 965	Kerwin. Keenes. Gunnars.
			N 36 17 W	S 36 18 E	2, 610	
			S 42 18 W	N 42 17 E	1, 546	
5	38 21 06. 78	76 11 08. 84	S 19 20 W	N 19 19 E	1, 135	Kerwin. Gunnars. Wroten.
			S 56 38 W	N 56 37 E	3, 053	
			S 0 11 E	N 0 11 W	3, 543	
6	38 20 22. 66	76 11 03. 78	N 11 16 W	S 11 17 E	2, 609	Kerwin. Gunnars. Wroten.
			S 85 55 W	N 85 54 E	2, 691	
			S 3 27 W	N 3 27 E	2, 057	

WROTEN ISLAND.

(Honga River—Charts Nos. 39 and 40.)

Corner of bar	Latitude ° / ' / ''	Longitude ° / ' / ''	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / ''	° / ' / ''		
1	38 18 12.40	76 12 00.50	N 59 24 W S 54 59 W S 61 38 E	S 59 25 E N 54 59 E N 61 37 W	3,072 785 2,445	Mount Zion M. E. Church Bridge. Bentley. [Spire.]
2	38 19 20.32	76 12 45.56	N 0 33 E S 63 22 W S 11 25 E	S 0 33 W N 63 22 E N 11 25 W	1,912 1,619 2,796	Gunners. Mount Zion M. E. Church Bridge. [Spire.]
3	38 20 11.70	76 11 54.90	S 36 15 E N 16 08 E N 82 21 W	N 36 15 W S 16 08 W S 82 21 E	2,088 3,049 1,339	Wroten. Kerwin. Gunners.
4	38 19 55.12	76 11 46.86	N 64 25 W S 14 25 W S 42 14 E	S 64 26 E N 14 24 E N 42 14 W	1,708 4,042 1,519	Gunners. Bridge. Wroten.
5	38 19 41.22	76 11 59.10	N 45 13 W S 11 11 W S 64 01 E	S 45 14 E N 11 10 E N 64 01 W	1,713 3,513 1,497	Gunners. Bridge. Wroten.
6	38 18 49.00	76 11 57.06	N 83 04 W S 22 53 W S 41 01 E	S 83 03 E N 22 53 E N 41 01 W	2,732 1,828 3,175	Mount Zion M. E. Church Bridge. Bentley. [Spire.]
7	38 18 42.22	76 11 09.82	N 1 35 E S 53 48 W S 20 23 E	S 1 35 W N 53 47 E N 20 22 W	1,334 2,467 2,312	Wroten. Bridge. Bentley.

SMOKE POINT.

(Honga River—Chart No. 40.)

1	38 17 52.32	76 11 14.54	S 62 30 E N 45 24 E N 83 06 W	N 62 30 W S 45 23 W S 83 06 E	1,049 3,003 1,879	Bentley. Charles. Bridge.
2	38 17 54.62	76 11 43.28	S 71 39 E N 55 00 E N 82 19 W	N 71 39 W S 55 01 W S 82 19 E	1,785 3,542 1,111	Bentley. Charles. Bridge.
3	38 18 01.68	76 11 42.60	S 64 29 E N 58 07 E S 85 26 W	N 64 29 W S 58 08 W N 85 25 E	1,857 3,396 1,120	Bentley. Charles. Bridge.
4	38 17 58.70	76 11 14.22	S 52 49 E N 48 21 E N 89 40 W	N 52 49 W S 48 20 W S 89 41 E	1,157 2,850 1,873	Bentley. Charles. Bridge.

## Survey of Oyster Bars, Dorchester County, Md.

## DARK POINT.

(Honga River—Chart No. 40.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 17 27.98	76 09 27.16	N 24 22 E	S 24 22 W	Yards. 2,546 3,016 1,953	Lakes. Charles. Bentley.
			N 13 43 E	S 13 43 W		
			N 80 05 W	S 80 06 E		
2	38 18 00.32	76 09 57.80	N 56 37 E	S 56 38 W	2,232 1,843 1,341	Lakes. Charles. Bentley.
			N 3 05 E	S 3 05 W		
			S 55 47 W	N 55 47 E		
3	38 17 56.00	76 10 44.14	N 33 49 E	S 33 50 W	2,391 2,675 620	Charles. Bridge. Bentley.
			N 87 49 W	S 87 50 E		
			S 11 23 E	N 11 23 W		
4	38 18 51.52	76 10 56.94	N 86 06 E	S 86 07 W	1,674 1,005 2,929	Charles. Wroten. Bridge.
			N 16 40 W	S 16 40 E		
			S 52 48 W	N 54 47 E		
5	38 18 55.40	76 10 13.14	N 58 49 W	S 58 49 E	1,717 2,793 507	Wroten. Bentley. Charles.
			S 15 02 W	N 15 02 E		
			S 88 03 E	N 88 03 W		
6	38 18 37.97	76 09 31.54	N 46 22 W	S 46 23 E	827 2,713 1,167	Charles. Bentley. Lakes.
			N 41 46 W	N 41 45 W		
			N 88 00 W	S 88 00 E		
7	38 17 52.42	76 09 20.68	N 30 25 E	S 30 25 W	1,733 2,290 2,151	Lakes. Charles. Bentley.
			N 22 50 W	S 22 51 E		
			S 76 54 W	N 76 53 E		

## LAKES COVE.

(Honga River—Chart No. 40.)

1	38 16 55.38	76 09 18.12	S 42 12 W	N 42 11 E	3,592 1,356 518	Hoopersville Methodist Church Cupola. Windmill 2. Asquith.
			S 23 30 E	N 23 30 W		
			N 64 12 E	S 64 12 W		
2	38 17 16.45	76 09 48.20	N 30 43 E	S 30 44 W	3,150 3,322 1,545	Lakes. Charles. Bentley.
			N 2 41 W	S 2 41 E		
			N 62 00 W	S 62 01 E		
3	38 17 17.87	76 09 31.63	N 23 43 E	S 23 44 W	2,906 3,325 1,927	Lakes. Charles. Bentley.
			N 10 20 W	S 10 20 E		
			N 69 26 W	S 69 27 E		
4	38 17 27.98	76 09 27.16	N 24 22 E	S 24 22 W	2,546 3,016 1,953	Lakes. Charles. Bentley.
			N 13 43 E	S 13 43 W		
			N 80 05 W	S 80 06 E		
5	38 17 52.42	76 09 20.68	N 30 25 E	S 30 25 W	1,733 2,290 2,151	Lakes. Charles. Bentley.
			N 22 50 W	S 22 51 E		
			S 76 54 W	N 76 53 E		
6	38 18 02.14	76 08 33.80	N 17 29 W	S 17 29 E	1,224 2,777 3,439	Lakes. Charles. Bentley.
			N 50 10 W	S 50 11 E		
			S 76 17 W	N 76 15 E		
7	38 17 37.89	76 08 43.94	N 2 50 W	S 2 50 E	1,987 3,195 3,072	Lakes. Charles. Bentley.
			N 35 40 W	S 35 41 E		
			N 89 58 W	S 89 59 E		

WINDMILL.

(Honga River—Chart No. 40.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 15 44.58	76 09 38.82	S 38 46 E	N 38 45 W	2,981	Hopkins Memorial Church Cupola. Windmill 2. Hoopersville Methodist Church Cupola.
			N 43 38 E	S 43 39 W	1,581	
			S 81 38 W	N 81 37 E	1,883	
2	38 16 39.32	76 10 06.60	S 27 57 W	N 27 57 E	2,399	Hoopersville Methodist Church Cupola. Windmill 2. Asquith.
			S 69 00 E	N 69 00 W	1,960	
			N 66 24 E	S 66 25 W	1,916	
3	38 16 55.38	76 09 18.12	S 42 12 W	N 42 11 E	3,592	Hoopersville Methodist Church Cupola. Windmill 2. Asquith.
			S 23 30 E	N 23 30 W	1,356	
			N 64 12 E	S 64 12 W	518	
4	38 16 00.58	76 08 57.98	N 0 30 E	S 0 30 W	605	Windmill 2. Hoopersville Methodist Church Cupola. Hopkins Memorial Church Cupola.
			S 74 35 W	N 74 33 E	3,059	
			S 15 15 E	N 15 15 W	2,969	

HICKORY.

(Honga River—Chart No. 40.)

1	38 15 44.58	76 09 38.82	S 38 46 E	N 38 45 W	2,981	Hopkins Memorial Church Cupola. Windmill 2. Hoopersville Methodist Church Cupola.
			N 43 38 E	S 43 39 W	1,581	
			S 81 38 W	N 81 37 E	1,883	
2	38 15 52.42	76 10 00.76	N 62 17 E	S 62 17 W	1,891	Windmill 2. Asquith. Hoopersville Methodist Church Cupola.
			N 34 16 E	S 34 17 W	2,842	
			S 67 12 W	N 67 11 E	1,389	
3	38 16 17.94	76 10 15.30	S 32 34 W	N 32 34 E	1,660	Hoopersville Methodist Church Cupola. Windmill 2. Asquith.
			N 89 32 E	S 89 32 W	2,060	
			N 53 11 E	S 53 11 W	2,482	
4	38 16 39.32	76 10 06.60	S 27 57 W	N 27 57 E	2,399	Hoopersville Methodist Church Cupola. Windmill 2. Asquith.
			S 69 00 E	N 69 00 W	1,960	
			N 66 24 E	S 66 25 W	1,916	

## Survey of Oyster Bars, Dorchester County, Md.

## LOWER THOROUGHFARE.

(Honga River—Chart No. 40.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 15 16.32	76 09 20.92	N 44 37 E	S 44 38 W	Yards. 4,289 2,185 2,435	Paul. Windmill 2. Hoopersville Methodist Church Cupola.
			N 16 21 E	S 16 21 W		
			N 73 49 W	S 73 50 E		
2	38 15 22.58	76 09 55.40	N 88 43 E	S 88 45 W	5,950 2,430 1,497	Norman. Windmill 2. Hoopersville Methodist Church Cupola.
			N 39 05 E	S 39 06 W		
			N 71 47 W	S 71 48 E		
3	38 15 28.00	76 09 54.92	S 89 31 E	N 89 29 W	5,936 2,282 1,463	Norman. Windmill 2. Hoopersville Methodist Church Cupola.
			N 41 44 E	S 41 44 W		
			N 78 45 W	S 78 46 E		
4	38 15 39.62	76 08 48.36	N 43 26 E	S 43 27 W	3,123 1,335 3,206	Paul. Windmill 2. Hoopersville Methodist Church Cupola.
			N 10 49 W	S 10 49 E		
			S 88 06 W	N 88 08 E		
5	38 15 27.02	76 08 45.10	N 37 26 E	S 37 26 W	3,390 1,768 3,307	Paul. Windmill 2. Hoopersville Methodist Church Cupola.
			N 10 59 W	S 10 59 E		
			N 84 29 W	S 84 31 E		

## PAUL.

(Honga River—Chart No. 40.)

1	38 16 03.42	76 08 15.64	S 69 20 E	N 69 19 W	3,522 1,944 1,230	Norman. Paul. Windmill 2.
			N 41 05 E	S 41 05 W		
			N 65 34 W	S 65 35 E		
2	38 16 19.26	76 08 28.20	S 63 55 E	N 63 53 W	4,042 1,861 786	Norman. Paul. Windmill 2.
			N 59 58 E	S 59 59 W		
			S 88 09 W	N 88 09 E		
3	38 16 24.80	76 08 17.22	S 59 32 E	N 59 31 W	3,874 1,515 1,099	Norman. Paul. Windmill 2.
			N 60 34 E	S 60 34 W		
			S 78 52 W	N 78 52 E		
4	38 16 09.16	76 08 04.74	S 64 28 E	N 64 27 W	3,332 1,611 1,445	Norman. Paul. Windmill 2.
			S 37 50 E	N 37 50 W		
			N 77 24 W	S 77 24 E		



## CRAB POINT.

(Honga River—Chart No. 40.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 15 53.08	76 07 23.38	S 64 52 E	N 64 52 W	2, 106	Norman. Paul. Windmill 2.
			N 3 31 W	S 3 31 E	1, 818	
			N 71 08 W	S 71 09 E	2, 652	
2	38 15 56.60	76 07 48.80	S 68 35 E	N 68 34 W	2, 774	Norman. Paul. Windmill 2.
			N 18 24 E	S 18 24 W	1, 787	
			N 68 04 W	S 68 05 E	1, 977	
3	38 16 04.08	76 07 47.56	S 63 37 E	N 63 36 W	2, 847	Norman. Paul. Windmill 2.
			N 20 12 E	S 20 12 W	1, 538	
			N 75 24 W	S 75 23 E	1, 929	
4	38 16 00.44	76 07 21.48	S 58 23 E	N 58 23 W	2, 180	Norman. Paul. Windmill 2.
			N 5 55 W	S 5 55 E	1, 575	
			N 76 37 W	S 76 38 E	2, 631	

## NORMAN.

(Honga River—Chart No. 40.)

1	38 14 13.98	76 06 03.62	S 62 08 E	N 62 07 W	2, 723	Hooper Strait Light. Norman. Applegarth.
			N 5 00 W	S 5 00 E	2, 457	
			S 80 50 W	N 80 49 E	3, 765	
2	38 14 32.20	76 07 06.08	N 38 17 E	S 38 17 W	2, 335	Norman. Hopkins Memorial Church Cupola. Applegarth.
			N 86 59 W	S 87 00 E	2, 198	
			S 59 27 W	N 59 27 E	2, 387	
3	38 15 33.24	76 08 33.96	S 86 35 E	N 86 34 W	3, 790	Norman. Paul. Windmill 2.
			N 35 24 E	S 35 25 W	3, 046	
			N 22 32 W	S 22 32 E	1, 652	
4	38 15 38.98	76 06 45.80	S 65 15 E	N 65 14 W	1, 000	Norman. Paul. Windmill 2.
			N 25 53 W	S 25 53 E	2, 545	
			N 69 12 W	S 69 14 E	3, 753	

## APPLEGARTH.

(Hooper Strait—Chart No. 40.)

1	38 12 51.50	76 05 47.84	S 10 27 E	N 10 27 W	3, 121	Okahanikan. Hooper Strait Light. Norman.
			N 52 49 E	S 52 50 W	2, 496	
			N 6 55 W	S 6 55 E	5, 267	
2	38 13 49.00	76 06 46.30	S 83 04 E	N 83 03 W	3, 570	Hooper Strait Light. Norman. Applegarth.
			N 15 38 E	S 15 38 W	3, 416	
			N 84 37 W	S 84 38 E	2, 593	
3	38 14 13.98	76 06 03.62	S 62 08 E	N 62 07 W	2, 723	Hooper Strait Light. Norman. Applegarth.
			N 5 00 W	S 5 00 E	2, 457	
			S 80 50 W	N 80 49 E	3, 765	
4	38 13 13.88	76 05 05.12	N 74 52 W	S 74 54 E	5, 463	Applegarth. Hooper Strait Light. Okahanikan.
			N 48 29 E	S 48 29 W	1, 137	
			S 8 30 W	N 8 29 E	3, 866	

## Survey of Oyster Bars, Dorchester County, Md.

## HOOPER STRAIT.

(Hooper Strait—Chart No. 40.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 12 30.24	76 07 05.96	S 48 21 E	N 48 20 W	3,540	Okahanikan. Hooper Strait Light. Applegarth.
			N 61 18 E	S 61 19 W	4,636	
			N 35 23 W	S 35 24 E	3,555	
2	38 12 48.96	76 07 29.02	S 47 31 E	N 47 30 W	4,418	Okahanikan. Hooper Strait Light. Applegarth.
			N 71 12 E	S 71 14 W	4,943	
			N 32 31 W	S 32 31 E	2,689	
3	38 13 11.04	76 06 56.76	S 32 47 E	N 32 46 W	4,433	Okahanikan. Hooper Strait Light. Applegarth.
			N 77 28 E	S 77 30 W	3,914	
			N 56 32 W	S 56 33 E	2,761	
4	38 12 54.18	76 06 02.80	S 16 58 E	N 16 58 W	3,304	Okahanikan. Hooper Strait Light. Applegarth.
			N 59 13 E	S 59 14 W	2,771	
			N 60 47 W	S 60 48 E	4,284	

## RICHLAND.

(Hooper Strait—Chart No. 40.)

1	38 12 37.64	76 08 23.88	S 61 07 E	N 61 05 W	5,389	Okahanikan. Applegarth. Hooper Island Light.
			N 0 18 E	S 0 18 W	2,650	
			N 62 13 W	S 62 17 E	11,910	
2	38 12 50.28	76 08 24.76	S 57 26 E	N 57 24 W	5,627	Okahanikan. Applegarth. Hooper Island Light.
			N 0 57 E	S 0 57 W	2,224	
			N 64 00 W	S 64 04 E	11,697	
3	38 12 50.40	76 08 12.76	S 55 34 E	N 55 32 W	5,363	Okahanikan. Applegarth. Hooper Island Light.
			N 7 15 W	S 7 15 E	2,238	
			N 64 41 W	S 64 46 E	11,983	
4	38 12 37.72	76 08 12.58	S 59 28 E	N 59 27 W	5,129	Okahanikan. Applegarth. Hooper Island Light.
			N 6 11 W	S 6 11 E	2,603	
			N 62 53 W	S 62 57 E	12,176	

*Survey of Oyster Bars, Dorchester County, Md.*

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BLOODSWORTH.

(Hooper Strait—Charts Nos. 40 and 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 12 12.66	76 02 41.75	S 88 13 E	N 88 11 W	Yards. 5,551 2,570 4,088	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 28 04 E	S 28 04 W		
			N 46 26 W	S 46 27 E		
2	38 12 24.55	76 02 57.30	S 84 30 E	N 84 28 W	5,900 2,474 3,513	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 41 00 E	S 41 00 W		
			N 46 31 W	S 46 32 E		
3	38 12 20.54	76 03 02.14	S 85 53 E	N 85 51 W	6,107 2,660 3,517	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 41 11 E	S 41 12 W		
			N 43 28 W	S 43 29 E		
4	38 12 34.28	76 03 38.26	S 82 43 E	N 82 40 W	7,108 3,118 2,548	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 60 26 E	S 60 27 W		
			N 34 55 W	S 34 56 E		
5	38 12 54.98	76 03 37.04	S 77 10 E	N 77 07 W	7,199 2,808 2,040	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 72 35 E	S 72 37 W		
			N 46 59 W	S 47 00 E		
6	38 12 42.22	76 02 47.02	S 78 23 E	N 78 21 W	5,807 1,854 3,358	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 46 42 E	S 46 43 W		
			N 57 10 W	S 57 11 E		
7	38 12 18.85	76 02 34.19	S 85 56 E	N 85 54 W	5,360 2,292 4,100	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 26 05 E	S 26 05 W		
			N 50 29 W	S 50 30 E		

HOPKINS COVE.

(Hooper Strait—Chart No. 41.)

1	38 12 53.07	76 02 33.80	S 73 57 E	N 73 55 W	5,553 1,347 3,492	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 47 46 E	S 47 47 W		
			N 65 22 W	S 65 23 E		
2	38 13 03.37	76 03 17.05	S 73 49 E	N 73 47 W	6,755 2,219 2,307	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 75 27 E	S 75 28 W		
			N 61 17 W	S 61 17 E		
3	38 13 13.92	76 03 13.52	S 70 42 E	N 70 40 W	6,774 2,064 2,247	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 84 23 E	S 84 24 W		
			N 70 25 W	S 70 26 E		
4	38 13 04.22	76 02 32.48	S 70 11 E	N 70 09 W	5,635 1,098 3,387	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 61 11 E	S 61 12 W		
			N 71 24 W	S 71 25 E		
5	38 12 58.42	76 02 26.23	S 71 32 E	N 71 30 W	5,413 1,076 3,608	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 47 41 E	S 47 41 W		
			N 69 18 W	S 69 19 E		

## Survey of Oyster Bars, Dorchester County, Md.

## RED SECTOR.

(Hooper Strait—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 12 23.72	76 02 11.56	S 83 27 E	N 83 26 W	Yards. 4,776 1,938 4,489	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 12 05 E	S 12 06 W		
			N 57 00 W	S 57 02 E		
2	38 12 39.64	76 02 27.89	S 78 12 E	N 78 10 W	5,291 1,597 3,839	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 31 45 E	S 31 45 W		
			N 60 12 W	S 60 13 E		
3	38 12 48.03	76 02 15.00	S 74 15 E	N 74 13 W	5,025 1,184 4,017	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 24 50 E	S 24 50 W		
			N 66 08 W	S 66 10 E		
4	38 12 36.16	76 02 02.08	S 77 54 E	N 77 52 W	4,595 1,484 4,498	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 5 57 E	S 5 57 W		
			N 63 15 W	S 63 17 E		

## BELL BUOY.

(Hooper Strait—Charts Nos. 41 and 42.)

1	38 11 25.80	76 01 22.21	N 67 41 E	S 67 42 W	3,709 3,953 6,717	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 13 16 W	S 13 16 E		
			N 49 07 W	S 49 09 E		
2	38 11 40.82	76 02 00.26	N 78 31 E	S 78 33 W	4,535 3,343 5,627	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 1 48 E	S 1 48 W		
			N 46 15 W	S 46 14 E		
3	38 12 22.84	76 01 56.04	S 83 14 W	N 83 12 E	4,362 1,925 4,856	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 0 12 W	S 0 12 E		
			N 59 22 W	S 59 23 E		
4	38 12 24.96	76 01 41.42	S 81 33 E	N 81 32 W	3,986 1,895 5,160	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 12 03 W	S 12 04 E		
			N 62 15 W	S 62 17 E		
5	38 12 57.84	76 01 40.72	S 66 39 E	N 66 37 W	4,275 7,982 852	Sharkfin Shoal Light. Frog. Head.
			N 72 00 E	S 72 03 W		
			N 29 06 W	S 29 06 E		
6	38 13 04.38	76 01 19.76	S 60 22 E	N 60 21 W	3,874 7,384 1,105	Sharkfin Shoal Light. Frog. Head.
			N 72 18 E	S 72 20 W		
			N 61 40 W	S 61 41 E		
7	38 12 31.84	76 00 11.98	S 62 24 E	N 62 24 W	1,763 6,209 3,214	Sharkfin Shoal Light. Frog. Head.
			N 57 25 E	S 57 27 W		
			N 59 43 W	S 59 44 E		
8	38 11 58.90	76 01 19.76	N 85 02 E	S 85 03 W	3,379 2,899 6,100	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 19 35 W	S 19 36 E		
			N 57 18 W	S 57 30 E		

JANE.

(Upper Tangier Sound—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 11 25.80	76 00 45.38	S 88 22 E	N 88 19 W	Yards.	Room. Sharkfin Shoal Light. Head.
			N 60 06 E	S 60 07 W	6,861	
			N 26 07 W	S 26 08 E	2,828	
2	38 11 42.26	76 00 45.56	S 83 45 E	N 83 43 W	6,903	Room. Sharkfin Shoal Light. Head.
			N 70 49 E	S 70 50 W	2,601	
			N 29 45 W	S 29 46 E	3,793	
3	38 11 35.12	76 00 19.80	S 85 17 E	N 85 13 W	6,197	Room. Sharkfin Shoal Light. Head.
			N 58 16 E	S 58 17 W	2,082	
			N 36 00 W	S 36 01 E	4,368	
4	38 11 25.83	76 00 19.40	S 88 11 E	N 88 07 W	6,170	Room. Sharkfin Shoal Light. Head.
			N 51 20 E	S 51 21 W	2,255	
			N 33 50 W	S 33 51 E	4,630	

MUD (DORCHESTER COUNTY).

(Upper Tangier Sound—Chart No. 41.)

1	38 09 26.74	76 00 23.48	S 10 55 W	N 10 55 E	2,838	Senator. Deal Island Church. Crab.	
			S 87 10 E	N 87 07 W			5,546
			N 32 41 W	S 32 41 E			2,607
2	38 10 15.54	75 59 41.40	N 11 13 E	S 11 13 W	3,853	Sharkfin Shoal Light. Crab. Senator.	
			N 77 45 W	S 77 46 E	2,587		
			S 20 31 W	N 20 30 E	4,732		
3	38 10 22.44	75 59 20.74	N 3 13 E	S 3 13 W	3,552	Sharkfin Shoal Light. Crab. Senator.	
			N 84 08 W	S 84 09 E	3,094		
			S 25 20 W	N 25 19 E	5,162		
4	38 09 53.08	75 59 18.00	N 67 28 W	S 67 29 E	3,411	Crab. Senator. Deal Island Church. to corner No. 1.	
			S 31 50 W	N 31 49 E	4,325		
			S 72 57 E	N 72 58 W	3,970		

Thence along county boundary as delineated on Chart No. 41

## Survey of Oyster Bars, Dorchester County, Md.

## SHARKFIN SHOAL.

(Upper Tangier Sound—Chart No. 41.)

Corner of bar	Latitude ° / ' / "	Longitude ° / ' / "	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 11 34.68	75 58 49.07	N 29 51 E	S 29 53 W	6,079	Frog.
			N 30 05 W	S 30 05 E	1,283	Sharkfin Shoal Light.
			N 54 32 W	S 54 34 E	6,114	Head.
2	38 12 51.20	76 00 03.11	S 42 05 E	N 42 04 W	1,081	Sharkfin Shoal Light.
			N 61 41 E	S 61 43 W	5,675	Frog.
			N 72 11 W	S 72 12 E	3,163	Head.
3	38 13 04.38	76 01 19.76	S 60 22 E	N 60 21 W	3,874	Sharkfin Shoal Light.
			N 72 18 E	S 72 20 W	7,384	Frog.
			N 61 40 W	S 61 41 E	1,105	Head.
4	38 13 14.35	76 00 47.66	N 84 08 W	S 84 09 E	1,835	Head.
			S 48 09 E	N 48 08 W	3,374	Sharkfin Shoal Light.
			N 72 50 E	S 72 51 W	6,470	Frog.
5	38 13 26.27	76 00 09.33	S 85 41 W	N 85 40 E	2,853	Head.
			S 29 22 E	N 29 22 W	3,043	Sharkfin Shoal Light.
			N 73 42 E	S 73 44 W	5,377	Frog.
6	38 13 30.68	75 59 55.08	S 83 34 W	N 83 33 E	3,245	Head.
			S 21 41 E	N 21 40 W	3,014	Sharkfin Shoal Light.
			N 74 07 E	S 74 10 W	4,972	Frog.
7	38 12 21.93	75 58 43.47	S 58 38 W	N 58 38 E	927	Sharkfin Shoal Light.
			S 60 00 E	N 59 58 W	4,173	Room.
			N 38 02 E	S 38 03 W	4,671	Frog.

## WARE SANDS.

(Fishing Bay—Chart No. 41.)

1	38 12 57.84	76 01 40.72	S 66 39 E	N 66 37 W	4,275	Sharkfin Shoal Light.
			N 72 00 E	S 72 03 W	7,982	Frog.
			N 29 06 W	S 29 06 E	852	Head.
2	38 13 23.40	76 01 40.22	N 17 12 W	S 17 12 E	3,799	Croch.
			S 74 40 W	N 74 39 E	444	Head.
			S 56 50 E	N 56 48 W	4,672	Sharkfin Shoal Light.
3	38 14 00.09	76 01 56.44	S 0 09 E	N 0 09 W	1,355	Head.
			S 48 52 E	N 48 50 W	5,767	Sharkfin Shoal Light.
			N 16 08 W	S 16 08 E	2,490	Croch.
4	38 14 03.76	76 01 49.12	S 7 22 W	N 7 22 E	1,491	Head.
			S 46 38 E	N 46 37 W	5,705	Sharkfin Shoal Light.
			N 21 21 W	S 21 21 E	2,435	Croch.
5	38 13 14.35	76 00 47.66	N 84 08 W	S 84 09 E	1,835	Head.
			S 48 09 E	N 48 08 W	3,374	Sharkfin Shoal Light.
			N 72 50 E	S 72 51 W	6,470	Frog.
6	38 13 04.38	76 01 19.76	S 60 22 E	N 60 21 W	3,874	Sharkfin Shoal Light.
			N 72 18 E	S 72 20 W	7,384	Frog.
			N 61 40 W	S 61 41 E	1,105	Head.

SAND SHOAL.

(Fishing Bay—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / '	° / '		
1	38 13 26.27	76 00 09.33	S 85 41 W	N 85 40 E	Yards.	Head. Sharkfin Shoal Light. Frog.
			S 29 22 E	N 29 22 W	2,853	
			N 73 42 E	S 73 44 W	3,043	
2	38 14 47.44	76 01 32.07	N 59 25 W	S 59 25 E	1,556	Croch. Head. Sharkfin Shoal Light.
			S 12 19 W	N 12 19 E	3,021	
			S 34 26 E	N 34 25 W	6,534	
3	38 14 31.10	75 59 47.39	N 71 56 W	S 71 57 E	4,337	Croch. Head. Sharkfin Shoal Light.
			S 55 00 W	N 55 01 E	4,186	
			S 10 38 E	N 10 38 W	4,922	
4	38 13 30.68	75 59 55.08	S 83 34 W	N 83 33 E	3,245	Head. Sharkfin Shoal Light. Frog.
			S 21 41 E	N 21 40 W	3,014	
			N 74 07 E	S 74 10 W	4,972	

CLAY ISLAND.

(Fishing Bay—Chart No. 41.)

1	38 13 38.82	75 59 28.94	S 80 45 W	N 80 44 E	3,972	Head. Sharkfin Shoal Light. Frog.
			S 7 44 E	N 7 44 W	3,104	
			N 75 07 E	S 75 09 W	4,229	
2	38 14 21.04	75 59 32.36	S 61 42 W	N 61 41 E	4,348	Head. Sharkfin Shoal Light. Frog.
			S 6 27 E	N 6 27 W	4,528	
			S 85 23 E	N 85 21 W	4,192	
3	38 14 30.64	75 58 19.12	S 67 33 W	N 67 31 E	6,250	Head. Sharkfin Shoal Light. Frog.
			S 16 38 W	N 16 37 E	5,033	
			S 73 30 E	N 73 29 W	2,326	
4	38 13 50.82	75 58 50.54	S 78 05 W	N 78 03 E	5,050	Head. Sharkfin Shoal Light. Frog.
			S 9 51 W	N 9 51 E	3,532	
			N 77 27 E	S 77 26 W	3,141	

## Survey of Oyster Bars, Dorchester County, Md.

EVANS.

(Fishing Bay—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 14 31.10	75 59 47.39	N 71 56 W	S 71 57 E	Yards. 4,337 4,186 4,922	Croch. Head. Sharkfin Shoal Light.
			S 55 00 W	N 55 01 E		
			S 10 38 E	N 10 38 W		
2	38 14 47.44	76 01 32.07	N 59 25 W	S 59 25 E	1,556 3,021 6,534	Croch. Head. Sharkfin Shoal Light.
			S 12 19 W	N 12 19 E		
			S 34 26 E	N 34 25 W		
3	38 15 24.82	76 01 17.20	N 73 49 E	S 73 50 W	3,702 2,987 1,797	Fish. Roast. Croch.
			N 9 56 W	S 9 56 E		
			S 75 00 W	N 74 59 E		
4	38 15 43.82	76 00 57.10	N 82 37 E	S 82 36 W	3,046 2,528 2,525	Fish. Roast. Croch.
			N 24 31 W	S 24 31 E		
			S 64 02 W	N 64 01 E		
5	38 15 10.00	75 59 43.39	N 34 41 E	S 34 42 W	1,863 4,623 4,230	Fish. Ear. Croch.
			N 3 39 W	S 3 39 E		
			N 89 32 W	S 89 34 E		
6	38 14 44.60	75 59 23.83	S 54 51 W	N 54 49 E	4,961 5,301 4,110	Head. Sharkfin Shoal Light. Frog.
			S 3 03 E	N 3 03 W		
			S 74 01 E	N 74 00 W		

GOOSE CREEK.

(Fishing Bay—Chart No. 41.)

1	38 15 24.82	76 01 17.20	N 73 49 E	S 73 50 W	3,702 2,987 1,797	Fish. Roast. Croch.
			N 9 56 W	S 9 56 E		
			S 75 00 W	N 74 59 E		
2	38 15 52.25	76 01 56.97	S 26 00 W	N 26 00 E	1,546 4,613 2,689	Croch. Fish. Roast.
			N 88 41 E	S 88 43 W		
			N 15 03 E	S 15 03 W		
3	38 16 37.70	76 01 46.32	S 71 46 E	N 71 44 W	4,558 3,402 549	Fish. Ear. Roast.
			N 60 53 E	S 60 54 W		
			N 28 09 E	S 28 09 W		
4	38 16 39.67	76 00 32.78	S 57 51 E	N 57 50 W	2,803 1,888 3,905	Fish. Ear. Elliott.
			N 32 38 E	S 32 39 W		
			N 11 43 W	S 11 43 E		
5	38 15 43.82	76 00 57.10	N 82 37 E	S 82 38 W	3,046 2,528 2,525	Fish. Roast. Croch.
			N 24 31 W	S 24 31 E		
			S 64 02 W	N 64 01 E		



Survey of Oyster Bars, Dorchester County, Md.

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DUCK ISLAND.

(Fishing Bay—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / '	° / '		
1	38 15 44.16	75 59 59.19	N 2 05 E	S 2 05 W	Yards. 3,463 3,456 3,970	Ear. Roast. Croch.
			N 48 31 W	S 48 32 E		
			S 73 39 W	N 73 38 E		
2	38 15 58.34	76 00 14.96	N 10 21 E	S 10 21 W	3,033 2,826 3,747	Ear. Roast. Croch.
			N 59 08 W	S 50 09 E		
			S 64 48 W	N 64 47 E		
3	38 16 33.56	76 00 17.72	S 56 55 E	N 56 54 W	2,356 1,900 4,203	Fish. Ear. Elliott.
			N 18 59 E	S 18 59 W		
			N 16 29 W	S 16 30 E		
4	38 16 42.24	76 00 00.44	N 23 51 W	S 23 51 E	4,086 2,577 4,870	Elliott. Roast. Croch.
			N 82 37 W	S 82 38 E		
			S 50 50 W	N 50 48 E		
5	38 16 09.32	75 59 33.72	N 11 55 W	S 11 55 E	2,671 3,570 4,898	Ear. Roast. Croch.
			N 66 12 W	S 66 13 E		
			S 66 21 W	N 66 19 E		

BUNGAY.

(Fishing Bay—Chart No. 41.)

1	38 16 33.56	76 00 17.72	S 56 55 E	N 56 54 W	2,356 1,900 4,203	Fish. Ear. Elliott.
			N 18 59 E	S 18 59 W		
			N 16 29 W	S 16 30 E		
2	38 17 18.81	76 01 03.08	S 48 31 E	N 48 29 W	4,244 1,844 2,503	Fish. Ear. Elliott.
			N 81 35 E	S 81 36 W		
			N 0 17 E	S 0 17 W		
3	38 17 48.46	76 01 12.58	S 70 37 E	N 70 37 W	2,200 1,528 3,259	Ear. Elliott. Farm.
			N 9 59 E	S 9 59 W		
			N 50 09 W	S 50 10 E		
4	38 17 53.27	76 00 58.09	S 62 11 E	N 62 11 W	1,912 1,347 3,471	Ear. Elliott. Farm.
			N 5 07 W	S 5 07 E		
			N 56 18 W	S 56 19 E		
5	38 16 42.24	76 00 00.44	N 23 51 W	S 23 51 E	4,086 2,577 4,870	Elliott. Roast. Croch.
			N 82 37 W	S 82 38 E		
			S 50 50 W	N 50 48 E		

## Survey of Oyster Bars, Dorchester County, Md.

## OLD HOUSE.

(Fishing Bay—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 17 24.57	76 01 45.83	N 88 32 E	S 88 33 W	2,960	Ear. Elliott. Farm.
			N 26 26 E	S 26 26 W	2,580	
			N 29 13 W	S 29 14 E	3,316	
2	38 17 30.80	76 01 56.02	S 87 37 E	N 87 35 W	3,234	Ear. Elliott. Farm.
			N 34 03 E	S 34 03 W	2,535	
			N 26 40 W	S 26 41 E	3,004	
3	38 18 27.98	76 01 48.36	S 5 32 E	N 5 32 W	3,249	Roast. Elliott. Thoro.
			N 81 57 E	S 81 57 W	1,228	
			N 20 06 E	S 20 07 W	3,081	
4	38 18 26.80	76 01 35.94	S 0 18 W	N 0 18 E	3,195	Roast. Elliott. Thoro.
			N 76 33 E	S 76 33 W	911	
			N 13 58 E	S 13 58 W	3,018	

## POINT.

(Fishing Bay—Chart No. 41.)

1	38 18 33.79	76 01 19.90	S 7 22 W	N 7 21 E	3,459	Roast. Elliott. Thoro.
			S 87 01 E	N 87 01 W	460	
			N 6 24 E	S 6 25 W	2,713	
2	38 18 36.44	76 01 24.92	S 5 02 W	N 5 02 E	3,533	Roast. Elliott. Thoro.
			S 79 11 E	N 79 11 W	604	
			N 9 30 E	S 9 30 W	2,643	
3	38 18 44.20	76 01 18.54	S 7 13 W	N 7 13 E	3,811	Roast. High. Thoro.
			S 84 49 E	N 84 48 W	1,003	
			N 6 29 E	S 6 29 W	2,361	
4	38 18 41.50	76 01 13.66	S 9 22 W	N 9 22 E	3,740	Roast. High. Thoro.
			N 89 59 E	S 89 58 W	669	
			N 3 13 E	S 3 13 W	2,441	

## HILL.

(Fishing Bay—Chart No. 41.)

1	38 18 41.16	76 01 36.80	S 0 06 E	N 0 06 W	3,677	Roast. Elliott. Thoro.
			S 73 18 E	N 73 18 W	950	
			N 17 04 E	S 17 04 W	2,561	
2	38 18 49.24	76 01 47.96	S 4 23 E	N 4 23 W	3,963	Roast. Elliott. Thoro.
			S 65 40 E	N 65 40 W	1,322	
			N 25 43 E	S 25 44 W	2,415	
3	38 19 11.08	76 01 16.30	N 8 12 E	S 8 12 W	1,454	Thoro. Farm. Roast.
			S 73 49 W	N 73 48 E	2,502	
			S 6 33 W	N 6 33 E	4,719	
4	38 19 05.24	76 01 09.84	N 1 15 E	S 1 15 W	1,636	Thoro. Farm. Roast.
			S 79 00 W	N 78 59 E	2,624	
			S 8 59 W	N 8 59 E	4,547	

THOROUGH.

(Fishing Bay—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 18 51.58	76 02 09.22	S 12 09 E	N 12 09 W	Yards. 4, 123 1, 877 2, 645	Roast. Elliott. Thoro.
			S 70 34 E	N 70 34 W		
			N 37 34 E	S 37 35 W		
2	38 19 08.52	76 02 28.22	S 16 37 E	N 16 36 W	4, 802 2, 570 2, 606	Roast. Elliott. Thoro.
			S 62 17 E	N 62 16 W		
			N 54 10 E	S 54 11 W		
3	38 19 24.34	76 01 51.32	S 4 22 E	N 4 22 W	5, 150 2, 159 1, 506	Roast. Elliott. Thoro.
			S 36 49 E	N 36 49 W		
			N 48 54 E	S 48 55 W		
4	38 19 10.48	76 01 41.70	S 1 40 E	N 1 40 W	4, 670 1, 634 1, 795	Roast. Elliott. Thoro.
			S 39 28 E	N 39 28 W		
			N 31 09 E	S 31 09 W		

HALF WAY MARK.

(Fishing Bay—Chart No. 41.)

1	38 19 05.24	76 01 09.84	N 1 15 E	S 1 15 W	1, 636 2, 624 4, 547	Thoro. Farm. Roast.
			S 79 00 W	N 78 59 E		
			S 8 59 W	N 8 59 E		
2	38 19 11.08	76 01 16.30	N 8 12 E	S 8 12 W	1, 454 2, 502 4, 719	Thoro. Farm. Roast.
			S 73 49 W	N 73 48 E		
			S 6 33 W	N 6 33 E		
3	38 19 23.76	76 00 57.74	N 15 47 W	S 15 47 E	1, 051 3, 108 1, 493	Thoro. Farm. High.
			S 68 46 W	N 68 45 E		
			S 17 24 E	N 17 24 W		
4	38 19 17.46	76 00 18.58	N 47 17 W	S 47 18 E	1, 804 4, 041 1, 900	Thoro. Farm. Elliott.
			S 76 57 W	N 76 55 E		
			S 38 01 W	N 38 01 E		
5	38 19 05.54	76 01 00.18	N 7 44 W	S 7 44 E	1, 641 2, 877 1, 097	Thoro. Farm. Elliott.
			S 79 46 W	N 79 45 E		
			S 3 23 W	N 3 23 E		

FLAT ROCK.

(Fishing Bay—Chart No. 41.)

1	38 19 17.46	76 00 18.58	N 47 17 W	S 47 18 E	1, 804 4, 041 1, 900	Thoro. Farm. Elliott.
			S 76 57 W	N 76 55 E		
			S 38 01 W	N 38 01 E		
2	38 19 23.76	76 00 57.74	N 15 47 W	S 15 47 E	1, 051 3, 108 1, 493	Thoro. Farm. High.
			S 68 46 W	N 68 45 E		
			S 17 24 E	N 17 24 W		
3	38 19 57.00	76 00 09.42	S 86 01 W	N 86 00 E	1, 573 4, 746 2, 679	Thoro. Farm. High.
			S 61 45 W	N 61 43 E		
			S 18 13 W	N 18 12 E		
4	38 19 52.57	76 00 00.66	N 88 44 W	S 88 45 E	1, 802 4, 886 2, 622	Thoro. Farm. High.
			S 64 35 W	N 64 33 E		
			S 24 05 W	N 24 05 E		

## Survey of Oyster Bars, Dorchester County, Md.

## FROG POINT.

(Upper Tangier Sound—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / //	° / //	° /	° /	Yards.	
1	38 13 29.62	75 57 27.69	S 45 27 W S 20 05 E N 31 41 E	N 45 25 E N 20 04 W S 31 41 W	3,941 4,651 1,641	Sharkfin Shoal Light. Room. Frog.
2	38 13 39.90	75 57 30.22	S 41 22 W S 19 26 E N 41 30 E	N 41 21 E N 19 26 W S 41 30 W	4,147 5,000 1,403	Sharkfin Shoal Light. Room. Frog.
3	38 13 46.05	75 56 49.90	N 9 37 W S 48 58 W S 6 51 E	S 9 37 E N 48 56 E N 6 50 W	855 5,057 4,957	Frog. Sharkfin Shoal Light. Room.
4	38 13 37.18	75 56 47.81	N 9 51 W S 52 01 W S 6 36 E	S 9 51 E N 52 00 E N 6 36 W	1,159 4,909 4,653	Frog. Sharkfin Shoal Light. Room.

## NEW.

(Nanticoke River—Chart No. 41.)

1	38 15 07.92	75 56 01.04	N 41 30 E N 29 39 W S 36 57 W	S 41 30 W S 29 39 E N 36 56 E	2,020 2,093 2,399	Roar. Cow. Frog.
2	38 15 13.00	75 55 57.48	N 42 50 E N 34 26 W S 36 21 W	S 42 50 W S 34 27 E N 36 21 E	1,829 1,998 2,593	Roar. Cow. Frog.
3	38 15 09.30	75 55 53.30	N 37 41 E N 35 00 W S 40 00 W	S 37 41 W S 35 02 E N 40 00 E	1,852 2,164 2,563	Roar. Cow. Frog.

## HILLS AND HOLES.

(Nanticoke River—Chart No. 41.)

1	38 15 23.48	75 55 55.68	N 50 26 E N 42 26 W S 32 59 W	S 50 26 W S 42 27 E N 32 58 E	1,552 1,754 2,911	Roar. Cow. Frog.
2	38 15 36.38	75 55 56.96	N 65 47 E N 53 05 W S 28 20 W	S 65 47 W S 53 06 E N 28 19 E	1,348 1,430 3,269	Roar. Cow. Frog.
3	38 15 34.76	75 55 49.04	N 59 11 E N 55 59 W S 31 58 W	S 59 12 W S 56 00 E N 31 58 E	1,187 1,634 3,327	Roar. Cow. Frog.

ROARING POINT WEST.

(Nanticoke River—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 15 46.36	75 55 49.20	N 78 01 E N 30 35 E N 68 50 W	S 78 02 W S 30 34 W S 68 50 E	1,047 4,228 1,448	Roar. Rag. Cow.
2	38 16 07.10	75 55 50.68	S 82 20 W S 65 35 E N 36 41 E	N 82 20 E N 65 35 W S 36 42 W	1,323 1,107 3,667	Cow. Roar. Rag.
3	38 16 07.78	75 55 43.22	S 82 29 W S 59 42 E N 86 14 E	N 82 28 E N 59 42 W S 86 15 W	1,522 1,002 2,083	Cow. Roar. Nanticoke Church.

Thence along county boundary as delineated on Chart No. 41 to corner No. 1.

BEAN SHOAL.

(Nanticoke River—Chart No. 41.)

1	38 17 32.06	75 55 52.90	S 40 49 E N 88 05 E N 22 07 W	N 40 48 W S 88 05 W S 22 07 E	3,574 2,251 1,424	Nanticoke Church. Rag. Okay.
2	38 17 38.48	75 56 00.78	S 41 03 E S 86 42 E N 16 30 W	N 41 03 W N 86 41 W S 16 30 E	3,876 2,403 1,149	Nanticoke Church. Rag. Okay.
3	38 17 44.04	75 55 52.22	S 36 42 E S 81 38 E N 31 12 W	N 36 41 W N 81 37 W S 31 12 E	3,878 2,255 1,070	Nanticoke Church. Rag. Okay.

OUTER HOLE.

(Nanticoke River—Chart No. 41.)

1	38 17 33.54	75 55 22.32	S 28 56 E N 61 53 E N 46 44 W	N 28 56 W S 61 54 W S 46 45 E	3,148 3,612 1,851	Nanticoke Church. Bivalve Church. Okay.
2	38 17 49.98	75 55 33.62	S 28 51 E N 71 46 E N 55 43 W	N 28 50 W S 71 47 W S 55 43 E	3,778 3,670 1,269	Nanticoke Church. Bivalve Church. Okay.
3	38 17 55.16	75 55 18.02	N 69 44 W S 2 42 E S 61 59 E	S 69 44 E N 2 42 W N 61 58 W	1,559 4,131 1,498	Okay. Roar. Rag.

Thence along county boundary as delineated on Chart No. 41 to corner No. 1.

## Survey of Oyster Bars, Dorchester County, Md.

## LOWER NEWFOUNDLAND.

(Nanticoke River—Chart No. 41.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 19 10.26	75 54 48.56	S 55 45 E	N 55 44 W	Yards. 2,769 3,088 1,008	Bivalve Church. Juliet. Ar.
			N 69 30 E	S 69 31 W		
			N 66 21 W	S 66 22 E		
2	38 19 18.72	75 54 40.88	S 48 30 E	N 48 30 W	2,783 2,805 1,134	Bivalve Church. Juliet. Ar.
			N 73 30 E	S 73 31 W		
			N 83 59 W	S 83 59 E		
3	38 19 15.10	75 54 36.78	S 48 56 E	N 48 55 W	2,615 2,738 1,260	Bivalve Church. Juliet. Ar.
			N 70 24 E	S 70 25 W		
			N 78 58 W	S 78 58 E		

## UPPER NEWFOUNDLAND.

(Nanticoke River—Chart No. 41.)

1	38 19 22.74	75 54 37.36	S 45 10 E	N 45 09 W	2,807 2,678 1,220	Bivalve Church. Juliet. Ar.
			N 75 43 E	S 75 44 W		
			S 89 13 W	N 89 13 E		
2	38 19 31.22	75 54 34.46	S 40 12 E	N 40 11 W	2,966 2,547 1,332	Bivalve Church. Juliet. Ar.
			N 81 32 E	S 81 32 W		
			S 76 53 W	N 76 52 E		
3	38 19 34.96	75 54 25.58	S 35 03 E	N 35 04 W	2,924 2,297 1,592	Bivalve Church. Juliet. Ar.
			N 83 46 E	S 83 47 W		
			S 74 23 W	N 74 23 E		
4	38 19 28.28	75 54 22.42	S 36 21 E	N 36 20 W	2,690 2,250 1,631	Bivalve Church. Juliet. Ar.
			N 77 49 E	S 77 50 W		
			S 82 50 W	N 82 50 E		

## NORTHWEST MIDDLEGROUND.

(Chesapeake Bay—Off Holland Island—Chart No. 42.)

1	38 06 15.00	76 10 16.74	S 59 10 E	N 59 07 W	8,409 8,292 12,872	Holland Island Bar Light. Holland Island Church Okahanikan. [Spire.]
			N 76 16 E	S 76 19 W		
			N 36 52 E	S 36 55 W		
2	38 06 26.08	76 12 00.79	S 64 53 E	N 64 57 W	11,039 10,948 14,448	Holland Island Bar Light. Holland Island Church Okahanikan. [Spire.]
			N 81 26 E	S 81 30 W		
			N 46 34 E	S 46 38 W		
3	38 08 03.16	76 11 24.40	S 48 36 E	N 48 32 W	12,032 9,999 11,621	Holland Island Bar Light. Holland Island Church Okahanikan. [Spire.]
			S 80 20 E	N 80 16 W		
			N 55 02 E	S. 55 06 W		
4	38 07 38.78	76 10 49.45	S 48 36 E	N 48 33 W	10,789 8,966 11,392	Holland Island Bar Light. Holland Island Church Okahanikan. [Spire.]
			S 84 31 E	N 84 28 W		
			N 48 58 E	S 49 01 W		

SOUTHEAST MIDDLEGROUND.

(Chesapeake Bay—Off Holland Island—Chart No. 42.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 05 41.56	76 09 36.60	S 62 39 E	N 62 37 W	Yards. 6,925 7,641 13,222	Holland Island Bar Light. Holland Island Church Okahanikan. [Spire.]
			N 66 05 E	S 66 08 W		
			N 30 13 E	S 30 16 W		
2	38 06 15.00	76 10 16.74	S 59 10 E	N 59 07 W	8,409 8,292 12,872	Holland Island Bar Light. Holland Island Church Okahanikan. [Spire.]
			N 76 16 E	S 76 19 W		
			N 36 52 E	S 36 55 W		
3	38 06 29.56	76 09 05.00	S 47 53 E	N 47 51 W	7,157 6,319 11,401	Holland Island Bar Light. Holland Island Church Okahanikan. [Spire.]
			N 76 28 E	S 76 30 W		
			N 30 39 E	S 30 42 W		
4	38 05 51.32	76 08 46.80	S 53 57 E	N 53 56 W	5,964 6,300 12,311	Holland Island Bar Light. Holland Island Church Okahanikan. [Spire.]
			N 63 55 E	S 63 58 W		
			N 25 39 E	S 25 41 W		

BOUNDARY.

(Entrance to Kedge Straits—Chart No. 42.)

1	38 04 34.32	76 04 32.26	S 65 05 W	N 65 04 E	2,164 5,993 6,730	Holland Island Bar Light. Fog 2. Solomons Lump Light.
			S 33 24 E	N 33 24 W		
			S 59 26 E	N 59 24 W		
2	38 04 40.24	76 04 39.44	S 57 52 W	N 57 52 E	2,091 6,177 6,997	Holland Island Bar Light. Fog 2. Solomons Lump Light.
			S 33 52 E	N 33 50 W		
			S 58 49 E	N 58 47 W		
3	38 05 12.18	76 04 05.82	S 50 37 W	N 50 36 E	3,450 6,707 6,927	Holland Island Bar Light. Fog 2. Solomons Lump Light.
			S 22 18 E	N 22 17 W		
			S 47 17 E	N 47 15 W		
4	38 05 10.20	76 04 00.70	S 52 53 W	N 52 52 E	3,516 6,593 6,780	Holland Island Bar Light. Fog 2. Solomons Lump Light.
			S 21 25 E	N 21 24 W		
			S 46 56 E	N 46 54 W		
Thence along county boundary as delineated on Chart No. 42 to corner No. 5.						
5	38 04 40.76	76 04 14.80	S 65 04 W	N 65 03 E	2,677 5,840 6,452	Holland Island Bar Light. Fog 2. Solomons Lump Light.
			S 28 28 E	N 28 27 W		
			S 55 41 E	N 55 39 W		
Thence along county boundary as delineated on Chart No. 42 to corner No. 1.						

## Survey of Oyster Bars, Dorchester County, Md.

 HOLLAND STRAITS.  
 (Holland Straits—Chart No. 42.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 05 14.62	76 04 36.82	N 14 01 W	S 14 02 E	Yards. 4,132	Holland Island Church Spire.
			S 39 01 W	N 39 01 E	2,923	Holland Island Bar Light.
			S 51 03 E	N 51 02 W	7,607	Solomons Lump Light.
2	38 05 45.06	76 05 15.10	S 13 51 W	N 13 51 E	3,427	Holland Island Bar Light.
			S 49 55 E	N 49 52 W	9,067	Solomons Lump Light.
			N 0 22 E	S 0 22 W	2,951	Holland Island Church Spire.
3	38 06 20.12	76 04 58.40	N 62 42 E	S 62 44 W	7,636	Senator.
			N 13 19 W	S 13 19 E	1,849	Holland Island Church Spire.
			S 15 47 W	N 15 46 E	4,654	Holland Island Bar Light.
4	38 06 57.60	76 04 39.70	N 70 23 E	S 70 25 W	6,674	Senator.
			N 59 53 W	S 59 53 E	1,068	Holland Island Church Spire.
			S 17 04 W	N 17 04 E	6,007	Holland Island Bar Light.
5	38 07 50.85	76 04 48.22	S 28 55 W	N 28 54 E	1,441	Holland Island Church Spire.
			S 11 31 W	N 11 31 E	7,695	Holland Island Bar Light.
			N 86 06 E	S 86 08 W	6,529	Senator.
6	38 08 00.80	76 04 39.00	S 26 25 W	N 26 24 E	2,119	Holland Island Church Spire.
			S 12 18 W	N 12 17 E	8,370	Holland Island Bar Light.
			S 88 13 E	N 88 12 W	0,271	Senator.
7	38 08 10.36	76 03 50.91	S 45 02 W	N 45 01 E	3,143	Holland Island Church Spire.
			S 19 50 W	N 19 48 E	9,035	Holland Island Bar Light.
			S 84 05 E	N 84 03 W	5,014	Senator.
8	38 07 53.56	76 04 28.45	S 42 11 W	N 42 10 E	1,823	Holland Island Church Spire.
			S 15 08 W	N 15 07 E	7,905	Holland Island Bar Light.
			N 86 38 E	S 86 39 W	5,997	Senator.
9	38 06 44.38	76 04 31.24	N 66 06 E	S 66 08 W	6,630	Senator.
			N 49 30 W	S 49 32 E	1,511	Holland Island Church Spire.
			S 20 35 W	N 20 34 E	5,659	Holland Island Bar Light.
10	38 06 13.50	76 04 44.66	N 59 52 E	S 59 54 W	7,422	Senator.
			N 21 23 W	S 21 23 E	2,173	Holland Island Church Spire.
			S 20 59 W	N 20 58 E	4,558	Holland Island Bar Light.
11	38 06 03.55	76 04 48.06	N 16 01 W	S 16 02 E	2,454	Holland Island Church Spire.
			S 21 09 W	N 21 09 E	4,204	Holland Island Bar Light.
			S 44 08 E	N 44 06 W	8,961	Solomons Lump Light.
12	38 05 29.14	76 04 20.70	N 22 07 W	S 22 08 E	3,798	Holland Island Church Spire.
			S 39 26 W	N 39 25 E	3,575	Holland Island Bar Light.
			S 46 09 E	N 46 07 W	7,608	Solomons Lump Light.



BOUNDARIES OF CRAB BOTTOMS.

EXPLANATION.

The laws providing for the survey of the oyster bars of Maryland also contain a section which requires "an accurate survey of and delineation upon the maps and charts aforesaid of all bottoms of the tributaries of the Chesapeake Bay where grass grows and it is profitable to scrape for soft shell or shedder crabs, and shall have such bottoms properly designated by permanent objects on the shore, as provided hereinbefore for natural oyster beds, bars, and rocks, which said crabbing sections shall be exempt from leasing for oyster culture."

As far as is known, the crab bottoms of Maryland<sup>1</sup> were the first of their kind to be surveyed and therefore they presented a new problem, which was found to differ<sup>2</sup> in many ways from that of a survey of oyster bars.

In a general way, it can be stated that the boundaries of the crab bottoms as established by the Maryland Shell Fish Commission and delineated on the "Maryland Oyster Charts" published by the Coast and Geodetic Survey, are confined to waters between the 1-fathom contour (6 feet depth of water) and the shore line. Therefore, in most cases the mean low water line of the shore has been adopted as an inner boundary for the crab bottoms, but the same system of straight lines and numbered corners used to delineate the oyster bars has been retained for defining the off-shore water boundaries.

The boundaries of the crab bottoms of Maryland, as established by the Shell Fish Commission and shown on the Coast and Geodetic Survey charts and projections and on the "leasing charts" of the Commission, are technically defined and described by a method but little different from that used for the description of the boundaries of oyster bars.

METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all crab bottoms in each county.

*Title.*—At the top of each tabular form is given the legal name of the crab bottom to be described, and the one by which it is known and designated in the published records and on the oyster charts. The adopted name of the crab bottom is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission; and when there was no local name in common use, a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the crab bottom was located.

Underneath the name, in parentheses, is given the general locality of the crab bottom and the serial number of the "Maryland Oyster Chart," on which its legal boundaries are shown.<sup>3</sup>

*First column.*—This column, under the heading of "Corner of bottom," gives the number corresponding to the corner of the boundary as shown on the charts and to the

<sup>1</sup> Crab bottoms within the meaning of the laws of Maryland were found only in Somerset and Dorchester Counties.

<sup>2</sup> See pages 69 to 70 of "First Annual Report of Maryland Shell Fish Commission" for description of "Survey of crabbing grounds."

<sup>3</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

number on the buoy marking the actual corner of the bottom. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bottom. Where a corner of a crab bottom is identical with the corner of the boundaries of one or more other crab bottoms or oyster bars, only the number of the corner of the crab bottom being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the Commission as the primary technical definition of the location of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations of the survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>1</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes or arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bottom noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>2</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of bottom" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of Triangulation Stations."

*Notes.*—The descriptive notes relating to the shore line boundaries which appear between the descriptions of corners located on land require no explanation other than the statement that the laws of Maryland reserve to riparian owners all waters of "any creek, cove, or inlet less than one hundred yards in width at its mouth at low tide."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the crab bottoms as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey, and the "leasing charts" of the Maryland Shell Fish Commission, but as they are practically the same as those

<sup>1</sup> The mean magnetic variation for Dorchester County was 6° 00' west of north in 1911 and increasing at the rate of 5' yearly.

<sup>2</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D. C.

required for the relocation of oyster-bar boundaries, the description of the "Surveying Methods for Relocation of Boundaries" given in this publication under the heading of "Boundaries of Oyster Bars" will be sufficient to indicate several methods that can be used in the relocation of crab-bottom boundaries.

BOUNDARIES OF CRAB BOTTOMS.

FOX CREEK.

(Honga River—Chart No. 40.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 16 57.05	76 07 36.02	S 59 07 W	N 59 06 E	2,533	Windmill 2
			S 33 12 E	N 33 11 W	410	Paul.
			S 75 42 E	N 75 41 W	2,374	Duck
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 17 52.78	76 06 35.64	S 49 55 W	N 49 54 E	4,939	Windmill 2
			S 31 51 W	N 31 51 E	2,616	Paul.
			S 15 46 E	N 15 46 W	2,562	Duck.
3	38 17 55.54	76 06 27.32	S 50 42 W	N 50 41 E	5,168	Windmill 2.
			S 34 41 W	N 34 40 E	2,815	Paul.
			S 10 31 E	N 10 31 W	2,602	Duck.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 17 20.78	76 06 46.32	S 59 00 W	N 58 58 E	4,077	Windmill 2.
			S 43 49 W	N 43 48 E	1,584	Paul.
			S 35 15 E	N 35 15 W	1,697	Duck.
5	38 17 13.78	76 07 01.00	S 59 01 W	N 59 00 E	3,621	Windmill 2.
			S 37 55 W	N 37 55 E	1,149	Paul.
			S 49 59 E	N 49 59 W	1,789	Duck.

WINGATE.

(Honga River—Chart No. 40.)

1	38 16 28.08	76 06 26.00	S 10 16 E	N 10 16 W	2,138	Norman.
			N 50 39 E	S 50 39 W	569	Duck.
			N 69 46 W	S 69 46 E	1,744	Paul.
2	38 16 48.48	76 06 33.10	S 87 52 W	N 87 51 E	1,449	Paul.
			S 11 39 E	N 11 39 W	2,820	Norman.
			S 64 42 E	N 64 42 W	696	Duck.
3	38 17 13.78	76 07 01.00	S 59 01 W	N 59 00 E	3,621	Windmill 2.
			S 37 55 W	N 37 55 E	1,149	Paul.
			S 49 59 E	N 49 59 W	1,789	Duck.
4	38 17 20.78	76 06 46.32	S 59 00 W	N 58 58 E	4,077	Windmill 2.
			S 43 49 W	N 43 48 E	1,584	Paul.
			S 35 15 E	N 35 15 W	1,697	Duck.
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 16 39.67	76 06 09.46	S 80 57 W	N 80 55 E	4,531	Windmill 2.
			S 1 22 W	N 1 22 E	2,466	Norman.
			S 63 20 E	N 63 19 W	3,154	St. Thomas Church Spire.

## Survey of Oyster Bars, Dorchester County, Md.

DUCK POINT COVE.  
(Honga River—Chart No. 40.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / //	° / //	° /	° /	Yards.	
1	38 15 48.74	76 05 35.62	N 27 39 W N 56 38 W S 52 03 W	S 27 39 E S 56 39 E N 52 03 E	1,939 3,503 1,215	Duck. Paul. Norman.
2	38 16 19.95	76 05 54.86	N 30 16 W N 69 47 W S 13 57 W	S 30 16 E S 69 48 E N 13 57 E	770 2,627 1,855	Duck. Paul. Norman.
3	38 16 28.98	76 06 26.00	S 10 16 E N 50 39 E N 69 46 W	N 10 16 W S 50 39 W S 69 46 E	2,138 509 1,744	Norman. Duck. Paul.
4	38 16 39.67	76 06 09.46	S 80 57 W S 1 22 W S 63 20 E	N 80 55 E N 1 22 E N 63 10 W	4,531 2,466 3,154	Windmill 2. Norman. St. Thomas Church Spire.
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 16 44.75	76 05 19.00	S 82 43 W S 81 20 W S 27 59 W	N 82 43 E N 81 18 E N 27 58 E	1,352 5,884 2,986	Duck. Windmill 2. Norman.
6	38 16 38.01	76 05 11.42	N 87 55 W S 83 45 W S 33 38 W	S 87 56 E N 83 42 E N 33 37 E	1,544 6,053 2,893	Duck. Windmill 2. Norman.
Thence from corner No. 6 along the mean low-water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 16 12.97	76 04 48.16	N 67 23 W N 74 55 W S 54 49 W	S 67 24 E S 74 56 E N 54 49 E	2,341 4,389 2,717	Duck. Paul. Norman.
8	38 16 03.79	76 04 45.18	N 61 38 W N 71 25 W S 61 22 W	S 61 39 E S 71 26 E N 61 21 E	2,546 4,555 2,620	Duck. Paul. Norman.
Thence from corner No. 8 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

## JENNY ISLAND.

(Hooper Strait—Charts Nos. 40 and 41.)

1	38 13 13.92	76 03 13.52	S 70 42 E N 84 23 E N 70 25 W	N 70 40 W S 84 24 W S 70 26 E	6,774 2,064 2,247	Sharkfin Shoal Light. Head. Hooper Strait Light.
2	38 13 22.80	76 03 51.18	N 67 53 W N 81 11 W S 31 37 W	S 67 53 E S 81 13 E N 31 36 E	1,204 7,327 4,844	Hooper Strait Light. Applegarth. Okahanikan.
3	38 13 52.32	76 04 14.88	N 88 53 W S 41 48 W S 20 26 W	S 88 55 E N 41 47 E N 20 25 E	6,611 727 5,464	Applegarth. Hooper Strait Light. Okahanikan.
4	38 14 06.46	76 04 02.62	S 87 08 W S 38 31 W S 21 46 W	N 87 05 E N 38 30 E N 21 45 E	6,944 1,302 6,026	Applegarth. Hooper Strait Light. Okahanikan.
Thence from corner No. 4 along the mean low water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 13 24.50	76 03 00.86	N 80 49 W N 82 55 W S 42 50 W	S 80 50 E S 82 58 E N 42 51 E	2,486 8,644 5,703	Hooper Strait Light. Applegarth. Okahanikan.

OKAHANIKAN.

(Hooper Strait—Charts Nos. 40, 41, and 42.)

Corner of bot-tom.	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / '	° / '		
1	38 11 40.58	76 05 25.20	N 19 34 E	S 19 34 W	Yards. 4, 139 6, 586 678	Hooper Strait Light. Applegarth. Okahanikan.
			N 46 02 W	S 46 03 E		
			S 3 05 W	N 3 05 E		
2	38 11 53.24	76 05 37.34	N 26 12 E	S 26 13 W	3, 870 6, 057 1, 142	Hooper Strait Light. Applegarth. Okahanikan.
			N 46 49 W	S 46 50 E		
			S 14 33 E	N 14 33 W		
3	38 12 54.98	76 03 37.04	S 77 10 E	N 77 07 W	7, 199 2, 808 2, 040	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 72 35 E	S 72 37 W		
			N 46 59 W	S 47 00 E		
4	38 12 34.28	76 03 38.26	S 82 43 E	N 82 40 W	7, 108 3, 118 2, 548	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 60 26 E	S 60 27 W		
			N 34 55 W	S 34 56 E		
Thence from corner No. 4 along the mean low water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

GRASSY.

(Hooper Strait—Charts Nos. 40 and 41.)

1	38 12 20.54	76 03 02.14	S 85 53 E	N 85 51 W	6, 107 2, 660 3, 517	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 41 11 E	S 41 12 W		
			N 43 28 W	S 43 29 E		
Thence from corner No. 1 along the mean low water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 12 34.28	76 03 38.26	S 82 43 E	N 82 40 W	7, 108 3, 118 2, 548	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 60 26 E	S 60 27 W		
			N 34 55 W	S 34 56 E		

BISHOP HEAD.

(Hooper Strait—Chart No. 41.)

1	38 12 22.84	76 01 56.04	S 83 14 W	N 83 12 E	4, 362 1, 925 4, 856	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 0 12 W	S 0 12 E		
			N 59 22 W	S 59 23 E		
2	38 12 36.16	76 02 02.08	S 77 54 E	N 77 52 W	4, 595 1, 484 4, 498	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 5 57 E	S 5 57 W		
			N 63 15 W	S 63 17 E		
3	38 12 48.03	76 02 15.00	S 74 15 E	N 74 13 W	5, 025 1, 184 4, 017	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 24 50 E	S 24 50 W		
			N 66 08 W	S 66 10 E		
4	38 12 58.42	76 02 26.23	S 71 32 E	N 71 30 W	5, 413 1, 076 3, 668	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 47 41 E	S 47 41 W		
			N 69 18 W	S 69 19 E		

## Survey of Oyster Bars, Dorchester County, Md.

## BISHOP HEAD—Continued.

(Hooper Strait—Chart No. 41)—Continued.

Corner of bottom.	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
5	38 13 04.22	76 02 32.48	S 70 11 E N 61 11 E N 71 24 W	N 70 09 W S 61 12 W S 71 25 E	5,635 1,098 3,387	Sharkfin Shoal Light. Head. Hooper Strait Light.
6	38 13 13.92	76 03 13.52	S 70 42 E N 84 23 E N 70 25 W	N 70 40 W S 84 24 W S 70 26 E	6,774 2,064 2,247	Sharkfin Shoal Light. Head. Hooper Strait Light.
7	38 13 24.50	76 03 00.86	N 80 49 W N 82 55 W S 42 50 W	S 80 50 E S 82 58 E N 42 51 E	2,486 8,644 5,703	Hooper Strait Light. Applegarth. Okahanikan.
Thence from corner No. 7 along the mean low-water line of the shore to corner No. 8, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
8	38 12 53.00	76 01 56.41	S 70 34 E N 0 11 E N 70 43 W	N 70 33 W S 0 11 W S 70 45 E	4,604 908 4,416	Sharkfin Shoal Light. Head. Hooper Strait Light.
9	38 12 57.84	76 01 40.72	S 66 39 E N 72 00 E N 29 06 W	N 66 37 W S 72 03 W S 29 06 E	4,275 7,982 852	Sharkfin Shoal Light. Frog. Head.
10	38 12 24.96	76 01 41.42	S 81 33 E N 12 03 W N 62 15 W	N 81 32 W S 12 04 E S 62 17 E	3,086 1,895 5,160	Sharkfin Shoal Light. Head. Hooper Strait Light.

## BLOODSWORTH ISLAND.

(Hooper Strait—Charts Nos. 41 and 42.)

1	38 10 56.72	76 01 30.98	N 56 54 E N 7 56 W N 42 02 W	S 56 55 W S 7 57 E S 42 03 E	4,375 4,875 7,237	Sharkfin Shoal Light. Head. Hooper Strait Light.
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 12 20.54	76 03 02.14	S 85 53 E N 41 11 E N 43 28 W	N 85 51 W S 41 12 W S 43 29 E	6,107 2,660 3,517	Sharkfin Shoal Light. Head. Hooper Strait Light.
3	38 12 24.55	76 02 57.30	S 84 30 E N 41 00 E N 46 31 W	N 84 28 W S 41 00 W S 46 32 E	5,990 2,474 3,513	Sharkfin Shoal Light. Head. Hooper Strait Light.
4	38 12 12.66	76 02 41.75	S 88 13 E N 28 04 E N 46 26 W	N 88 11 W S 28 04 W S 46 27 E	5,551 2,570 4,088	Sharkfin Shoal Light. Head. Hooper Strait Light.
5	38 11 40.82	76 02 00.26	N 78 31 E N 1 48 E N 46 15 W	S 78 33 W S 1 48 W S 46 14 E	4,535 3,343 5,627	Sharkfin Shoal Light. Head. Hooper Strait Light.
6	38 11 25.80	76 01 22.21	N 67 41 E N 13 16 W N 49 07 W	S 67 42 W S 13 16 E S 49 09 E	3,709 3,953 6,717	Sharkfin Shoal Light. Head. Hooper Strait Light.

GREAT COVE.

(Upper Tangier Sound—Charts Nos. 41 and 42.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 08 50.58	76 01 53.42	S 32 59 W	N 32 56 E	Yards. 11,384 6,653 2,431	Holland Island Bar Light. Miles. Senator.
			S 20 28 E	N 20 27 W		
			S 49 51 E	N 49 50 W		
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 10 56.72	76 01 30.98	N 56 54 E	S 56 55 W	4,375 4,875 7,237	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 7 56 W	S 7 57 E		
			N 42 02 W	S 42 03 E		
3	38 11 25.80	76 01 22.21	N 67 41 E	S 67 42 W	3,709 3,953 6,717	Sharkfin Shoal Light. Head. Hooper Strait Light.
			N 13 16 W	S 13 16 E		
			N 49 07 W	S 49 09 E		
4	38 11 25.80	76 00 45.38	S 88 22 E	N 88 19 W	6,861 2,828 4,286	Room. Sharkfin Shoal Light. Head.
			N 60 06 E	S 60 07 W		
			N 26 07 W	S 26 08 E		
5	38 11 25.83	76 00 19.40	S 88 11 E	N 88 07 W	6,170 2,255 4,630	Room. Sharkfin Shoal Light. Head.
			N 51 20 E	S 51 21 W		
			N 33 50 W	S 33 51 E		
6	38 10 15.54	75 59 41.40	N 11 13 E	S 11 13 W	3,853 2,587 4,732	Sharkfin Shoal Light. Crab. Senator.
			N 77 45 W	S 77 46 E		
			S 20 31 W	N 20 30 E		
7	38 09 26.74	76 00 23.48	S 10 55 W	N 10 55 E	2,838 5,546 2,607	Senator. Deal Island Church. Crab.
			S 87 10 E	N 87 07 W		
			N 32 41 W	S 32 41 E		
Thence along county boundary as delineated on Chart Nos. 41 and 42 to corner No. 1.						

NORTHEAST ISLAND.

(Holland Straits—Chart No. 42.)

1	38 08 19.36	76 03 50.91	S 45 02 W	N 45 01 E	3,143 9,035 5,014	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 19 50 W	N 19 48 E		
			S 84 05 E	N 84 03 W		
2	38 08 56.20	76 04 11.50	S 25 49 W	N 25 48 E	3,847 10,062 5,808	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 14 29 W	N 14 28 E		
			S 72 22 E	N 72 20 W		
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 09 16.60	76 04 28.12	S 16 32 W	N 16 32 E	4,330 10,634 6,460	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 11 14 W	N 11 14 E		
			S 67 44 E	N 67 42 W		
4	38 09 30.80	76 04 19.64	S 17 29 W	N 17 29 E	4,853 11,148 6,453	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 11 54 W	N 11 53 E		
			S 63 03 E	N 63 00 W		
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 08 49.36	76 03 08.60	S 46 02 W	N 46 00 E	4,657 10,395 4,151	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 23 18 W	N 23 17 E		
			S 68 25 E	N 68 24 W		

## Survey of Oyster Bars, Dorchester County, Md.

## ADAM ISLAND.

(Holland Straits—Chart No. 42.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 08 09.80	76 04 39.00	S 26 25 W	N 26 24 E	Yards. 2,119	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 12 18 W	N 12 17 E	8,370	
			S 88 13 E	N 88 12 W	6,271	
2	38 08 16.36	76 05 08.96	S 6 41 W	N 6 41 E	8,457	Holland Island Bar Light. Holland Island Church Spire. Senator.
			S 3 54 W	N 3 54 E	2,125	
			S 86 38 E	N 86 35 W	7,078	
Thence from corner No. 2 along the mean low water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 09 14.66	76 05 14.00	S 0 09 W	N 0 09 E	4,081	Holland Island Church Spire. Senator. Okahanikan.
			S 71 42 E	N 71 39 W	7,584	
			N 4 31 W	S 4 31 E	4,255	
4	38 09 23.78	76 05 09.08	S 1 51 W	N 1 51 E	4,395	Holland Island Church Spire. Senator. Okahanikan.
			S 69 10 E	N 69 07 W	7,563	
			N 6 45 W	S 6 45 E	3,962	
Thence from corner No. 4 along the mean low water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 09 30.80	76 04 19.64	S 17 29 W	N 17 29 E	4,853	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 11 54 W	N 11 53 E	11,148	
			S 63 03 E	N 63 00 W	6,453	
6	38 09 16.60	76 04 28.12	S 16 32 W	N 16 32 E	4,330	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 11 14 W	N 11 14 E	10,634	
			S 67 44 E	N 67 42 W	6,460	
Thence from corner No. 6 along the mean low water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 08 56.20	76 04 11.50	S 25 49 W	N 25 48 E	3,847	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 14 29 W	N 14 28 E	10,062	
			S 72 22 E	N 72 20 W	5,808	
8	38 08 19.36	76 03 50.91	S 45 02 W	N 45 01 E	3,143	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 19 50 W	N 19 48 E	9,035	
			S 84 05 E	N 84 03 W	5,014	

## SPRING ISLAND (DORCHESTER COUNTY).

(Holland Straits—Chart No. 42.)

1	38 06 39.86	76 03 17.80	S 37 30 W	N 37 28 E	6,484	Holland Island Bar Light. Miles. Senator.
			S 68 15 E	N 68 13 W	4,926	
			N 55 19 E	S 55 20 W	4,992	
2	38 07 24.24	76 03 49.60	S 80 53 W	N 80 52 E	2,288	Holland Island Church Spire. Holland Island Bar Light. Senator.
			S 25 01 W	N 25 00 E	7,329	
			N 74 50 E	S 74 52 W	5,131	
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						



SPRING ISLAND (DORCHESTER COUNTY)—Continued.

(Holland Straits—Chart No. 42)—Continued.

Corner of bottom.	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
3	38 07 57.56	76 03 57.44	S 54 04 W	N 54 03 E	Yards. 2,532	Holland Island Church Spire.
			S 20 25 W	N 20 24 E	8,286	Holland Island Bar Light.
			N 87 34 E	S 87 36 W	5,166	Senator.
4	38 08 19.36	76 03 50.91	S 45 02 W	N 45 01 E	3,143	Holland Island Church Spire.
			S 19 50 W	N 19 48 E	9,035	Holland Island Bar Light.
			S 84 05 E	N 84 03 W	5,014	Senator.
5	38 08 49.36	76 03 08.60	S 46 02 W	N 46 00 E	4,657	Holland Island Church Spire.
			S 23 18 W	N 23 17 E	10,395	Holland Island Bar Light.
			S 68 25 E	N 68 24 W	4,151	Senator.
Thence from corner No. 5 along the mean low-water line of the shore to corner No. 6, excluding any creek cove, or inlet less than 100 yards in width at its mouth at low tide.						
6	38 08 50.58	76 01 53.42	S 32 59 W	N 32 56 E	11,384	Holland Island Bar Light.
			S 20 28 E	N 20 27 W	6,653	Miles.
			S 49 51 E	N 49 50 W	2,431	Senator.
Thence along county boundary as delineated on Chart No. 42 to corner No. 1.						

HOLLAND ISLAND.

(Holland Straits—Chart No. 42)

1	38 06 20.12	76 04 58.40	N 62 42 E	S 62 44 W	7,636	Senator.
			N 13 19 W	S 13 19 E	1,849	Holland Island Church Spire.
			S 15 47 W	N 15 46 E	4,654	Holland Island Bar Light.
2	38 06 36.42	76 05 31.58	S 4 20 W	N 4 20 E	5,044	Holland Island Bar Light.
			N 68 56 E	S 68 59 W	8,217	Senator.
			N 20 07 E	S 20 06 W	1,332	Holland Island Church Spire.
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 08 06.56	76 05 27.80	S 3 25 W	N 3 25 E	8,083	Holland Island Bar Light.
			S 11 17 E	N 11 17 W	1,824	Holland Island Church Spire.
			S 89 21 E	N 89 18 W	7,568	Senator.
4	38 08 16.36	76 05 08.96	S 6 41 W	N 6 41 E	8,457	Holland Island Bar Light.
			S 3 54 W	N 3 54 E	2,125	Holland Island Church Spire.
			S 86 38 E	N 86 35 W	7,078	Senator.
5	38 08 09.80	76 04 39.00	S 26 25 W	N 26 24 E	2,119	Holland Island Church Spire.
			S 12 18 W	N 12 17 E	8,370	Holland Island Bar Light.
			S 88 13 E	N 88 12 W	6,271	Senator.
6	38 07 50.85	76 04 48.22	S 28 55 W	N 28 54 E	1,441	Holland Island Church Spire.
			S 11 31 W	N 11 31 E	7,695	Holland Island Bar Light.
			N 86 06 E	S 86 08 W	6,529	Senator.
7	38 06 57.60	76 04 39.70	N 70 23 E	S 70 25 W	6,674	Senator.
			N 59 53 W	S 59 53 E	1,068	Holland Island Church Spire.
			S 17 04 W	N 17 04 E	6,007	Holland Island Bar Light.

## Survey of Oyster Bars, Dorchester County, Md.

## PRY ISLAND.

(Holland Straits—Chart No. 42.)

Corner of bottom.	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 05 44.11	76 03 44.60	S 44 43 W S 15 12 E S 38 05 E	N 44 42 E N 15 11 W N 38 03 W	4,594 7,546 7,318	Holland Island Bar Light. Fog 2. Solomons Lump Light.
2	38 06 13.50	76 04 44.66	N 59 52 E N 21 23 W S 20 59 W	S 59 54 W S 21 23 E N 20 58 E	7,422 2,173 4,558	Senator. [Spire. Holland Island Church Holland Island Bar Light.
3	38 06 44.38	76 04 31.24	N 66 06 E N 49 30 W S 20 35 W	S 66 08 W S 49 32 E N 20 34 E	6,630 1,511 5,659	Senator. [Spire. Holland Island Church Holland Island Bar Light.
4	38 07 53.56	76 04 28.45	S 42 11 W S 15 08 W N 86 38 E	N 42 10 E N 15 07 E S 86 39 W	1,823 7,905 5,997	Holland Island Church Spire. Holland Island Bar Light. Senator.
5	38 08 19.36	76 03 50.91	S 45 02 W S 19 50 W S 84 05 E	N 45 01 E N 19 48 E N 84 03 W	3,143 9,035 5,014	Holland Island Church Spire. Holland Island Bar Light. Senator.
6	38 07 57.56	76 03 57.44	S 54 04 W S 20 25 W N 87 34 E	N 54 03 E N 20 24 E S 87 36 W	2,532 8,286 5,166	Holland Island Church Spire. Holland Island Bar Light. Senator.
Thence from corner No. 6 along the mean low water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 07 24.24	76 03 49.60	S 80 53 W S 25 01 W N 74 50 E	N 80 52 E N 25 00 E S 74 52 W	2,288 7,329 5,131	Holland Island Church Spire. Holland Island Bar Light. Senator.
8	38 06 39.86	76 03 17.80	S 37 30 W S 68 15 E N 55 19 E	N 37 28 E N 68 13 W S 55 20 W	6,484 4,926 4,992	Holland Island Bar Light. Miles. Senator.
Thence along county boundary as delineated on Chart No. 42 to corner No. 1.						

## APPENDIXES.

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### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey, and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*

SEC. 4. That this act shall take effect from the date of its passage.

*Survey of Oyster Bars, Dorchester County, Md.*

[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven. \* \* \*

[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

[Act of Congress approved March 4, 1909.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and ten, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and ten, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

[Act of Congress approved June 25, 1910.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eleven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eleven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, fifteen thousand dollars.

[Act of Congress approved March 4, 1911.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and twelve, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects herein-after expressed, for the fiscal year ending June thirtieth, nineteen hundred and twelve, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, thirteen thousand dollars \* \* \*

[Act of the Legislature of Maryland approved April 2, 1906.]

AN ACT To establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis, and the said commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie \* \* \*.

SEC. 87. The governor of this State is hereby requested to ask the assistance of the United States Coast and Geodetic Survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

\* \* \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States Coast and Geodetic Survey and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts provided in this act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the same to the clerks of the circuit court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars, and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars, or rocks lying within the waters of the counties wherein such report and survey are filed other than those embraced in the survey authorized by this act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural

oyster beds, bars, or rocks shall be construed in all the courts of the State to be barren bottoms and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this act; provided, that the said survey and report shall not be construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this act.

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the survey, is as follows:

AN ACT Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or leveling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>1</sup> *And be it enacted,* That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much dispatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses (to be by them sworn or affirmed and examined), shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees, and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of Congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted,* That if any person or persons shall wilfully injure or deface or remove any signal, monument, or building or any appendage thereto, erected, used, or constructed under and by virtue of the act of Congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first

<sup>1</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

#### APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from Second Report of Shell Fish Commission.]

##### OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland, had a twofold object in view.

1. To encourage an industry in oyster culture upon the barren bottoms beneath the tidewaters of the State.
2. To prevent the leasing of natural oyster bars for the purpose of oyster culture."

##### SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."

##### DEFINITION OF A NATURAL OYSTER BAR.

###### NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, charting and buoying them, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the Commission."

###### DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturists, may be made to yield a greater number of oysters than they now produce."

"It should be evident to every one that neither of these definitions could be adopted by the Commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

###### THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by *oystermen* on one hand and by *oyster culturists* on the other is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd *v.* Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed, and is as follows:

What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which

oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them, and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters, within the meaning of the act of assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and can not be located or appropriated by any individual.

#### APPLICATION OF DEFINITION.

Before this definition may be of use in determining, accurately and scientifically, the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors, and these factors must be combined into a practical scheme of investigating the condition of the ground under consideration.

Stated briefly, a *livelihood* is represented by a *sum of money* obtained from the sale, at a fixed *price*, of a certain *quantity of oysters* gathered in a given *time* from an allotted *area of ground*.

Knowing the value of each of these factors it becomes possible to calculate the number of oysters an oyster ground must produce per square yard in order that oystermen may secure a livelihood by working upon it.

NOTE.—The factors into which the commission resolved the livelihood problem, the value assigned to each factor, and the scheme devised for practical use in examining and applying the definition to oyster bottoms are given in outline in their second report under the heading of the preceding extract, and in detail in their first report on pages 32 to 69.

#### APPENDIX C.—SUMMARY OF THE PARTICULAR SURVEYING OPERATIONS WHICH CONSTITUTE AN "OYSTER SURVEY" AS NOW BEING CARRIED ON IN MARYLAND.

*Explanation.*—A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest practical accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

*Triangulation survey.*—Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a framework or foundation. Therefore, a triangulation survey including the permanent marking of the positions of landmarks with monuments and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

*Topographic survey.*—The technical records which establish the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making



resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the leasable bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore, a topographic survey is a necessary operation of a complete oyster survey.

*Hydrographic survey.*—In the settlement of the important question of what is, or what is not, a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore, a hydrographic survey is a necessary operation of a complete oyster survey.

*Necessary foundation for an oyster survey.*—Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

*Special surveys and investigations pertaining to oysters.*—Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>1</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding boat party in addition to the usual hydrographic work.<sup>2</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells, or absence of shells.

The special oyster investigations<sup>3</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affects the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

*Preparation of results.*—The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>4</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for publication by the Government, the preparation of that part of the annual report of the commission covering the special oyster surveys and investigations, the making of the leasing charts and finished projections, and finally the filing of the oyster charts and records with the courts and the commission, thus opening a county for oyster culture.

*Summary.*—From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> See pp. 104 to 123 of First Annual Report of Maryland Shell Fish Commission.

<sup>3</sup> See pp. 30 to 67 and 129 to 199 of First Annual Report of Maryland Shell Fish Commission.

<sup>4</sup> No mention is made here of the large amount of administrative work of the commission, which is greatly complicated and increased by the effect of the oyster-survey operations on many thousands of people whose interests are more or less involved; or of the large amount of survey work involved in the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

## Survey of Oyster Bars, Dorchester County, Md.

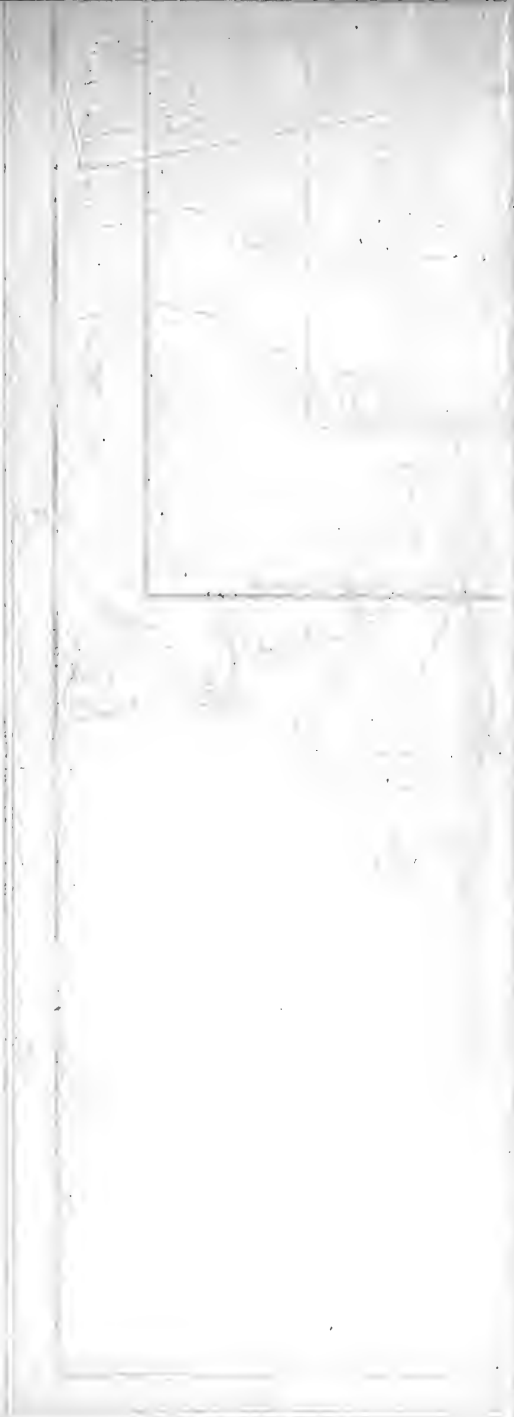
APPENDIX D.—STATISTICS OF RESULTS OF THE COMBINED OYSTER SURVEY OPERATIONS OF THE GOVERNMENT AND STATE.<sup>1</sup>

Operations.	Anne Arundel County.		Somerset County.		Wicomico County.		Worcester County.		Calvert County.		Charles County.		St. Marys County.	
	June 29, 1906	June 30, 1907	May 2, 1907	July 1, 1908	Aug. 27, 1907	Dec. 1, 1908	Nov. 8, 1907	Apr. 12, 1909	May 2, 1908	Dec. 27, 1911	Aug. 18, 1908	Jan. 27, 1911	May 6, 1911	July 6, 1911
Beginning of field work.....	91	37	37	37	15	15	28	28	41	15	15	15	15	15
Filing of certified charts and reports.....	331,577	27,906	27,906	27,906	2,038	2,038	1,953	1,953	12,303	2,285	2,285	2,285	2,285	2,285
Natural oyster bars surveyed and delineated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Acres of natural oyster bars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crab bottoms surveyed and delineated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Acres of crab bottoms.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chain beds surveyed and delineated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Acres of clam beds.....	506	506	506	506	53	53	104	104	149	51	51	51	51	51
Boundary buoys located and planted.....	362	362	362	362	78	78	48	48	78	42	42	42	42	42
Triangulation landmarks established.....	123	123	123	123	175	175	175	175	175	32	32	32	32	32
Miles of water covered by triangulation.....	435	435	435	435	44	44	131	131	150	32	32	32	32	32
Square miles of water covered by triangulation.....	435	435	435	435	240	240	250	250	250	38	38	38	38	38
Miles of examination of shell bottom with chain apparatus.....	440	440	440	440	679	679	147	147	667	113	113	113	113	113
Oyster investigation stations occupied.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tide stations established.....	4	4	4	4	3	3	1	1	2	1	1	1	1	1
Number of soundings over shell bottoms.....	37,049	37,049	37,049	37,049	3,387	3,387	3,649	3,649	11,292	1,631	1,631	1,631	1,631	1,631
Square miles covered by soundings and chain apparatus.....	58	58	58	58	3	3	3	3	30	4	4	4	4	4
Number of soundings plotted.....	13	13	13	13	2	2	5	5	5	3	3	3	3	3
Leasing charts prepared.....	4	4	4	4	2	2	2	2	5	1	1	1	1	1
Oyster charts published.....	4	4	4	4	2	2	2	2	2	2	2	2	2	2
Reports published.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Progress maps published.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Operations.														
Beginning of field work.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Filing of certified charts and reports.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Natural oyster bars surveyed and delineated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Acres of natural oyster bars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crab bottoms surveyed and delineated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Acres of crab bottoms.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chain beds surveyed and delineated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Acres of clam beds.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boundary buoys located and planted.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Triangulation landmarks established.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miles of water covered by triangulation.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Square miles of water covered by triangulation.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miles of examination of shell bottom with chain apparatus.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oyster investigation stations occupied.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tide stations established.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of soundings over shell bottoms.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Square miles covered by soundings and chain apparatus.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of soundings plotted.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leasing charts prepared.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oyster charts published.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reports published.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Progress maps published.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total. <sup>2</sup>														
Beginning of field work.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Filing of certified charts and reports.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Natural oyster bars surveyed and delineated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Acres of natural oyster bars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crab bottoms surveyed and delineated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Acres of crab bottoms.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chain beds surveyed and delineated.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
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Boundary buoys located and planted.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Triangulation landmarks established.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miles of water covered by triangulation.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Square miles of water covered by triangulation.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miles of examination of shell bottom with chain apparatus.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oyster investigation stations occupied.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tide stations established.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of soundings over shell bottoms.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Square miles covered by soundings and chain apparatus.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number of soundings plotted.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Leasing charts prepared.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oyster charts published.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reports published.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Progress maps published.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

<sup>1</sup> These statistics do not include the large amount of triangulation, topography, and hydrography resulting from previous work by the Coast and Geodetic Survey, which was utilized in the preparation of the charts and reports.

<sup>2</sup> Total area of natural oyster bars of Connecticut, 5,770 acres.

<sup>3</sup> Less quantities covered by statistics of more than one county.



1870



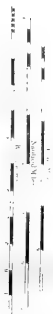
**COAST AND GEODETIC SURVEY  
 PROGRESS MAP  
 DORCHESTER COUNTY  
 MARYLAND**

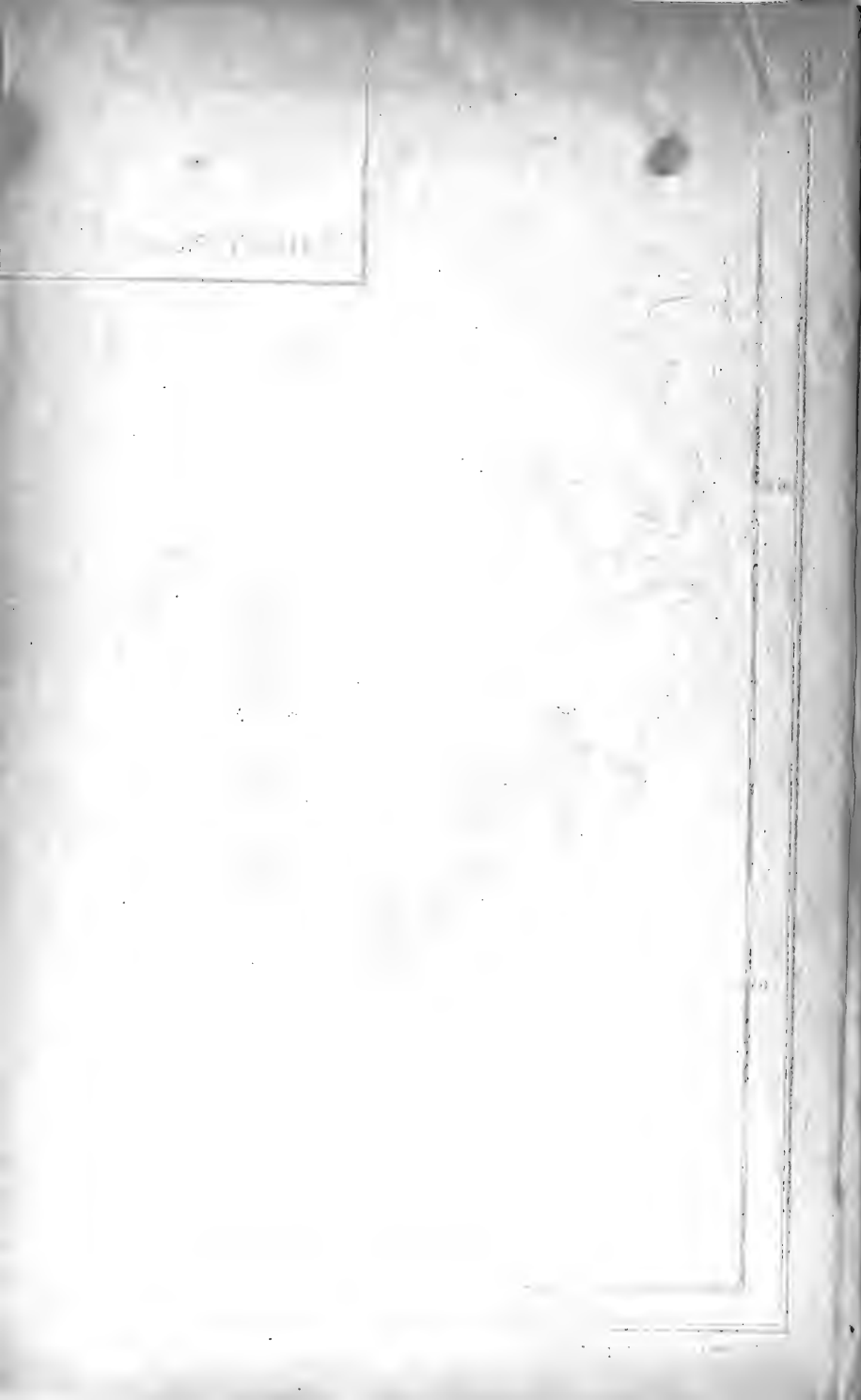
*In accompany report of work of Federal States  
 Coast and Geodetic Survey on comparison  
 with the States and S. P. H. Commission*

*1. To be used in the Survey Transposition Stations*

- Water courses, and boundaries of county
- Line of projection in the of Washington
- Line of Act of published of coast and Geodetic Survey

Scale in feet





DEPARTMENT OF COMMERCE AND LABOR

COAST AND GEODETIC SURVEY

O. H. TITTMANN, Superintendent

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# SURVEY OF OYSTER BARS

## KENT COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND  
REPORT OF WORK OF UNITED STATES COAST  
AND GEODETIC SURVEY IN COOPERATION  
WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND  
SHELL FISH COMMISSION

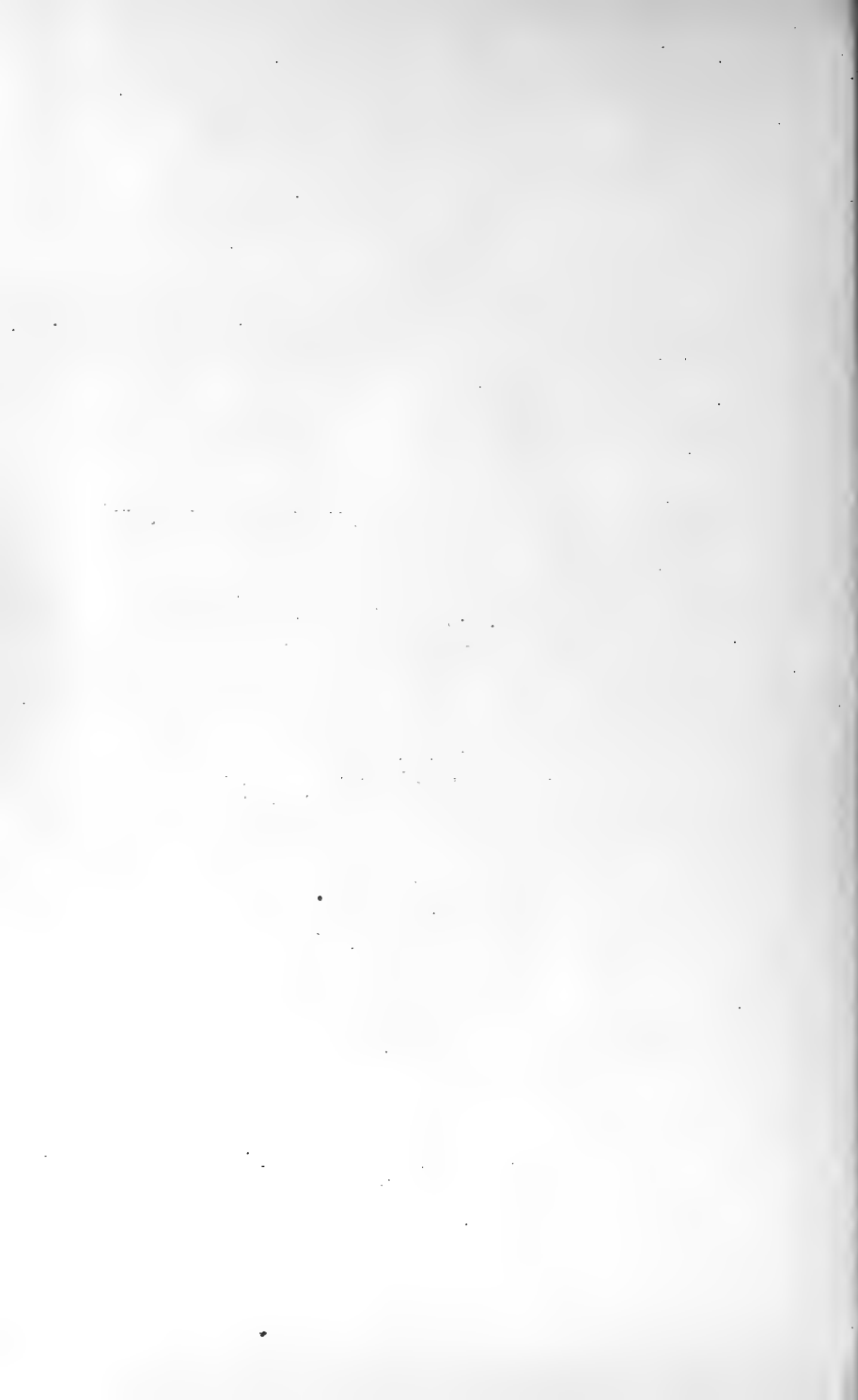
By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE

1912





## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,

*Washington, October 5, 1911.*

SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, together with certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shell fish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907; 1908, 1909, 1910, 1911, and 1912.

Respectfully,

O. H. TRITTMANN, *Superintendent.*

To HON. CHARLES NAGEL,  
*Secretary of Commerce and Labor.*

CHAPTER 10. THE CONSTITUTION

The Constitution is the supreme law of the land. It is the framework for the government and the rights of the people. It is the foundation of our democracy. The Constitution is the law that governs the government and the people. It is the law that defines the powers of the government and the rights of the people. It is the law that is the basis of our legal system. The Constitution is the law that is the basis of our government. It is the law that is the basis of our society. It is the law that is the basis of our future.

## CERTIFICATION.

---

BALTIMORE, MD., *October 4, 1911.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in Kent County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,

*Chief of Coast and Geodetic Survey Party,*

*Assistant, Coast and Geodetic Survey.*

---

Examined and certified to be correct.

BALTIMORE, MD., *October 4, 1911.*

WALTER J. MITCHELL,

CASWELL GRAVE,

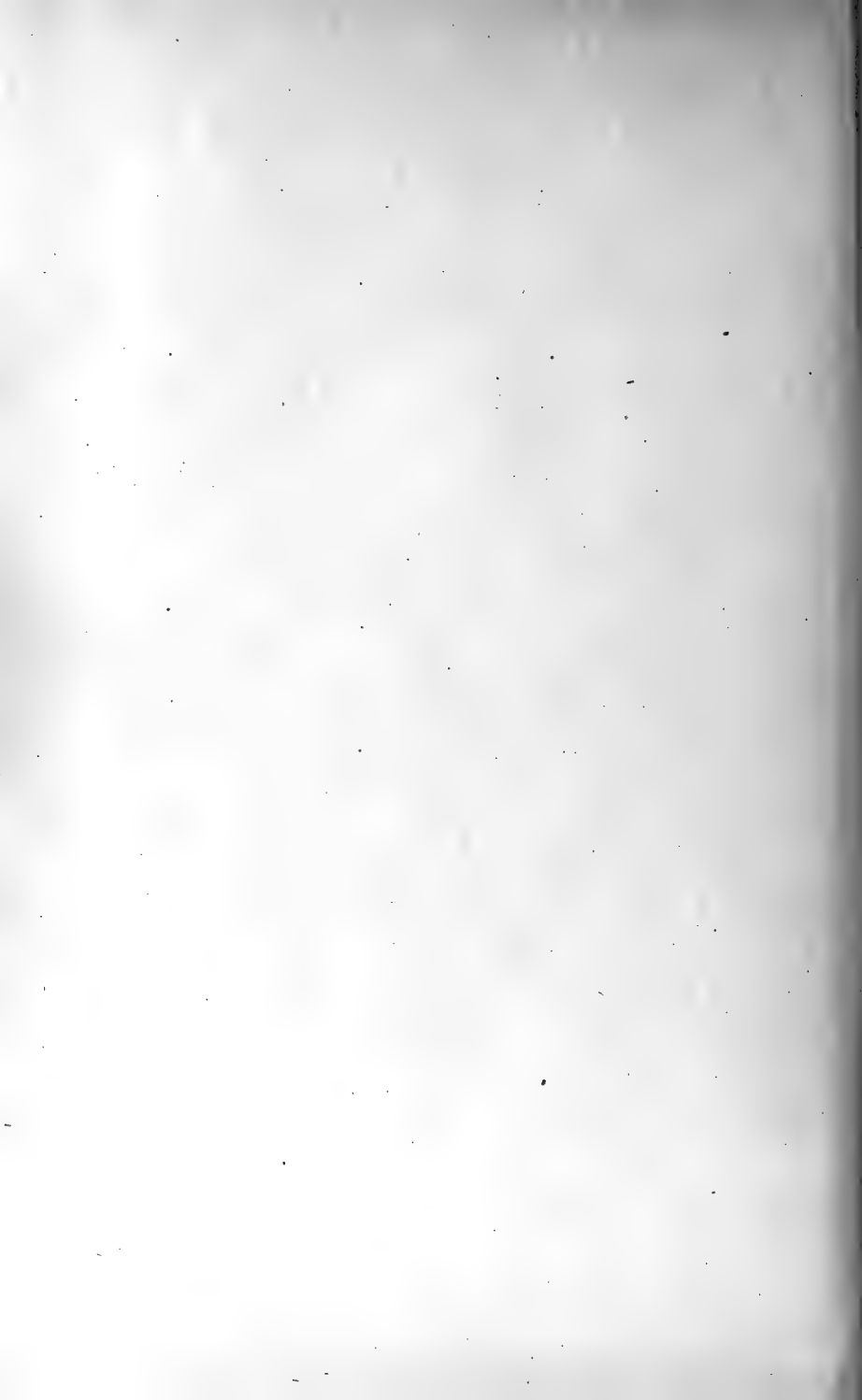
BENJAMIN K. GREEN,

*Maryland Shell Fish Commission.*

SWEPSON EARLE,

*Hydrographic Engineer.*

NOTE.—Certified copies of this publication and of the charts of the natural oyster bars of Kent County were filed in the office of the clerk of the circuit court of Kent County and in the office of the Board of Shell Fish Commissioners on October 5, 1911.



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## Boundaries of natural oyster bars—Continued.

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# SURVEY OF OYSTER BARS, KENT COUNTY, MD.

## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws<sup>1</sup> authorizing the work and the natural division of the surveying operations<sup>2</sup> of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consist of a series of charts and a technical report for each county surveyed.<sup>3</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey in charge of the work of that service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.<sup>4</sup>

The publications prepared and issued by the State under the direction of the Shell Fish Commission consist of annual reports<sup>5</sup> of all the operations of the Commission performed under the provisions of the laws of Maryland,<sup>6</sup> including results of biological

<sup>1</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>2</sup> See Appendix C for a summary of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland.

<sup>3</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C. The publications now ready for issue are those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, St. Marys, Baltimore, and Kent Counties.

<sup>4</sup> The technical records and charts for each county are published separately, on account of the requirements of the oyster-culture laws of the State and the practical considerations which make it desirable to have each county "opened up" for oyster culture as soon as practicable after the completion of its survey. For these reasons and the fact that these reports are each arranged for distribution and use in one county only without reference to other published records, much of the text of this publication is of necessity identical with similar previous publications for other counties.

<sup>5</sup> These reports can be obtained by application to the Shell Fish Commission, Marine Bank Building, Baltimore, Md. They are issued annually in October, and the first, second, and third reports are now available for distribution.

<sup>6</sup> See Appendix B for an extract from the "Second Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman Oyster Culture Law."

and economic oyster investigations, methods and results of the hydrographic survey of the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.<sup>1</sup>

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential as a foundation for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>2</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the Bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL STATEMENT OF WORK OF COAST AND GEODETIC SURVEY.<sup>3</sup>

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need very little other summary than is indicated by the published "Charts of Natural Oyster Bars" and the index of hydrographic projections and triangulation stations shown on the county progress maps attached to each report.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, Assistant, Bureau of Fisheries.

<sup>3</sup> For a detail statement of the very large amount of excellent oyster-survey work of the Maryland Shell Fish Commission see the "Annual Reports of the Maryland Shell Fish Commission."

The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars, but also to the Government for any future work it may do in the regions covered by the oyster-survey operations.

The hydrographic projections and published charts are prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various shell-fish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to and permanently fixed by published technical descriptions which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way, and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County":

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last 65 years.

REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY IN  
KENT COUNTY.

INSTRUCTIONS.

The following letters, together with the laws<sup>1</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the survey at Washington, have proved very beneficial to the work and are greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

His Excellency HON. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

LAWRENCE O. MURRAY, *Assistant Secretary.*

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the Commissioners, prepare a programme of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. and G. S. Steamer Endeavor, Baltimore, Md.*

<sup>1</sup> For these laws see Appendix A.

## ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the field and the preparation for publication of oyster charts and technical records in the office at Washington.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster*, the Coast and Geodetic Survey party has had the constant use of the large steam launch *Inspector* and several other boats furnished by its own service, and the occasional use of the Bureau of Fisheries launch *Canvasback*<sup>1</sup> and the steamer *Governor McLane*<sup>2</sup> of the State fishery force.

The greater part of the equipment of instruments for the operations of both the Government and State has been furnished by the Coast and Geodetic Survey and consists of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

## CHRONOLOGICAL STATEMENT OF WORK.

The field work of the Coast and Geodetic Survey in Kent County<sup>3</sup> dates from April 14, 1909, when the Maryland Shell Fish Commission house boat *Oyster* was moved from her winter quarters at Baltimore to an anchorage off Rock Hall Landing in Kent County. The surveying operations carried on from this harbor covered a period of about six weeks in which practically all triangulation was completed on the Chesapeake Bay shores of both Kent and Baltimore Counties as well as a considerable part of the same class of work in the mouth of Chester River in both Kent and Queen Annes counties.

On May 26, 1909, the *Oyster* was moved from Rock Hall Landing to an anchorage in the upper part of Chester River near Cliffs Landing where she remained for a little over a month.

On June 30, 1909, the house boat was moved to a temporary anchorage off Queens-town in the lower Chester River. This date marked the practical completion of the work in Chester River, the triangulation of which was especially notable for the month of June on account of there having been 92 triangulation stations established which were all marked by monuments and signals, locations described, and then occupied for theodolite observations.

On July 1, 1909, the house boat *Oyster* was towed by the State steamer *Governor McLane* to Baltimore Harbor, where the following four days, which included a Sunday and a holiday, were spent in taking on coal, water, and other supplies.

<sup>1</sup> By courtesy of Dr. H. F. Moore, United States Bureau of Fisheries.

<sup>2</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>3</sup> The field work of Kent, Baltimore, and Queen Annes counties was so intermixed that the chronological statement of the work of one of these counties necessarily includes a considerable part of the work of the other two counties.

On July 6, 1909, the *Governor McLane* again moved the *Oyster*, this time from Baltimore to an anchorage in Queen Annes County in the Eastern Bay entrance of Kent Narrows. From this harbor as headquarters a few additional triangulation observations were made in Kent County although the greater part of work while the house boat was at this anchorage was confined to Queen Annes and Talbot counties.

On July 22, 1909, the house boat was again moved to the vicinity of Rock Hall Landing to complete certain oyster survey operations not finished when the *Oyster* was anchored there in the spring.

On August 5, 1909, the house boat was towed to Worton Creek which is located at the extreme northern limit of oyster growth in Chesapeake Bay. From this harbor all the remaining oyster survey work of the Coast and Geodetic Survey in both Kent and Baltimore counties was completed, although some weeks later a Maryland Shell Fish Commission party returned to these counties to finish certain oyster investigations and hydrographic observations.

The office work connected with the "oyster survey" of Kent County, including compilations of geographic information and drafting necessary for the preparation for publication of the oyster charts and the technical records, was continued intermittently with the office work of other counties from the beginning of the field work in Kent County to the time of filing of the certified oyster charts and technical reports in the archives of the Shell Fish Commission and with the clerk of the circuit court of Kent County on October 5, 1911.

#### STATISTICS.<sup>1</sup>

Landmarks and triangulation signals erected.....	135
Monuments planted to mark triangulation stations.....	133
Triangulation stations occupied for observations of horizontal angles.....	133
Old triangulation stations recovered.....	20
New triangulation stations established.....	127
Total old and new triangulation stations marked and described.....	147
Linear miles of shore line covered by triangulation (approximate).....	110
Square miles covered by triangulation (approximate).....	130
Hydrographic projections prepared and completed as records of oyster boundaries.....	10
Triangles computed.....	270
Geographic positions computed.....	132
Corners of oyster boundaries established by computation.....	271
Back azimuths and distances computed from corners of boundaries to triangulation stations.....	813
Descriptions of triangulation stations prepared for publication.....	147
Descriptions of oyster boundaries prepared for publication.....	64
"Charts of Natural Oyster Bars" prepared for publication.....	3
Progress map prepared for publication.....	1

<sup>1</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of Kent County, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the Commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland. See Appendix D of this publication for "Statistics of results of combined operations of the Government and the State."



GENERAL REMARKS.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore, of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unflinching tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the Commission, who, as editor of the Commission's annual report and Commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Mr. Benjamin K. Green, treasurer of the Commission, who has looked after the equipment and commissary of the house boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Mr. Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

And to the many others connected with the Commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

## CHARTS AND MAPS.

### CHARTS OF NATURAL OYSTER BARS.

The charts<sup>1</sup> of the natural oyster bars of Kent County, published by the Coast and Geodetic Survey from results of surveys of the Government in cooperation with the Maryland Shell Fish Commission, consist of three sheets covering a portion of the waters of Chesapeake Bay and all of Chester River, including all oyster-producing bottoms of Kent County. They are published on a scale of 1 part in 20,000 (approximately  $3\frac{1}{4}$  inch to a statute mile) and are constructed on polyconic projections and based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars and other boundaries established by the Commission, and are certified for the purpose of filing in the office of the clerk of the Circuit Court of Kent County and in the office of the Commission, as required by the oyster laws of Maryland.

In addition to the oyster bar and other boundaries, the charts show the location and name of all landmarks (U. S. Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography<sup>2</sup> necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the heading "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a particular oyster bar or landmark which is only known by name, consult the "Contents" and the desired chart and general location will be indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> Much of the detail of the inshore topography was obtained from the excellent map of Kent County, prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the U. S. Geological Survey.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shell fish industries. The 1-fathom contour (6 feet) and the 5-fathom curve (30 feet) correspond in a general way to the inner and outer limits of all the oyster bars surveyed. The 3-fathom contour (18 feet) furnishes the curve of about the average depth of water on the oyster bars and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" and the boundaries of the "waters contiguous to the county" opened up for the leasing with Kent County are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart within the boundaries of the different shell fish bottoms.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Kent County, like those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, St. Marys, and Baltimore counties, have been prepared under the direction of the hydrographic engineer of the Commission. They are constructed on polyconic projections which are based on the United States standard datum of the Coast and Geodetic Survey, and are made on the scales of 1 part in 5,000 or 1 part in 10,000 as the needs of oyster culture may require.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts have been divided by parallels of latitude and meridians of longitude into small rectangles of 1 acre or 5 acres, as may be best suited to the area under consideration, and prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as possible.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in the Marine Bank Building at Baltimore.

## PROJECTIONS.

The polyconic projections<sup>1</sup> covering Kent County waters are 10 in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, but the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission were plotted by the draftsman of the Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore lines, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster-bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the archives of the Shell Fish Commission.

## PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the United States Coast and Geodetic Survey in Kent County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress maps<sup>2</sup> accompanying the first and second annual reports of the Maryland Shell Fish Commission were prepared under the direction of the hydrographic engineer of the Commission. They are on the scale of 1 part in 400,000, and show the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey.

<sup>1</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>2</sup> These maps and reports can be obtained by application to Maryland Shell Fish Commission, Marine Bank Building, Baltimore, Md.

## BOUNDARIES OF THE COUNTY WATERS.<sup>1</sup>

### WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>2</sup> between the waters "within the territorial limits" of Kent County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the "oyster" charts and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:

Following the boundary line between Kent County and Cecil County along the middle of Sassafras River as laid down on the "Progress map" accompanying the report of "Survey of Oyster Bars, Kent County, Maryland," to a point defined by the intersection of this boundary line with a straight line across the mouth of Sassafras River defined by a point at its northern extremity situated on the northern side of Sassafras River in latitude  $39^{\circ} 23' 15''.0$  and longitude  $76^{\circ} 02' 22''.5$  and by a point at its southern extremity situated on the southern side of Sassafras River in latitude  $39^{\circ} 22' 15''.6$  and longitude  $76^{\circ} 03' 24''.0$ ; thence along a straight line across the southern part of the mouth of Sassafras River to a point situated on the southern side of Sassafras River defined by latitude  $39^{\circ} 22' 15''.6$  and longitude  $76^{\circ} 03' 24''.0$ ; thence along the mean low water line or a line across the mouth of all inlets less than 100 yards in width, as the case may be, of the southern shore of the entrance to Sassafras River, around Howell Point and along the eastern shore of Chesapeake Bay to a point situated on the northern side of Still Pond defined by latitude  $39^{\circ} 20' 35''.0$  and longitude  $76^{\circ} 08' 11''.8$ ; thence in a straight line across the entrance to Still Pond to a point situated on the southern side of Still Pond defined by latitude  $39^{\circ} 20' 02''.0$  and longitude  $76^{\circ} 08' 46''.5$ ; thence along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay around Plum Point and Worton Point to a point situated on the northern side of Worton Creek defined by latitude  $39^{\circ} 17' 56''.7$  and longitude  $76^{\circ} 10' 40''.8$ ; thence in a straight line across the entrance of Worton Creek to a point situated on the southern side of Worton Creek defined by latitude  $39^{\circ} 17' 28''.3$  and longitude  $76^{\circ} 10' 54''.3$ ; thence along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay across the mouth of Fairlee Creek past Tolchester Beach to a point situated on Swan Point defined by latitude  $39^{\circ} 08' 19''.0$  and longitude  $76^{\circ} 16' 42''.1$ ; thence in a straight line across the entrance to Swan Creek and Rockhall Harbor to a point situated on Huntingfield Point defined by latitude  $39^{\circ} 07' 16''.0$  and longitude  $76^{\circ} 14' 57''.4$ ; thence along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on Wilson Point defined by latitude  $39^{\circ} 03' 11''.2$  and longitude  $76^{\circ} 13' 40''.0$ ; thence in a straight line across the mouth of a small bay to a point situated on the eastern side of the entrance to Chester River defined by latitude  $39^{\circ} 02' 45''.3$  and

<sup>1</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, Superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>2</sup> See Charts of Natural Oyster Bars, published by the Coast and Geodetic Survey, and the progress map at the end of this publication.

longitude  $76^{\circ} 14' 05''.3$ ; thence in a straight line ending at a point situated on Love Point on the western side of Chester River defined by latitude  $39^{\circ} 02' 25''.5$  and longitude  $76^{\circ} 18' 10''.0$  to a point on this straight line defined by its intersection with the channel boundary line between Kent County and Queen Annes County as laid down on "Chart No. 29, Natural Oyster Bars, Maryland;" thence up the channel of Chester River following the boundary line between Kent County and Queen Annes County as laid down on "Charts Nos. 29 and 30, Natural Oyster Bars, Maryland;" thence continuing up the channel of Chester River following the boundary line between Kent County and Queen Annes County to the State boundary line between Maryland and Delaware.<sup>1</sup>

#### WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the United States Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners in the city of Baltimore," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county and the waters contiguous to but not within the territorial limits of adjacent counties.

This boundary line has been delineated on "Charts of Natural Oyster Bars," and "Progress Maps" published by the Coast and Geodetic Survey, and is technically described and defined as follows:

Commencing at a point defined by the intersection of a straight line across the mouth of Sassafras River which straight line is defined by a point at its northern extremity situated on the northern side of Sassafras River in latitude  $39^{\circ} 23' 15''.0$  and longitude  $76^{\circ} 02' 22''.5$  and by a point at its southern extremity situated on the southern side of Sassafras River in latitude  $39^{\circ} 22' 15''.6$  and longitude  $76^{\circ} 03' 24''.0$  and the boundary line between Kent County and Cecil County along the middle of Sassafras River as laid down on the "Progress map" accompanying the report of "Survey of Oyster Bars, Kent County, Maryland;" thence in a straight line along the channel of the entrance to Sassafras River and across a part of Chesapeake Bay to a point in Chesapeake Bay about  $1\frac{1}{2}$  miles northwest by west of Howell Point and  $1\frac{3}{4}$  miles south-southeast of Stony Point defined by latitude  $39^{\circ} 22' 55''.0$  and longitude  $76^{\circ} 08' 05''.0$ ; thence in a straight line with Chesapeake Bay to a point about  $2\frac{3}{4}$  miles west of Worton Point and  $2\frac{1}{2}$  miles northeast of Pooles Island defined by latitude  $39^{\circ} 19' 00''.0$  and longitude  $76^{\circ} 13' 43''.5$ ; thence in a straight line with Chesapeake Bay to a point about  $1\frac{1}{8}$  miles south of Pooles Island and  $3\frac{5}{8}$  miles west by south of Fairlee Creek defined by latitude  $39^{\circ} 15' 30''.0$  and longitude  $76^{\circ} 16' 20''.4$ ; thence in a straight line with Chesapeake Bay to a point about 4 miles west by north of Swan Point and  $3\frac{3}{8}$  miles east of Seven Foot Knoll Light defined by latitude  $39^{\circ} 09' 10''.6$  and longitude  $76^{\circ} 21' 00''.0$ ; thence in a straight line with Chesapeake Bay to a point about  $2\frac{3}{4}$  miles east of Baltimore Light and  $3\frac{3}{8}$  miles west of Love Point Light defined by latitude  $39^{\circ} 03' 30''.0$  and longitude  $76^{\circ} 21' 00''.0$ ; thence along the boundary line between Kent County and Queen Annes County across a part of Chesapeake Bay and along the channel of the entrance of Chester River as laid down on "Chart No. 29, Natural Oyster Bars, Maryland," to the intersection of this county boundary line with a straight line defined by a point at its eastern extremity situated on the eastern side of the entrance of Chester River in latitude  $39^{\circ} 02' 45''.3$  and longitude  $76^{\circ} 14' 05''.3$  and by a point at its western extremity situated on Love Point on the western side of the entrance to Chester River in latitude  $39^{\circ} 02' 25''.5$  and longitude  $76^{\circ} 18' 10''.0$ .<sup>1</sup>

<sup>1</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.

## LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION.

The oyster laws of Maryland authorizing the survey to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of location and character of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking a landmark has only an indefinite idea of its location. They gradually proceed from description of the general locality of a landmark to the descriptions of its immediate surroundings. This is followed by specific details of the character of the center and reference marks and a "round" of reference angles and distances which in themselves frequently contain enough information to furnish an independent and reliable location of the triangulation station.

### METHOD OF DESCRIBING TRIANGULATION STATIONS.

*The separate descriptions of triangulation stations should not be used without reading the following explanation of the method of describing the triangulation stations, as it contains certain details that are common to all the landmarks described in this publication and which are omitted in the separate descriptions as being needless repetitions:*

*Name.*—The title at the top of each separate description is the name by which the landmark or triangulation station is known and designated in all work and published oyster records or oyster charts of both the Government and State. The selection of the name is usually left to the triangulator establishing the station, and it may or may not have geographic or other significance in reference to the locality.

*General locality.*—Under this heading is given the general locality of the landmark in reference to well-known and prominent natural or artificial features, such as the

nearest body of water, town, river, steamer wharf, well-defined point of land, church, or any other feature that is likely to remain both permanent and prominent.

This heading also covers a reference to the published chart or map which shows the location of the station most clearly. Nearly all the triangulation stations described in this publication are plainly indicated by name and a triangulation symbol on the published charts of oyster bars of Maryland. In this case they are referred to by serial number only, the words "charts of oyster bars of Maryland" being omitted to avoid needless repetition. These published oyster charts are on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{8}$  inches to a statute mile) and show the location of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

*Immediate locality.*—Under this heading is given the description of the "observed station" in reference to its immediate surroundings. This is supposed to include a statement of the station's estimated elevation above high water or some other well-defined level of the locality, such as a road or house; the character of the ground on which it is located, such as marsh land, sand beach, cultivated field, or meadow; estimated bearings in points of the compass and estimated distances in yards *from* (not *to*) easily recognized features, such as extreme end of point, edge of bluff, bank of creek, line of telephone poles, shore line, barn, house, fence, ditch, trees, or any other definite detail, such as being on range with the tangent of an island and a church; and so forth.

When a standard monument has been established near the station as a "reference station," this heading also covers a statement of the true bearing of the monument in degrees and minutes and its measured distance in meters, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached and might be mistaken for the center mark of the "observed station" unless special attention is called to it.

The distinction between the "observed station" and "reference station" should be carefully noted by anyone making use of the description of stations for any future surveying operations.

The "observed station" is located at the particular triangulation point covered by the description of stations, and is the one whose geographic position is first computed, as it is the point which was "occupied" and "observed on" for horizontal angles. However, in spite of the primary importance of the location of the "observed station," it will be noted from the description of stations that frequently it is not marked as well as the "reference station," and in many instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate "observed stations" on edges of banks and ends of points of land, which in the tide-water section of Maryland generally means they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the great need of "reference stations," if the frequent reestablishment of a new framework of triangulation is to be avoided.

The chief reason and need for the establishment of the "reference station," or secondary station, as it might be well named, is explained in the preceding paragraph, but in several instances other reasons, such as the location of the "observed station" on an unstable sand dune, in a cultivated field, in front of a residence, or other places objectionable to the landowner, have led to establishment of "reference stations."



The location of the "reference station" in relation to the "observed station" is fixed for plotting on charts or for computation of its geographic position by checked measurements of its distances and azimuth from the "observed station."<sup>1</sup>

*Marks.*—Under this heading is given a description of the character of the permanent monuments or other marks of the location of the "observed station," and of the "reference station" where one has been established.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground, unless otherwise stated.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

*References.*—Under this heading are given the "rounds" of directions and distances to all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described, this, if possible, being a lighthouse, church spire, or other permanent and prominent point. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>2</sup> of the initial object is always given in parentheses alongside its name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by horizontal angles or for the relocation of corner buoys of oyster-bar boundaries by the method of compass directions described in this publication under the heading of "Boundaries of oyster bars."

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters,"

<sup>1</sup> Geographic coordinates (latitude, longitude, distance, and azimuth) relating to any of the "observed stations" or of the "reference stations" described in this publication can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> The mean magnetic variation for Kent County was  $6^{\circ} 15'$  west of north in 1911 and increasing at the rate of  $5'$  yearly.

however, are accurate to the degree indicated by their decimals, and in every case have been measured with a steel tape. In the same manner the accuracy of the directions are indicated by the refinement of angular measure with which they are recorded.

## DESCRIPTIONS OF TRIANGULATION STATIONS.

## WORTON POINT 2.

*General locality.*—Eastern shore of Chesapeake Bay, on Worton Point, about  $1\frac{3}{8}$  miles north of mouth of Worton Creek and  $4\frac{1}{2}$  miles northeast of north end of Pooles Island. (See Chart No. 28.)

*Immediate locality.*—Observed station is on tree and bush fringed bluff about 30 feet above high water, 2 yards east-southeast of edge of bluff and 1 yard south-southwest of a very small ravine. Cement monument marking reference station is 14.05 meters S  $61^{\circ} 17'$  E of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe with top 6 inches below surface of ground. Subsurface mark is center of 4-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	'	"	
"Pooles Island 2" (S $62^{\circ} 18'$ W) .....	0	00	00	..... 4 $\frac{5}{8}$ miles.
Right tree on Pooles Island .....	3	17	..	..... 4 $\frac{1}{2}$ miles.
South peak of small house .....	42	46	..	..... 4 $\frac{1}{2}$ miles.
Left peak of house .....	74	43	..	..... 4 $\frac{1}{2}$ miles.
Nail in blaze in ash tree (2 $\frac{1}{2}$ inches diameter) ..	88	42	40	..... 1.06 meters.
Chimney outside of right end of old house ..	94	07	..	..... 3 $\frac{1}{2}$ miles.
Chimney near left end of roof of house with gables .....	116	04	..	..... 4 $\frac{1}{4}$ miles.
Nail in blaze in ash tree (3 inches diameter) ..	154	28	10	..... 4.24 meters.
REFERENCE STATION .....	236	25	00	..... 14.05 meters.
Nail in blaze in locust tree (5 inches diameter) .....	310	44	20	..... 4.61 meters.

## POOLES ISLAND LIGHT.

*General locality.*—Upper Chesapeake Bay, on northwest side of Pooles Island. (See Chart No. 28.)

*Immediate locality.*—Observed station is on a detached tower known as Pooles Island Lighthouse.

*Marks.*—Observed station is center point of lantern on tower.

*References.*—

"Craighill Channel Light (Front Range)" ..	o	'	"	
(S $44^{\circ} 19'$ W) .....	o	00	00	..... 10 miles.

## POOLES ISLAND 2.

*General locality.*—Upper Chesapeake Bay, on Pooles Island, about one-fourth mile southeast of Pooles Island Light and one-fourth mile north by west of Pooles Island Wharf. (See Chart No. 28.)

*Immediate locality.*—Observed station is in a peach orchard on highest ground on northern part of Pooles Island, about 500 yards southeast of Pooles Island Light and 370 yards north by west of farmhouse. The angle at the southwest corner of the farmhouse between the windmill at the barn and the observed station is  $84^{\circ}$ , and the angle at the observed station between the light tower and the fog-bell tower is  $2^{\circ} 47'$ .

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument. (NOTE.—These marks replace old ones of 1896.)

## References.—

	°	'	"	
"Pooles Island Light" (N 47° 16' W).....	0	00	00	452 meters.
Break in bluff on east shore of bay showing through peach trees.....	153	12		3 <sup>3</sup> / <sub>4</sub> miles.
Center of chimney of small house in rear of dwelling.....	215	00		1/4 mile.
Center of middle one of three chimneys on dwelling.....	218	03		1/4 mile.
Center of cupola on small building.....	220	50		1/4 mile.
Near gable of barn.....	238	06		1/4 mile.
Windmill.....	241	56		1/4 mile.
Center one of four nails in apple tree.....	336	24	10	33.72 meters.

## BRAMBLE.

*General locality.*—Eastern shore of Chesapeake Bay, about 3 miles southeast of center of Pooles Island, 3 miles north-northeast of Tolchester Beach, and 1<sup>1</sup>/<sub>4</sub> miles southwest of entrance to Fairlee Creek. (See Chart No. 28.)

*Immediate locality.*—Observed station is on a tree and bush fringed bluff about 30 feet above high water, 3 yards east of edge of bluff, 3 yards west of edge of cultivated field, 35 yards southwest of trees at edge of gully, and 200 yards west of other trees. Cement monument marking reference station is 47.16 meters N 67° 05' E of observed station.

*Marks.*—Observed station is 2-inch stub projecting 3 inches above surface of ground. Subsurface mark is beer bottle buried below base of stub. Reference station is center point of triangle on standard cement monument projecting 2 inches above surface of ground.

## References.—

	°	'	"	
"Craighill Channel Light (Rear Range)" (S 78° 44' W).....	0	00	00	0 <sup>3</sup> / <sub>8</sub> miles.
Left tree on Pooles Island.....	37	53		3 miles.
Windmill on middle of long building on Pooles Island.....	54	00		2 <sup>7</sup> / <sub>8</sub> miles.
North peak of house with several gables on Pooles Island.....	55	21		2 <sup>7</sup> / <sub>8</sub> miles.
"Pooles Island Light".....	57	19	00	3 <sup>3</sup> / <sub>8</sub> miles.
REFERENCE STATION.....	168	21	00	47.16 meters.
Cupola on barn.....	250	24	40	1 mile.
"Craighill Channel Light (Front Range)"..	344	34	10	10 <sup>3</sup> / <sub>4</sub> miles.
"Fort Howard Teller Water Tank".....	354	30	00	12 <sup>1</sup> / <sub>2</sub> miles.
Left one of two smokestacks at Sparrows Point.....	359	35		14 <sup>1</sup> / <sub>2</sub> miles.

## MITCHELLS BLUFF 2.

*General locality.*—Eastern shore of Chesapeake Bay, on Mitchells Bluff, just north of first break in bluff, about five-eighths mile north-northeast of Tolchester Beach Wharf. (See Chart No. 28.)

*Immediate locality.*—Observed station is in cultivated ground about 30 feet above high water, 13 yards southeast of edge of bluff, 50 yards northeast of point of gully where fishermen haul up gear, 70 yards south of small clump of trees, and one-fourth mile northwest of a large farmhouse.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is wire in center of 2-inch tile pipe buried with top 2 inches below base of monument. (NOTE.—Subsurface mark is either a part or replaces the original one of 1896.)

## References.—

"Craighill Channel Light (Rear Range)"	°	'	"	
(N 87° 52' W).....	0	00	00	8¾ miles.
Chimney at left end of house on opposite shore.....	57	00	..	6¼ miles.
Chimney at left end of house on Pooles Island.....	71	11	..	4¼ miles.
Chimney on middle of roof of building beyond trees.....	170	10	..	5/8 mile.
Spindle of weather vane on middle cupola of barn.....	200	28	30	¼ mile.
Near corner of large west chimney of house..	210	54	..	¼ mile.
West peak of barn.....	260	07	..	3/8 mile.
"Seven Foot Knoll Light".....	330	18	30	10¼ miles.
"Craighill Channel Light (Front Range)"..	341	20	40	8¾ miles.

## CRAIGHILL CHANNEL LIGHT (FRONT RANGE).

*General locality.*—Western side of Chesapeake Bay, about 2 miles offshore and about 2¾ miles east of North Point at entrance to Patapsco River. (See progress map.)

*Immediate locality.*—Observed station is on dwelling on cylindrical foundation known as Craighill Channel Light (Front Range).

*Marks.*—Observed station is center point of lantern on Craighill Channel Light (Front Range).

## References.—

"Craighill Channel Light (Rear Range)"	°	'	"	
(N 0° 01' W).....	0	00	00	2¾ miles.

## CRAIGHILL CHANNEL LIGHT (REAR RANGE).

*General locality.*—Western side of upper Chesapeake Bay about 200 yards offshore from the southwestern end of Hart Island. (See progress map.)

*Immediate locality.*—Observed station is on a tall square pyramidal skeleton steel frame structure known as Craighill Channel Light (Rear Range).

*Marks.*—Observed station is center point of lantern on Craighill Channel Light (Rear Range).

## References.—

"Craighill Channel Light (Front Range)"	°	'	"	
(S 0° 01' E).....	0	00	00	2¾ miles.

## FORT HOWARD TALLER WATER TANK.

*General locality.*—Northern side of entrance to Patapsco River about one-half mile north-northwest of North Point. (See progress map.)

*Immediate locality.*—Observed station is the taller of two steel water tanks on steel towers at Fort Howard.

*Marks.*—Observed station is center point of pipe attached to center of bottom of tank.

*References.*—None necessary.

## SEVEN FOOT KNOLL LIGHT.

*General locality.*—Western side of Chesapeake Bay off entrance to Patapsco River about 2¼ miles north-northeast of Bodkin Point and 3¼ miles southeast of North Point. (See progress map.)

*Immediate locality.*—Observed station is on an octagonal screw pile structure known as Seven Foot Knoll Lighthouse.

*Marks.*—Observed station is center point of lantern on Seven Foot Knoll Light.

## References.—

"Bodkin Point (Old Tower)"	°	'	"	
(S 30° 03' W).....	0	00	00	1½ miles.

BODKIN POINT (OLD TOWER).

*General locality.*—Southern side of entrance to Bodkin Creek on Bodkin Point. (See progress map.)

*Immediate locality.*—Observed station is about 15 yards east of an old stone dwelling on top of an old tower formerly used as a lighthouse.

*Marks.*—Observed station is center of drill hole about 2 inches in diameter and 3 inches deep in stone platform on and near center of top of tower.

*References.*—

	°	'	"	
"Seven Foot Knoll Light" (N 30° 04' E)...	0	00	00	1½ miles.

SWAN POINT 3.

*General locality.*—Eastern shore of Chesapeake Bay on Swan Point about 5½ miles south-southwest of Tolchester Beach Wharf and 7 miles north of Love Point. (See Chart No. 28.)

*Immediate locality.*—Observed station is on sand and marsh point about 2 feet above high water, 5 feet east of shore, 60 yards south-southwest of a fisherman's cabin, and 250 yards from the extreme end of Swan Point. Cement monument marking old reference station is in marsh 21.43 meters N 80° 13' E of observed station. Standard cement monument marking new reference station is on line to old reference station 13.26 meters N 89° 13' E of observed station.

*Marks.*—Observed station is ¼-inch copper rod set in an 8-inch square cement monument with top about 5 inches below surface of ground. Subsurface mark is the neck of a flask set in cement about 4 feet below the surface. New reference station is center point of triangle on standard cement monument. Old reference station is eastern one of two ¼-inch copper rods in an 8-inch cement monument.

*References.*—

	°	'	"	
"Love Point Light" (S 2° 11' W).....	0	00	00	5¾ miles.
"Baltimore Light".....	46	07	00	8½ miles.
Stack on garbage plant at Bodkin Point.....	82	21	..	8¾ miles.
"Seven Foot Knoll Light".....	95	04	50	7 miles.
Left stack at Sparrows Point.....	111	12	..	12¼ miles.
"Fort Howard Teller Water Tank".....	112	28	20	9¾ miles.
"Craighill Channel Light (Front Range)".....	114	59	50	7 miles.
"Craighill Channel Light (Rear Range)".....	131	46	20	8¾ miles.
Chimney of cabin.....	203	54	..	58 yards.
Gable of Rockhall Wharf house.....	264	07	..	1 mile.
OLD REFERENCE STATION.....	267	02	20	21.43 meters.
NEW REFERENCE STATION (STANDARD CEMENT MONUMENT).....	267	02	20	13.26 meters.
Chimney of house to right of Windmill Point.....	292	12	..	2 miles.
Gable of barn.....	303	49	..	2½ miles.
Gable of barn near Wickes Beach.....	340	52	..	7¾ miles.

BANK.

*General locality.*—Eastern shore of Chesapeake Bay on western side of entrance to Tavern Creek, about 5/8 mile northeast of Swan Point. (See Charts Nos. 28 and 29.)

*Immediate locality.*—Observed station is in a cultivated field about 7 feet above high water, 12 yards inshore, and 2 yards from edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Love Point Light" (S 7° 27' W).....	0	00	00	6½ miles.
"Baltimore Light".....	42	32	50	9 miles.
Nail in blaze in locust tree (3 inches diameter).....	56	04	00	10.39 meters.
Chimney of fishing shack on Swan Point....	71	17	..	½ mile.
"Seven Foot Knoll Light".....	88	14	40	7½ miles.
West gable of Strong barn.....	153	39	..	¾ mile.
Southwest corner of Strong house.....	174	09	..	¾ mile.
Chimney of tenant house.....	212	55	..	¾ mile.
North gable of barn.....	250	47	..	1¾ miles.
Thompson windmill.....	271	47	..	½ mile.
West gable of Rockhall Wharf house.....	274	08	..	¾ mile.
North gable of Downey house.....	278	49	..	½ mile.
Nail in blaze in locust tree (4 inches diameter).....	292	56	20	10.32 meters.
South one of twin trees on Little Neck Island.....	352	59	..	¼ mile.

## TAVERN.

*General locality.*—Eastern shore of Chesapeake Bay on western side of Tavern Creek about three-eighths mile north of entrance to creek, 1 mile northeast of Swan Point and one-half mile northwest of Rockhall Landing. (See Chart No. 28.)

*Immediate locality.*—Observed station is in the eastern side of peach and apple orchard about 1 foot above high water, 152 yards northwest of shore, 165 yards west of shore, 8 yards west of edge of sage land, 15 yards west of a wire fence, 18 yards south of another wire fence, 52 yards north of still another wire fence, and 125 yards east of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Orchard" (S 50° 31' E).....	0	00	00	¾ mile.
Gilt ball on lightning rod near left end of house.....	1	38	..	½ mile.
Apple tree (18 inches diameter).....	63	21	..	49 yards.
Nail in blaze in apple tree (20 inches diameter).....	83	59	00	35.02 meters.
Nail in blaze in apple tree (24 inches diameter).....	117	21	50	14.99 meters.
Nail in blaze in peach tree (5 inches diameter).....	166	42	20	10.39 meters.
Nail in blaze in apple tree (18 inches diameter).....	203	53	30	19.49 meters.
Center of chimney at right end of roof of house with ell.....	276	08	..	1¼ miles.

## CORR.

*General locality.*—Eastern shore of Swan Creek about 1¼ miles north of Rockhall Landing. (See Chart No. 28.)

*Immediate locality.*—Observed station is about 1 foot above high water, 6 yards northeast of rounded point of shore, 13 yards northwest of square cut in shore, 13 yards southeast of point where wire fence meets shore, and 50 and 65 yards south by west of two large trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Spike" (S 0° 49' W).....	0	00	00	¼ mile.
Chimney of house.....	14	58		1½ miles.
Chimney of old house.....	35	50		¾ mile.
Right chimney of Strong house.....	48	12		1 mile.
Near peak of house between two barns.....	99	35		¾ mile.
Large square chimney of large brick house.....	142	52		½ mile.
North chimney of brick house.....	204	34		150 yards.
East chimney of large house.....	245	41		¾ mile.
Chimney of old house.....	311	05		¼ mile.

## URIE.

*General locality.*—Western shore of Swan Creek about 1 mile north of Rockhall Landing. (See Chart No. 28.)

*Immediate locality.*—Observed station is on a slight projection of the shore about 1 foot above high water and 4 yards west of shore. Cement monument marking reference station is 4.76 meters S 21° 35' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 1 inch above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface mark. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

## References.—

	°	'	"	
"Corr" (N 79° 13' E).....	0	00	00	¼ mile.
Near peak of barn near several buildings.....	27	24		½ mile.
Chimney of large house.....	54	05		1 mile.
Near peak of large house.....	75	58		1½ miles.
Gilt ball on weather vane.....	89	12		1¼ miles.
REFERENCE STATION.....	124	21	45	4.76 meters.
Nail in blaze in black thorn tree (6 inches diameter).....	124	34	40	5.37 meters.
Nail in blaze in black thorn tree (6 inches diameter).....	134	40	30	4.84 meters.
Nail in blaze in water bush (3 inches diameter).....	200	26	10	3.60 meters.
Nail in blaze in water bush (4 inches diameter).....	257	42	40	10.82 meters.
Near peak of barn.....	277	15		½ mile.
West large chimney on west end of large brick house.....	340	24		1 mile.
Left chimney of Corr house.....	347	10		¾ mile.

## SPIKE.

*General locality.*—Eastern shore of Swan Creek, about seven-eighths mile north-northeast of Rockhall Landing. (See Chart No. 28.)

*Immediate locality.*—Observed station is among trees and bushes about 2 feet above high water, 30 yards east of shore, and 1 yard west of edge of cultivated field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Rail" (S 23° 07' E).....	0	00	00	¼ mile.
Nail in blaze in locust tree (3 inches diameter).....	13	11	40	5.02 meters.
Nail in blaze in locust tree (5 inches diameter).....	28	22	10	6.11 meters.
Windmill at Gratitude.....	42	29	..	1 mile.
Chimney of old house.....	76	04	..	½ mile.
Chimney on main part of Strong house.....	83	52	..	1 mile.
Nail in blaze in locust tree (4 inches diameter).....	133	31	10	3.61 meters.
Right peak of right-hand barn.....	143	51	..	¾ mile.
Large square chimney of large brick house..	179	19	..	¾ mile.
North chimney of brick house.....	209	32	..	¾ mile.
North peak of old barn.....	271	06	..	¾ mile.

## ELLIASON.

*General locality.*—Western shore of Swan Creek on a point of land at north side of entrance to a small cove about three-fourths mile north of Rockhall Landing. (See Chart No. 28.)

*Immediate locality.*—Observed station is about 2 feet above high water, 16 yards west by north of shore, 23 yards north-northwest of shore, 30 yards northeast of shore, and 33 yards north by east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Corr" (N 33° 57' E).....	0	00	00	¾ mile.
Large chimney of 2½-story house.....	9	08	..	1¾ miles.
West peak of barn.....	40	53	..	½ mile.
South chimney of house.....	60	58	..	¾ mile.
Right chimney of house.....	98	12	..	1¼ miles.
Main chimney of house on Rockhall Road..	106	56	..	1¼ miles.
Large house on Rockhall Road.....	114	04	..	1¼ miles.
Windmill at Gratitude.....	152	43	..	¾ mile.
Gilt ball on lightning rod.....	155	34	30	¾ mile.
Weather vane on Rockhall Wharf house... .	160	53	40	1 mile.
East chimney of Strong house.....	202	52	..	¾ mile.
Near peak of very large brick house.....	320	02	..	¾ mile.
South chimney of large house.....	359	14	..	½ mile.

## RAIL.

*General locality.*—Eastern shore of Swan Creek about three-fourths mile northeast of Rockhall Landing. (See Chart No. 28.)

*Immediate locality.*—Observed station is on a low point about 2 feet above high water, 3 yards back from shore, and west of a number of small locust trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.



References.—

	°	'	"	
"Fork" (S 72° 56' W).....	0	00	00	¼ mile.
Chimney of tenant house.....	12	01	..	½ mile.
South gable of Henson barn.....	56	36	..	⅝ mile.
South gable of cornerrib.....	86	18	..	1 mile.
South gable of Swatska house.....	143	41	..	¾ mile.
Nail in blaze in locust tree (4 inches diameter).....	161	38	00	9.94 meters.
Nail in blaze in locust tree (3 inches diameter).....	192	52	50	14.96 meters.
Nail in blaze in locust tree (3 inches diameter).....	235	52	40	19.24 meters.
North chimney of house.....	255	16	..	¾ mile.
Highest chimney of house.....	268	50	..	1 mile.
East chimney of Frank Ayers's house.....	288	15	..	¾ mile.
East chimney of Georgia Ayers's house.....	306	20	..	½ mile.
Chimney of Sullivan house.....	310	34	..	½ mile.
Thompson windmill.....	322	09	20	¾ mile.
North chimney of Burgess house.....	327	18	..	⅝ mile.
Chimney of fishing shack.....	339	26	..	⅝ mile.

FORK.

*General locality.*—Western shore of Swan Creek, about one-half mile north-northeast of Rockhall Landing and three-eighths mile northwest of entrance to The Haven. (See Chart No. 28.)

*Immediate locality.*—Observed station is on marsh land about 2 feet above high water, 25 yards inshore, and 200 yards from extreme south end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Treasure" (S 24° 29' E).....	0	00	00	¾ mile.
East chimney of Georgia Ayers's house.....	14	30	..	¾ mile.
Chimney of Sullivan house.....	32	14	..	¾ mile.
Chimney of house.....	52	07	..	½ mile.
East chimney of Strong house.....	105	55	..	⅝ mile.
Chimney of Elliason house.....	119	42	..	¼ mile.
Nail in blaze in locust tree (3 inches diameter).....	234	20	10	11.15 meters.
Chimney of Swatska tenant house.....	252	52	..	⅝ mile.
North chimney of Biglow house.....	279	57	..	¾ mile.
North chimney of house.....	322	06	..	¾ mile.
Rockhall M. E. Church Spire.....	334	41	50	1½ miles.
Highest chimney of house.....	350	35	..	1 mile.
East chimney of Frank Ayers's house.....	359	25	..	¾ mile.

HAVEN.

*General locality.*—Eastern shore of Swan Creek at northern side of entrance to The Haven about five-eighths mile east-northeast of Rockhall Landing. (See Charts Nos. 28 and 29.)

*Immediate locality.*—Observed station is on a long marsh point about 2 feet above high water, 5 yards back from high-water mark, and 7 yards west and 8 yards north of large pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Fork" (N 57° 38' W).....	0	00	00	3/8 mile.
Nail in blaze in oak tree (15 inches diameter).....	21	28	50	9.82 meters.
South gable of corncrib.....	36	46		1 1/4 miles.
Nail in blaze in pine tree (18 inches diameter).....	108	47	10	6.69 meters.
North chimney of Shamokin house.....	136	18		3/8 mile.
North chimney of house.....	166	44		1/4 mile.
Nail in blaze in pine tree (18 inches diameter).....	175	43	50	7.20 meters.
North gable of house.....	215	44		3/8 mile.
Thompson windmill.....	299	28	40	5/8 mile.
South chimney of Burgess house.....	301	29		3/8 mile.
Chimney of tenant house.....	348	59		3/8 mile.

## TREASURE.

*General locality.*—Eastern and southern shore of Swan Creek on a point at western side of entrance to The Haven, about one-half mile east-northeast of Rockhall Landing. (See Charts Nos. 28 and 29.)

*Immediate locality.*—Observed station is on a marsh point below high water, about 25 yards inshore, and 300 yards northeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Orchard" (S 85° 00' W).....	0	00	00	3/8 mile.
West gable of Strong barn.....	17	23		1 mile.
South gable of barn.....	60	52		3/4 mile.
South gable of barn.....	108	18		3/4 mile.
Lone pine tree on opposite shore.....	155	48		1/4 mile.
West gable of barn.....	183	38		1/2 mile.
Rockhall M. E. Church Spire.....	218	35	10	1 1/4 miles.
North gable of house.....	230	15		5/8 mile.
West gable of house.....	235	56		1 mile.
East pine tree of group.....	243	57		1/4 mile.
East chimney of Ayers's house.....	311	19		300 yards.
East gable of small barn.....	338	07		3/8 mile.
Nail in blaze in dead locust tree (8 inches diameter).....	344	28	20	37.98 meters.
Nail in blaze in dead locust tree (8 inches diameter).....	353	04	40	36.32 meters.

## ORCHARD.

*General locality.*—Eastern and southern shore of Swan Creek on point of land about one-eighth mile north of Rockhall Landing. (See Charts Nos. 28 and 29.)

*Immediate locality.*—Observed station is on a sand and grass point about 3 feet above high water, 7 yards west of peach orchard, 6 yards east of shore, 33 yards west-southwest of shore, 31 yards south of extreme end of point, 23 yards north of a wire fence, and 53 yards north of a house. Cement monument marking reference station is 9.67 meters N 83° 04' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface mark. Reference station is center point of triangle on standard cement monument projecting 2 inches above surface of ground.

References.—	°	'	"	
"Bank" (S 78° 45' W).....	0	00	00	¾ mile.
East chimney of house.....	42	23	..	½ mile.
South peak between two chimneys of large house.....	105	51	20	1¾ miles.
Chimney of an old long building.....	144	20	..	1 mile.
Nail in blaze in locust tree (7 inches diameter).....	176	02	30	21.85 meters.
REFERENCE STATION.....	184	19	20	9.67 meters.
Nail in blaze in peach tree (5 inches diameter).....	226	56	40	8.07 meters.
Right corner of 1½-story building.....	229	59	20	32.57 meters.
Northwest corner of house.....	267	21	10	53 yards.
Nail in blaze in tree (13 inches diameter)....	274	07	20	21.60 meters.
West peak of 2-story wharf house.....	294	56	40	½ mile.
Chimney of house on Swan Point.....	360	00	..	1 mile.

## GRATITUDE.

*General locality.*—Eastern shore of Chesapeake Bay at eastern side of entrance to Swan Creek, opposite middle of Little Neck Island, and near old Rockhall Wharf. (See Charts Nos. 28 and 29.)

*Immediate locality.*—Observed station is on a marsh meadow about 1 foot above high water, 12 yards east of shore, 150 yards southwest of a house, and 400 yards south-southwest of Rockhall Landing.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Love Point Light" (S 11° 46' W).....	0	00	00	5¾ miles.
"Sandy Point Light".....	26	05	10	10¾ miles.
"Baltimore Light".....	41	21	20	9¾ miles.
Chimney of fishing shack on Swan Point....	90	47	..	1 mile.
Left tangent of piles of old Rockhall Wharf..	124	15	..	200 yards
West gable of Strong barn.....	130	49	..	¾ mile.
Chimney of tallest wharf house at Rockhall Landing.....	162	15	..	¼ mile.
Chimney of house.....	166	19	..	1 mile.
Post on northwest corner of Downey porch..	196	57	..	150 yards.
Nail in blaze in cedar tree (10 inches diameter).....	273	02	40	107 yards.
North gable of old barn.....	276	36	..	200 yards.
North gable of barn.....	309	21	..	1¾ miles.

## WINDMILL POINT.

*General locality.*—Eastern shore of Chesapeake Bay on Windmill Point at northern side of entrance to Rockhall Harbor. (See Chart No. 29.)

*Immediate locality.*—Observed station is on low marsh land about level with high water, about 30 yards back from end of point, and 20 yards south of a group of large pine trees. Cement monument marking reference station is 24.13 meters N 20° 14' E of observed station.

*Marks.*—Observed station is center point of 2-inch tile pipe filled with sand with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

References.—	°	'	"	
"Love Point Light" (S 17° 47' ).....	0	00	00	5½ miles.
Nail in blaze in pine tree (18 inches diameter).....	146	39	30	17.33 meters.
Nail in blaze in pine tree (24 inches diameter).....	178	03	00	23.57 meters.
REFERENCE STATION.....	182	27	00	24.13 meters.
Nail in blaze in pine tree (20 inches diameter).....	216	10	20	16.52 meters.
Rockhall M. E. Church Spire.....	238	05	40	1 mile.
Highest gable on Sharps Wharf.....	246	42	..	¾ mile.
East chimney of house.....	271	27	..	¼ mile.
Chimney of small house.....	287	55	..	¼ mile.
West chimney of small house.....	311	04	..	1 mile.

## STEVENS.

*General locality.*—Eastern shore of Chesapeake Bay about one-fourth mile south of Huntingfield Point at entrance to Huntingfield Creek. (See Chart No. 29.)

*Immediate locality.*—Observed station is in a cultivated field about 15 feet above high water, 55 yards back from edge of vertical bank 3 feet higher than station, and 450 yards south of the extreme end of Huntingfield Point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Love Point Light" (S 25° 03' W).....	0	00	00	4½ miles.
Right tangent of Love Point.....	12	13	..	6½ miles.
Southeast corner of fishing shack on Swan Point.....	111	24	..	2½ miles.
East gable of Strong barn.....	125	42	..	2½ miles.
Thompson windmill.....	135	01	20	2 miles.
Chimney of house.....	150	32	..	1¼ miles.
Nail in blaze in cedar tree (10 inches diameter).....	155	24	20	200 yards.
Wicks windmill.....	223	16	20	1 mile.
Nail in blaze in locust tree (18 inches diameter).....	227	23	00	110 yards.
Chimney of small house.....	239	58	..	1 mile.
Nail in blaze in persimmon tree (10 inches diameter).....	275	26	20	130 yards.
Chimney of Stevens tenant house.....	320	39	..	½ mile.

## BALTIMORE LIGHT.

*General locality.*—Western side of Chesapeake Bay offshore about 1½ miles east of mouth of Magothy River and one-eighth mile west of entrance to dredged channel leading to Baltimore. (See progress map.)

*Immediate locality.*—Observed station is on brick octagonal dwelling on cylindrical foundation known as Baltimore Lighthouse.

*Marks.*—Observed station is center point of lantern on Baltimore Lighthouse.

*References.*—None necessary.

## SANDY POINT LIGHT.

*General locality.*—Western side of Chesapeake Bay offshore about one-half mile east of Sandy Point. (See Chart No. 29 and progress map.)

*Immediate locality.*—Observed station is on brick dwelling on cylindrical foundation known as Sandy Point Lighthouse.

*Marks.*—Observed station is center point of lantern on Sandy Point Lighthouse.

*References.*—

“Bodkin Point (old tower)” (N 14° 35' W) . . . . . 8½ miles.

RING.

*General locality.*—Eastern shore of Chesapeake Bay on western side of Kent Island about 2¼ miles south-southwest of Love Point and 3¾ miles east of Sandy Point. (See Chart No. 29.)

*Immediate locality.*—Observed station is in a cultivated field about 20 feet above high water, 12 yards inshore, and 2 yards from edge of bank. Cement monument marking reference station is 9.36 meters N 79° 21' E of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe with top 3 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	/	''	
“Sandy Point Light” (N 84° 56' W) . . . . .	o	oo	oo	3¾ miles.
Cupalo on barn . . . . .	117	51	..	1 mile.
South chimney of house . . . . .	141	oo	..	¼ mile.
REFERENCE STATION . . . . .	164	17	10	9.36 meters.
Lone tree (2 inches diameter) . . . . .	224	10	..	300 yards.
South chimney of house . . . . .	238	56	..	300 yards.

LOVE POINT LIGHT.

*General locality.*—Eastern side of Chesapeake Bay at entrance to Chester River offshore about 1½ miles northeast of Love Point. (See Chart No. 29.)

*Immediate locality.*—Observed station is on hexagonal screw-pile structure known as Love Point Lighthouse.

*Marks.*—Observed station is center point of lantern on Love Point Lighthouse.

*References.*—

“Wickes Beach” (S 47° 55' E) . . . . . 3½ miles.

AMOUR.

*General locality.*—Northern end of Kent Island at western side of entrance to Chester River, about one-fourth mile southeast of Love Point and three-eighths mile north of Love Point Landing. (See Chart No. 29.)

*Immediate locality.*—Observed station is on sand and marsh point, about 2 feet above high water, 25 yards inshore, and 55 yards north of fishing shack.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
“Love Point Light” (N 33° 42' E) . . . . .	o	oo	oo	1½ miles.
Left chimney of house . . . . .	28	28	..	4¾ miles.
West gable of house on East Neck . . . . .	48	oo	..	3¾ miles.
North gable of barn . . . . .	54	30	..	3¼ miles.
North gable of house on Cedar Point . . . . .	76	30	..	5 miles.
Gable of barn . . . . .	128	18	..	4½ miles.
Left tangent of Kent Island Landing . . . . .	132	59	..	1¾ miles.
Northeast corner of fishing shack . . . . .	140	38	..	57 yards.
Nail in blaze in cedar tree (3 inches diameter) 174	43	..	..	12.46 meters.
“Railway Water Tank” . . . . .	199	53	50	½ mile.
Nail in blaze in cedar tree (4 inches diameter) 206	10	..	..	11.30 meters.
Nail in blaze in cedar tree (6 inches diameter) 295	02	..	..	38.88 meters.

## RAILWAY WATER TANK.

*General locality.*—Northern end of Kent Island, about half-way between Chesapeake Bay and Chester River and three-fourths mile south by west of Love Point. (See Chart No. 29.)

*Immediate locality.*—Observed station is on the only large elevated water tank located just north of the center of the bend of the railway that leaves Love Point Landing.

*Marks.*—Observed station is center point of top of water tank.

*References.*—None necessary.

## WICKES BEACH.

*General locality.*—Eastern shore of mouth of Chester River on western side of East Neck Island near Wickes Beach. (See Chart No. 29.)

*Immediate locality.*—Observed station is on a narrow sand beach about on level with high water, 10 yards back from low water, and 2 yards west of swamp which extends back to woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	0	'	"	
"Love Point Light" (N 47° 54' W) . . . . .	0	00	00	3 miles.
Nail in blaze in oak tree (15 inches diameter) . . . . .	60	45	40	300 yards.
Nail in blaze in gum tree (12 inches diameter) . . . . .	70	59	00	250 yards.
Nail in blaze in oak tree (15 inches diameter) . . . . .	114	05	50	200 yards.
North cupola of barn . . . . .	155	15	..	5/8 mile.
Lone tree on Cedar Point . . . . .	178	23	..	1 7/8 miles.
East gable of barn . . . . .	200	21	..	4 miles.
North gable of Jackson Wharf house . . . . .	214	26	..	4 1/8 miles.
North gable of barn . . . . .	276	32	..	3 3/8 miles.
Cupola on farmhouse . . . . .	299	16	..	3 7/8 miles.
"Railway Water Tank" . . . . .	321	45	00	3 5/8 miles.
North flagstaff on Love Point Hotel . . . . .	323	27	..	3 3/8 miles.

## NARROWS POINT.

*General locality.*—Northern shore of Chester River on southwest end of East Neck Island, about one-eighth mile north of Cockeyes Island and three-eighths mile west-northwest of Cedar Point. (See Charts Nos. 29 and 30.)

*Immediate locality.*—Observed station is on a low marshy point about level with high water, about 7 yards from low water, and 325 yards west of a fishing shack. Cement monument marking reference station is 12.28 meters N 7° 58' E of observed station.

*Marks.*—Observed station is center of 3-inch tile pipe filled with cement with top 4 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—	°	'	''	
"Wickes Beach" (N 46° 58' W).....	0	00	00	1 7/8 miles.
REFERENCE STATION.....	64	56	10	12. 28 meters.
Chimney of fishing shack.....	133	08		3 2/5 yards.
West gable of Queenstown elevator.....	153	44		3 3/4 miles.
Cupola on barn.....	164	05		2 5/8 miles.
North gable of house.....	189	51		2 1/2 miles.
North gable of barn.....	194	53		2 1/2 miles.
Cupola on barn.....	216	26		2 1/2 miles.
North gable of house.....	228	16		2 3/4 miles.
North gable of house on Jackson Creek.....	231	47		2 7/8 miles.
East gable of Jackson Wharf house.....	233	52		2 3/4 miles.
North gable of barn.....	254	28		3 miles.
West chimney of house.....	285	16		3 3/8 miles.
Chimney of house near Macum Creek.....	293	36		4 1/8 miles.
East chimney of house.....	318	01		4 3/4 miles.
"Railway Water Tank".....	334	11	40	5 1/4 miles.
South flagstaff on Love Point Hotel.....	335	26		5 1/8 miles.
Flagstaff on Love Point Wharf.....	335	42		4 3/4 miles.
Right tangent of Love Point.....	341	30		5 miles.

## MACUM.

*General locality.*—Southern shore of Chester River on Kent Island, about 4 1/2 miles south of Love Point Light, 3 miles south-southeast of Love Point Landing, and one-half mile north-northwest of Macum Creek. (See Chart No. 29.)

*Immediate locality.*—Observed station is in cultivated field, about 7 feet above high water, 25 yards inshore, and 16 yards south of two cedar trees at edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Love Point Light" (N 0° 19' E).....	0	00	00	4 1/4 miles.
North cupola of barn on East Neck Island..	50	41		3 3/4 miles.
Chimney of house on East Neck Island....	52	13		3 3/4 miles.
Nail in blaze in persimmon tree (6 inches diameter).....	57	02	50	22. 24 meters.
South corner of fishing shack on Cedar Point.	72	08		4 miles.
West gable of large barn.....	89	48		5 miles.
Cupola on small house.....	97	00		5 miles.
West gable of house.....	102	15		4 1/2 miles.
Cupola on barn.....	108	29		3 miles.
Gable of house near Jackson Creek.....	119	26		3 5/8 miles.
East chimney of brick house.....	195	59		1/4 mile.
East chimney of house.....	212	31		1 mile.
Cupola on house.....	221	52		1 3/8 miles.
East chimney of house.....	225	18		5/8 mile.
North chimney of house.....	257	16		400 yards.
Lone cedar tree.....	266	08		500 yards.
Nail in blaze in cedar tree (4 inches diameter).....	314	14	30	30. 98 meters.
"Railway Water Tank".....	333	17	20	3 1/8 miles.
East gable of wharf house on Kent Island Landing.....	339	28		1 1/2 miles.
Flagstaff on wharf house on Love Point Landing.....	342	03		3 1/8 miles.
Chimney of fishing shack.....	343	11		3 1/4 miles.

## THIN.

*General locality.*—Southern shore of Chester River on western side of entrance to Kent Narrows, about three-fourths mile north of Narrows railway station. (See Chart No. 29.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 55 yards north of shore, and 55 yards west of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Muddy" (N 37° 55' E).....	0	00	00	7/8 mile.
Smoke pipe on shanty.....	75	13		1 mile.
Large low telegraph pole.....	99	27		3/4 mile.
Smoke pipe on slant-roofed shanty.....	107	58		5/8 mile.
Near corner of fishing shanty.....	196	21		1/4 mile.
Tangent of Long Point.....	356	41		3/4 mile.

## MUDDY.

*General locality.*—Southern shore of Chester River on Long Point, between Muddy Creek and Jackson Creek, about 2 1/4 miles southwest of Cedar Point and 3 1/2 miles west of Queenstown. (See Charts Nos. 29 and 30.)

*Immediate locality.*—Observed station is on marsh land covered with myrtle bushes, about 2 feet above high water, 7 yards inshore, 25 yards southwest of extreme end of point, and 70 yards north of group of pine trees.

*Marks.*—Observed station is center point of triangle, on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Love Point Light" (N 28° 41' W).....	0	00	00	6 miles.
East chimney of house.....	34	54		2 3/4 miles.
Lone pine tree on Cedar Point.....	53	36		2 1/4 miles.
South gable of barn.....	79	35		4 1/2 miles.
Cupola on barn.....	103	11		3 miles.
Cupola on barn.....	114	53		2 1/4 miles.
West gable of barn.....	134	33		1 3/4 miles.
Chimney of house.....	146	39		1 1/4 miles.
North gable of wharf house on Jackson Creek Landing.....	179	21		1 mile.
North gable of house.....	182	10		1 1/4 miles.
Chimney of small house.....	202	56		3/4 mile.
Nail in blaze in pine tree (8 inches diame- ter).....	221	12	50	63 yards.
Nail in blaze in pine tree (12 inches di- ameter).....	243	25		67 yards.
South flagstaff of Love Point Hotel.....	339	43	30	5 5/8 miles.
North gable of wharf house on Love Point Landing.....	341	46		5 1/4 miles.
Right tangent of Love Point.....	345	12		5 5/8 miles.

## BRIDGE.

*General locality.*—Southern side of Chester River on western shore of Kent Narrows, about one-eighth mile west of Narrows railway station. (See Chart No. 29.)

*Immediate locality.*—Observed station is on a telegraph pole at a point about 25 feet above high water, 4 yards south of near rail of railroad, 8 yards west of end of railroad bridge, and 7 yards from tie line of bridge.

*Marks.*—Observed station is a small staff nailed to telegraph pole.

*References.*—None necessary.



## RAILROAD.

*General locality.*—Southern side of Chester River on eastern shore of Kent Narrows, about three-eighths mile east-southeast of Narrows railway station and one-eighth mile south of railroad. (See Chart No. 29.)

*Immediate locality.*—Observed station is on cultivated land about 8 feet above high water, 35 yards south by west of telephone line on north side of county road, 75 yards east of shanty, and 80 yards north-east of shore of small cove.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Marshy" (S 2° 38' E).....	0	00	00	¾ mile.
Cupola on barn.....	29	36	..	2¼ miles.
Chimney on ell of large house.....	38	04	..	2¾ miles.
Right tangent of shanty.....	96	32	..	75 yards.
South peak of Fisherman Inn.....	118	01	..	¾ mile.
Nail in blaze in tree (8 inches diameter).....	139	44	10	38.07 meters.
Nail in blaze in cherry tree (14 inches diameter).....	163	29	40	27.09 meters.
Nail in blaze in telephone pole No. 2848.....	197	15	20	30.33 meters.
Smokepipe of shanty.....	209	50	..	100 yards.
Near peak of ell-shaped house.....	269	00	..	1¾ miles.
Near peak of house.....	292	19	..	1¾ miles.
Left peak of barn.....	345	37	..	1½ miles.
House in trees.....	354	10	..	1⅝ miles.

## BLUEBEARD.

*General locality.*—Eastern shore of Chester River on point at entrance to a small creek, about five-eighths mile northeast of Blunt Creek and 1 mile southwest of entrance to Queenstown Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a low sand beach about 1 foot above high water, 5 yards inshore, 2 yards east of small persimmon tree, 55 yards northeast of a small stream, and 200 yards north-northeast of a pond.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Love Point Light" (N 47° 53' W).....	0	00	00	7 miles.
South gable of house.....	12	03	..	2¾ miles.
Right tangent of piles of Bogle Wharf.....	29	48	..	3¾ miles.
Largest of four pine trees on Piney Point.....	48	58	..	4 miles.
East chimney of house.....	70	23	..	2¾ miles.
Black beacon at entrance to Queenstown Creek.....	90	23	40	1 mile.
Nail in blaze in swamp-oak tree (4 inches diameter).....	122	01	10	10.60 meters.
Nail in blaze in chestnut tree (18 inches diameter).....	197	34	10	150 yards.
Nail in blaze in oak tree (6 inches diameter).....	270	04	20	125 yards.
Cupola of barn.....	278	50	..	1½ miles.
East chimney of house.....	279	24	..	1½ miles.
North gable of Jackson Creek Landing house.....	290	11	..	2¾ miles.
East gable of house.....	329	17	..	5¼ miles.
Gable of Love Point wharf house.....	344	08	..	6¾ miles.
Right tangent of Love Point.....	347	46	..	7 miles.

## BLAKEFORD.

*General locality.*—Eastern shore of Chester River, about three-eighths mile north of Blakeford Point, at entrance to Queenstown Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 15 feet above high water, 8 yards inshore, 2 yards back from top of bank with uniform slope to beach, 25 yards north of gully, and 25 yards south of large sycamore tree at foot of slope.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	/	"	
"Rain" (N 74° 56' W).....	0	00	00	17½ miles.
Right tangent of piles of Bogle Wharf.....	27	33	..	3 miles.
Nail in blaze in cedar tree (4 inches diameter).....	83	12	10	13.31 meters.
Northwest corner of house in woods.....	155	39	..	300 yards.
West gable of small house.....	174	19	..	¾ mile.
West gable of large barn.....	215	41	..	¾ mile.
West gable of house.....	235	20	..	¾ mile.
Northeast corner of elevator at Queenstown.....	230	21	..	¾ mile.
Nail in blaze in ash tree (15 inches diameter).....	247	00	20	21.30 meters.
First black beacon at entrance to Queenstown Creek.....	294	49	..	1 mile.
Chimney of fishing shack on Cedar Point.....	352	26	..	2½ miles.

## RAIN.

*General locality.*—Western shore of Chester River on Hail Point, about 1½ miles south-southeast of Bogle Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 5 feet above high water, 3 yards north of shore, and 20 yards northwest of extreme end of point. Cement monument marking reference station is 29.84 meters N 65° 20' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle, on standard cement monument projecting 3 inches above surface of ground. Subsurface mark of reference station is center of 2-inch tile pipe with top 2 inches below base of monument.

<i>References.</i> —	o	/	"	
"Bluebeard" (S 21° 17' E).....	0	00	00	17½ miles.
Chimney of house.....	11	07	..	2¾ miles.
Cupola on barn.....	33	55	..	2¾ miles.
Chimney of house on Jackson Creek.....	45	07	..	3¾ miles.
Chimney of small house.....	48	32	..	3½ miles.
Chimney of fishing shack.....	101	34	..	¾ mile.
Nail in blaze in pine tree (10 inches diameter).....	119	46	30	15.45 meters.
REFERENCE STATION.....	135	56	20	29.84 meters.
Nail in blaze in pine tree (10 inches diameter).....	147	05	50	18.09 meters.
South gable of house.....	173	28	..	1½ miles.
Right tangent of piles of Bogle Wharf.....	186	59	..	1½ miles.
Williams water tank.....	255	59	..	2 miles.
Black beacon at entrance to Queenstown Creek.....	318	01	..	1½ miles.
Cupola on barn.....	338	50	..	1¾ miles.

## BREAK.

*General locality.*—Eastern shore of Chester River on Break Point about one-eighth mile north of north side of entrance to Tilghmans Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 5 feet above high water, 13 yards inshore, 4 yards from edge of bank, 200 yards north of extreme end of point, and 300 yards west of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Blakeford" (S 23° 21' E).....	0	00	00	1½ miles.
North chimney of house at Queenstown....	6	55	..	2½ miles.
Chimney of house.....	37	48	..	3¾ miles.
Cupola on barn near Jackson Creek Landing	49	05	..	4½ miles.
Chimney of small house.....	55	05	..	4½ miles.
Chimney of small house.....	58	35	..	5½ miles.
Chimney of Greens fishing shack.....	84	38	..	1½ miles.
South chimney of house.....	103	42	..	2½ miles.
East gable of house.....	131	23	..	2½ miles.
Right tangent of piles of Bogle Wharf.....	133	30	..	1½ miles.
East chimney of house.....	151	35	..	2½ miles.
East chimney of house.....	176	46	..	3¾ miles.
Williams water tank.....	200	58	..	¼ mile.
Knob on door of fishing shack.....	349	58	..	¼ mile.

## OVERTON.

*General locality.*—Western shore of Chester River on north side of entrance to Durdin Creek and about 100 yards south of Bogle Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 4 yards inshore, 100 yards south of Bogle Wharf, 250 yards southeast of Bogle store, and 300 yards west of Bogle Wharf house. Cement monument marking reference station is 11.26 meters S 73° 06' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	'	"	
"Bay Bush Point" (N 3° 13' W).....	0	00	00	1¾ miles.
South gable of barn.....	4	12	..	2¾ miles.
South gable of barn.....	17	21	..	3 miles.
West gable of barn.....	39	13	..	5 miles.
Left tangent of piles of Bogle Wharf.....	73	17	..	300 yards.
Chimney of house.....	119	25	..	2½ miles.
Lower west gable of Queenstown elevator....	138	21	..	3½ miles.
North gable of house.....	140	27	..	3¾ miles.
Right tangent of woods on Hail Point.....	168	59	..	1¾ miles.
REFERENCE STATION.....	256	18	40	11.26 meters.
Chimney of Bogle's store.....	289	17	..	250 yards.

## FIR.

*General locality.*—Eastern shore of Chester River on Piney Point about 1½ miles north-northwest of Break Point and one-half mile west of Piney Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land at the extreme end of Piney Point, about on level with high water, and about 4 yards east of shore. Cement monument marking reference station is 10.45 meters S 70° 43' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe with top flush with surface of ground. Sub-surface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Break" (S 21° 04' E).....	0	00	00	1½ miles.
East chimney of house at Queenstown.....	2	36	..	4 miles.
Chimney of house.....	24	17	..	4½ miles.
Gable of barn near Jackson Creek Landing..	34	49	..	5½ miles.
North gable of house.....	35	17	..	5½ miles.
Chimney of fishing shack.....	51	41	..	2¾ miles.
Right tangent of piles of Bogle Wharf.....	71	41	..	1¾ miles.
Chimney of house.....	77	08	..	1½ miles.
South chimney of house.....	135	34	..	1½ miles.
North chimney of house.....	170	54	..	2¼ miles.
West chimney of house.....	178	00	..	3 miles.
West gable of barn.....	199	30	..	3½ miles.
Left tangent of woods.....	226	37	..	¾ mile.
REFERENCE STATION.....	310	21	10	10.45 meters.
Williams water tank.....	339	41	..	1¼ miles.

## BAY BUSH POINT.

*General locality.*—Western shore of Chester River on a point about one-fourth mile north of entrance to Fryingpan Cove and Churn Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 15 yards inshore, and in front of several persimmon trees. Cement monument marking reference station is 10.16 meters N 80° 13' W of observed station.

*Marks.*—Observed station is nail in 3-inch cement filled tile pipe with top 6 inches below surface of ground incased in cement cake bearing the legend "U. S. C. S.—1896." Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Fir" (S 57° 56' E).....	0	00	00	1½ miles.
Williams water tank.....	8	22	..	2½ miles.
Chimney of house at Queenstown.....	27	17	..	5½ miles.
West gable of barn.....	35	42	..	4½ miles.
Left tangent of woods on Hail Point.....	45	58	..	3¼ miles.
Left tangent of piles of Bogle Wharf.....	48	21	..	1¼ miles.
Chimney of Bogle store.....	58	00	..	1½ miles.
Nail in blaze in persimmon tree (6 inches diameter).....	69	04	00	6.25 meters.
REFERENCE STATION.....	157	43	00	10.16 meters.
Nail in blaze in persimmon tree (8 inches diameter).....	220	45	00	6.20 meters.
West chimney of house.....	244	04	..	1¼ miles.
East gable of barn.....	262	10	..	3 miles.
West gable of barn.....	297	51	..	4½ miles.
West gable of barn.....	316	19	..	3 miles.

## GORDON.

*General locality.*—Eastern side of Chester River about 55 yards off shore, three-fourths mile southwest of entrance to Reeds Creek and seven-eighths mile north-northeast of Piney Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in about 3 feet of water at high tide, 55 yards off shore, and 300 yards southwest of end of woods and cultivated field. Cement monument marking reference station is 57.49 meters S 71° 15' E of observed station.

*Marks.*—Observed station is nail in 2-inch by 4-inch pine stub driven with top to high water. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Fir" (S 25° 18' W).....	0	00	00	¾ mile.
Left tangent of piles of Bogle Wharf.....	15	23	..	2½ miles.
East gable of barn.....	42	41	..	2 miles.
South chimney of house.....	103	30	..	2 miles.
West chimney of Harris house.....	118	39	..	2¾ miles.
South gable of Strong tenant house.....	129	39	..	3 miles.
South chimney of house.....	145	25	..	3 miles.
Spindle on Brown house.....	167	02	..	3½ miles.
South gable of corn crib.....	197	36	..	3 miles.
Nail in blaze in pine tree (10 inches diameter).....	252	39	30	57.93 meters.
REFERENCE STATION.....	263	26	40	57.49 meters.
Nail in blaze in pine tree (18 inches diameter).....	286	55	40	57.02 meters.

## BIRD.

*General locality.*—Eastern shore of Chester River on Gordon Point at southwest side of entrance to Reeds Creek about 1½ miles southwest of Holton Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a marsh meadow about 2 feet above high water, and 75 yards west of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Crow" (S 14° 23' W).....	0	00	00	¾ mile.
Lone pine tree (12 inches diameter).....	69	59	..	300 yards.
North chimney of house.....	85	13	..	3½ miles.
South gable of barn.....	115	56	..	2¾ miles.
Northwest corner of house.....	230	16	..	¾ mile.
North chimney of house.....	300	01	..	1 mile.
North gable of house.....	343	41	..	1½ miles.
Windmill.....	358	43	..	½ mile.
Chimney of house.....	359	09	..	¾ mile.

## CROW.

*General locality.*—Eastern side of Chester River on western shore of Reeds Creek about one-half mile south of extreme end of Gordon Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in yard of tenant house about 4 feet above high water, 12 yards west of shore, 5 yards south of a pear orchard, and 7 yards north of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Bird" (N 14° 23' E).....	0	00	00	¾ mile.
South gable of house near Cliffs Landing....	3	03	..	3¾ miles.
South gable of barn.....	36	18	..	1¾ miles.
Cupola of barn.....	73	23	..	1½ miles.
Northeast corner of Carnell tenant house....	99	01	30	8.71 meters.
Northwest corner of Carnell tenant house....	128	43	10	6.65 meters.
Northeast corner of barn.....	198	25	20	14.06 meters.
Northwest corner of barn.....	221	37	10	12.68 meters.

## GROVE.

*General locality.*—Eastern side of Chester River on a point between Reeds Creek and Grove Creek about one-half mile southeast of Gordon Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a meadow about 2 feet above high water, 26 yards south of shore, 8 yards west of three persimmon trees, and 35 yards west of a pond.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Reeds" (N 20° 32' E).....	0	00	00	1/2 mile.
East chimney of house.....	13	06	..	3/4 mile.
South gable of barn.....	19	47	..	3/4 mile.
Nail in blaze in persimmon tree (6 inches diameter).....	53	05	50	10.98 meters.
Cupola on barn.....	75	58	..	5/8 mile.
Cupola on Wright barn.....	108	16	..	3/4 mile.
North gable of barn.....	168	50	..	5/8 mile.
East gable of house.....	181	32	..	3/4 mile.
South gable of house.....	230	54	..	1/2 mile.
Lone pine tree on Gordon Point.....	282	13	..	1/2 mile.
Cupola on barn.....	316	04	..	4 miles.
South chimney of house.....	326	13	..	4 miles.
Nail in blaze in sassafras tree (5 inches diameter).....	338	48	40	10.34 meters.

## REEDS.

*General locality.*—Eastern shore of Chester River at northeast side of entrance to Reeds Creek and about five-eighths mile south of Robins Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 2 feet above high water, 34 yards east of shore, 9 yards north of ditch draining swamp, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Bird" (S 62° 26' W).....	0	00	00	1/2 mile.
East chimney of Harris house.....	60	07	..	3 1/2 miles.
Chimney of house.....	101	57	..	3 1/4 miles.
East chimney of Brown house.....	112	01	..	3 miles.
Chimney of cabin.....	186	55	..	300 yards.
Cupola on barn.....	276	35	..	1 1/4 miles.
North gable of house.....	316	12	..	1 3/8 miles.
Chimney of house.....	337	46	..	7/8 mile.

## LITTLE GUM.

*General locality.*—Western shore of Chester River on Little Gum Point at southwest side of entrance to Grays Inn Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 2 yards south of shore, and 12 yards southeast of a 4-foot ditch. Cement monument marking reference station is 40.97 meters N 33° 31' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe with top flush with surface of ground. Subsurface mark is 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—	°	'	"	
"Weeks" (N 29° 53' W).....	0	00	00	¾ mile.
East gable of old house on opposite shore....	29	45		1 mile.
South chimney of house.....	81	38		1 mile.
South gable of house near Cliffs Landing....	93	34		¾ miles.
North gable of barn.....	115	23		¾ miles.
North gable of barn.....	130	38		¾ miles.
South gable of barn.....	170	12		¾ miles.
Left tangent of Gum Point.....	212	10		¾ mile.
North gable of barn.....	220	28		¾ mile.
South chimney of Harris house.....	347	39		¾ mile.
REFERENCE STATION.....	356	22	00	40. 97 meters.

## WEEKS.

*General locality.*—Western shore of Grays Inn Creek about three-eighths mile northwest of Chester River, and one-eighth mile southeast of Harris Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in cultivated field about 7 feet above high water, 6 yards west of shore, 5 yards west of vertical bank 5 feet high, 50 yards northeast of low cedar tree at edge of peach orchard, 250 yards north of a wharf, and 200 yards north-northeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Inn" (N 89° 27' E).....	0	00	00	¾ mile.
Left tangent of gable of barn.....	43	07		¾ miles.
Chimney of Harris tenant house.....	93	48		175 yards.
East gable of Harris house.....	107	38		200 yards.
East gable of Harris barn.....	142	45		250 yards.
Chimney of Harris tenant house.....	211	50		300 yards.
Right tangent of piles of Harris Wharf.....	260	03		300 yards.
East gable of Strong tenant house.....	288	59		¾ mile.
Chimney of Strong distillery.....	324	46		¾ mile.
Lone sycamore tree on opposite shore.....	335	05		¾ mile.

## SPRING.

*General locality.*—Western shore of Grays Inn Creek about one-half mile northwest of Chester River, on Spring Point, near Harris Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 8 yards southwest of shore, 10 yards west of a barn, 4 yards southwest of top of slope, and 100 yards southwest of an old wharf.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Island" (N 56° 37' E).....	0	00	00	¾ mile.
Left tangent of piles at northeast corner of old wharf.....	3	12		100 yards.
Lone sycamore tree on opposite shore.....	27	58		¾ mile.
Nail in northwest corner of Harris barn.....	40	12	30	9. 10 meters.
Lone cedar tree near orchard.....	105	03		350 yards.
Nail in post in southwest corner of Harris hay shed.....	143	58		20. 69 meters.
Stack of Leary sawmill.....	271	25	20	2 miles.
Nail in blaze in walnut tree (3 inches diameter).....	273	16	10	10. 73 meters.
Chimney of Strong tenant house.....	336	06		¾ mile.

## LUCY.

*General locality.*—Western shore of Grays Inn Creek about three-fourths mile northwest of Chester River and one-fourth mile northwest of Harris Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on wooded shore about 5 feet above high water, 5 yards west of shore, 2 yards west of top of vertical bank, and 3 feet north of a stump 4 inches in diameter. Cement monument marking reference station is 11.55 meters S 36° 59' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	''	
"Spring" (S 48° 33' E).....	0	00	00	¼ mile.
Nail in blaze in twin chestnut tree (18 inches diameter).....	71	38	10	9.54 meters.
REFERENCE STATION.....	85	32	20	11.55 meters.
Nail in blaze in twin chestnut tree (10 inches diameter).....	111	56	50	8.31 meters.
Stack of Leary sawmill.....	198	51	20	1½ miles.
East gable of barn.....	210	59	..	2 miles.
Left tangent of piles of Strong old wharf.....	213	34	..	¾ mile.
Southwest corner of Strong house.....	310	53	..	¾ mile.
Nail in blaze in gum tree (15 inches diameter).....	338	07	10	4.73 meters.
Left tangent of piles of Harris old wharf.....	345	48	..	¾ mile.
Northeast corner of Harris barn.....	359	13	..	¾ mile.

## GOOSE.

*General locality.*—Western shore of upper Grays Inn Creek about 1¼ miles northwest of Chester River, on point between Browns Cove and Goose Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field at edge of peach orchard about 12 feet above high water, 8 yards southwest of shore, 6 yards southwest of top of vertical bank, and 1 yard north of row of peach trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Prussian" (N 18° 50' W).....	0	00	00	¼ mile.
East gable of house.....	0	49	..	1½ miles.
West chimney of house.....	31	32	..	1¼ miles.
Nail in blaze in locust tree (6 inches diameter).....	36	09	00	5.32 meters.
West chimney of house.....	37	46	..	1 mile.
Left tangent of piles of old wharf.....	38	51	..	¾ mile.
West chimney of house.....	87	21	..	½ mile.
North post of Harris hay shed.....	156	55	..	¾ mile.
Nail in blaze in peach tree (6 inches diameter).....	248	59	10	10.42 meters.
East gable of barn.....	328	26	..	¾ mile.
Nail in blaze in locust tree (5 inches diameter).....	348	08	20	14.47 meters.
Stack of Learys sawmill.....	353	22	50	1½ miles.



## PRUSSIAN.

*General locality.*—Western shore of upper Grays Inn Creek about  $1\frac{5}{8}$  miles northwest of Chester River, opposite Strong's old wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a marsh meadow about 1 foot above high water, 9 yards southwest of shore, 25 yards west of extreme end of point, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Gray" (N $13^{\circ} 48'$ W).....	0	00	00	$\frac{1}{4}$ mile.
South chimney of house.....	34	17	..	$1\frac{1}{4}$ miles.
West chimney of house.....	45	05	..	$\frac{1}{2}$ mile.
West chimney of house.....	62	10	..	$\frac{3}{8}$ mile.
West chimney of small house near shore... .	70	17	..	1 mile.
Right tangent of piles of Strong old wharf... .	92	45	..	$\frac{1}{4}$ mile.
Right tangent of tin roofed barn.....	149	10	..	5 miles.
Left tangent of piles of Harris old wharf... .	154	28	..	1 mile.
South gable of Harris hay shed.....	158	46	..	1 mile.
Chimney of house.....	287	45	..	$\frac{1}{4}$ mile.
South chimney of house.....	294	52	..	$\frac{1}{4}$ mile.

## GRAY.

*General locality.*—Western shore of upper Grays Inn Creek about  $1\frac{3}{4}$  miles northwest of Chester River, 250 yards west of Browns Point, and 1 mile south-southeast of Learys Mill Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 3 feet above high water, 10 yards south of shore, 200 yards north of a group of five pine trees, and about on line with two cedar trees north of station.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Herring" (N $44^{\circ} 12'$ E).....	0	00	00	$\frac{1}{4}$ mile.
South gable of barn.....	9	55	..	$\frac{3}{8}$ mile.
Nail in blaze in cedar tree (3 inches diameter).....	22	05	10	14.67 meters.
Chimney of Harris house.....	107	22	..	$1\frac{3}{8}$ miles.
West one of group of pine trees (12 inches diameter).....	150	45	..	200 yards.
North chimney of house.....	178	58	..	$\frac{1}{4}$ mile.
Stack of Learys sawmill.....	283	09	..	$\frac{5}{8}$ mile.
Wicks windmill.....	284	47	..	$1\frac{1}{2}$ miles.
Chimney of small house.....	289	55	..	$\frac{3}{4}$ mile.
Nail in blaze in dead cedar tree (6 inches diameter).....	307	16	00	4.43 meters.
East chimney of house.....	315	24	..	$\frac{1}{2}$ mile.
Lone dead pine tree.....	359	32	..	$\frac{1}{4}$ mile.

## HERRING.

*General locality.*—Eastern shore of upper Grays Inn Creek about  $1\frac{7}{8}$  miles northwest of Chester River, at north side of entrance to Herringtown Creek and about five-eighths mile east-southeast of Leary sawmill. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a marsh meadow about 2 feet above high water, 20 yards north of shore, 5 yards west of a rail fence, 7 yards south of a lone dead pine tree, 75 yards south of a lone cedar tree, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"No Road" (S 14° 43' E) . . . . .	0	00	00	¾ mile.
North chimney of house . . . . .	58	28	..	¾ mile.
Nail in blaze in dead pine tree (30 inches diameter) . . . . .	201	30	10	6.66 meters.
Chimney of house . . . . .	215	40	..	¾ mile.
Chimney of house . . . . .	223	53	..	¼ mile.
East chimney of house . . . . .	273	48	..	½ mile.
West chimney of house . . . . .	300	02	..	300 yards.

## NO ROAD.

*General locality.*—Eastern shore of upper Grays Inn Creek about 1¼ miles northwest of Chester River at south side of entrance to Herrington Creek, near Strong old wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a clay and sand beach on a wooded shore about 1 foot above high water, 5 yards east of shore, and 17 yards east of end of piles of an old wharf.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Cut" (S 12° 04' E) . . . . .	0	00	00	¼ mile.
Left tangent of piles of Strong old wharf . . . . .	87	10	..	100 yards.
South chimney of house . . . . .	100	38	..	½ mile.
Stack of Leary sawmill . . . . .	148	50	..	1 mile.
Wicks windmill . . . . .	153	37	20	2¼ miles.
East chimney of house . . . . .	157	50	..	1¼ miles.
East gable of barn . . . . .	168	23	..	¾ mile.
Nail in blaze in pine tree (18 inches diameter) . . . . .	199	25	50	24.75 meters.
Nail in blaze in gum tree (18 inches diameter) . . . . .	316	57	00	8.16 meters.

## CUT.

*General locality.*—Eastern shore of upper Grays Inn Creek, on point about 1¾ miles northwest of Chester River, and one-half mile south of Herrington Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land below high water, about 13 yards north of shore, 60 yards northwest of three large cedar trees, 35 yards southwest of a wire fence at edge of woods, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"No road" (N 12° 04' W) . . . . .	0	00	00	¼ mile.
Nail in blaze in pine tree (6 inches diameter) . . . . .	67	32	10	22.31 meters.
Nail in blaze in cedar tree (12 inches diameter) . . . . .	97	06	10	28.19 meters.
West gable of barn . . . . .	145	52	..	4 miles.
Left tangent of piles of Harris old wharf . . . . .	164	09	..	¾ mile.
East chimney of Harris house . . . . .	171	22	..	¾ mile.
East gable of barn . . . . .	299	34	..	¼ mile.
North chimney of house . . . . .	304	41	..	½ mile.
South gable of house . . . . .	341	41	..	1¼ miles.
Left tangent of piles of Strong old wharf . . . . .	348	25	..	¼ mile.

## FORE.

*General locality.*—Eastern shore of Grays Inn Creek, on point about 1 mile northwest of Chester River, and three-eighths mile north of Harris Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point, about 1 foot above high water, 3 yards northwest of shore, 11 yards north-northeast of extreme end of point, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 12 inches above surface of marsh. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Lucy" (S 36° 11' W).....	0	00	00	3/8 mile.
North chimney of house.....	78	17	..	1 1/4 miles.
East gable of small house.....	80	43	..	1 1/4 miles.
Swamp oak tree (2 feet diameter).....	131	28	..	100 yards.
Southwest corner of Strong tenant house.....	234	28	..	3/8 mile.
Lone sycamore tree (12 inches diameter).....	274	58	..	3/8 mile.
West gable of barn on Grove Creek.....	278	30	..	4 1/4 miles.
North gable of barn with two cupolas.....	287	49	..	3 3/8 miles.
Chimney of Harris tenant house.....	319	50	..	3/8 mile.
Left tangent of piles of Harris old wharf.....	321	36	..	3/8 mile.
East gable of Harris barn.....	328	02	..	3/8 mile.

## ISLAND.

*General locality.*—Eastern shore of Grays Inn Creek, about five-eighths mile northwest of Chester River, on Island Point opposite Harris Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land, about 1 foot above high water, 3 yards north-east of shore, and 400 yards west of a house. Cement monument marking reference station is 9.01 meters N 43° 38' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe, with top flush with surface of ground. Sub-surface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

	°	'	"	
"Tray" (S 36° 22' E).....	0	00	00	3/8 mile.
Left tangent of woods on Hail Point.....	33	13	..	5 3/4 miles.
Lone poplar tree.....	65	03	..	3/8 mile.
East gable of Harris house.....	68	27	..	1/2 mile.
East gable of Harris barn.....	73	32	..	1/2 mile.
Right tangent of piles of old wharf.....	93	29	..	3/8 mile.
Chimney of small house.....	153	23	..	1 1/4 miles.
East chimney of house.....	171	07	..	3/4 mile.
East gable of Strong tenant house.....	197	31	..	1/4 mile.
REFERENCE STATION.....	259	59	50	9.01 meters.
Chimney of Strong old distillery.....	308	33	..	1/4 mile.
Lone cedar tree near shore.....	354	59	..	300 yards.

## TRAY.

*General locality.*—Eastern shore of Grays Inn Creek, about one-fourth mile northwest of Chester River, three-eighths mile southeast of Island Point, and one-half mile east of Harris Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point, about 1 foot above high water, 4 yards northeast of shore, 10 yards southwest of a small locust stump at foot of bank, and 12 yards southwest of foot of slope. Cement monument marking reference station is 8.86 meters N 53° 42' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe, with top flush with surface of ground. Sub-surface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 7 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Island" (N 36° 21' W).....	0	00	00	3/8 mile.
REFERENCE STATION.....	90	02	50	8.86 meters.
Nail in blaze in locust tree (4 inches diameter).....	90	28	40	10.60 meters.
Nail in blaze in persimmon tree (6 inches diameter).....	129	25	10	9.75 meters.
Right tangent of woods on Hail Point.....	217	29	..	5 miles.
Northeast corner of barn.....	239	43	..	1 mile.
East gable of Harris house.....	287	44	..	1/2 mile.
Chimney of Harris tenant house.....	304	05	..	5/8 mile.
North gable of house near shore.....	312	02	..	5/8 mile.
North gable of barn.....	338	10	..	1 1/2 miles.
South chimney of house.....	354	21	..	1 3/4 miles.

## INN.

*General locality.*—Eastern shore of Grays Inn Creek, about one-eighth mile northwest of Chester River and one-half mile southeast of Island Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a peach orchard, about 4 feet above high water, and 25 yards northeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 3 inches below base of monument.

<i>References.</i> —	°	'	"	
"Holton Point" (S 72° 50' E).....	0	00	00	2 5/8 miles.
Nail in blaze in sycamore tree (30 inches diameter).....	13	24	30	4.53 meters.
North cupola on barn.....	38	57	..	2 1/2 miles.
Left tangent of woods on Hail Point.....	74	54	..	4 1/2 miles.
East gable of Swatska barn.....	101	19	..	1 1/4 miles.
East chimney of house.....	119	02	..	1/2 mile.
East gable of Harris house.....	150	53	..	5/8 mile.
East gable of small house.....	175	15	..	5/8 mile.
Nail in blaze in peach tree (8 inches diameter).....	252	41	50	11.71 meters.
Southwest corner of Earle bathhouse.....	359	28	..	3 miles.

## HOLTON POINT.

*General locality.*—Eastern shore of Chester River on Holton Point, at south side of entrance to Corsica River. (See Chart No. 30.)

*Immediate locality.*—Observed station is on low sand beach, about on level with high water, and one-fourth mile west of small bathhouse. Cement monument marking reference station is 5.40 meters S 48° 06' E of observed station.

*Marks.*—Observed station is nail in 3-inch cement-filled tile pipe, with top about 6 inches below surface of ground, encased in a cement cake bearing the legend "U. S. C. S. 1896." Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

## References.—

	°	'	"	
"Bay Bush Point" (S 64° 15' W).....	0	00	00	2½ miles.
East chimney of house.....	19	49		3 miles.
Chimney of small house.....	27	23		3 miles.
East gable of barn.....	38	39		3½ miles.
East gable of small house.....	57	08		2¼ miles.
South gable of barn.....	67	37		2½ miles.
South gable of house.....	80	09		2¾ miles.
East chimney of house.....	94	17		1¾ miles.
West chimney of house.....	130	52		2 miles.
South gable of corn crib.....	157	14		¾ mile.
West gable of barn.....	184	04		1 mile.
REFERENCE STATION.....	247	38	20	5.40 meters.
Nail in blaze in persimmon tree (4 inches diameter).....	321	38	00	28.35 meters.
North gable of barn.....	329	38		2½ miles.
North gable of barn.....	343	06		4¾ miles.
East gable of barn.....	357	02		4¼ miles.

## EARLE.

*General locality.*—Southern shore of Corsica River on Town Bar Point about one-half mile east of Chester River and 100 yards north of Earle Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 5 yards south of shore, 19 yards north of a pond, and 100 yards north of Earle Wharf.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Hydrographic" (S 64° 38' E).....	0	00	00	¼ mile.
Lone sycamore tree.....	10	43		½ mile.
East chimney of house.....	18	56		½ mile.
Southeast pile at end of Earle Wharf.....	48	59		100 yards.
Nail in blaze in locust tree (5 inches diameter).....	63	18	00	12.92 meters.
Nail in blaze in locust tree (3 inches diameter).....	87	58	50	11.07 meters.
Earle windmill.....	118	07		300 yards.
East gable of barn.....	165	21		3½ miles.
East gable of small house.....	179	26		2¾ miles.
Church steeple at Crosby.....	196	20		3¾ miles.
South gable of Brown house.....	209	09		2¼ miles.
West chimney of Sissel house.....	244	53		¾ mile.
South gable of Emory barn.....	298	08		¾ mile.
West chimney of house.....	338	10		1½ miles.

## HYDROGRAPHIC.

*General locality.*—Southern shore of Corsica River about 1½ miles east of Chester River and one-half mile east of Earle Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is near edge of cultivated field about 3 feet above high water, 20 yards south of shore, 4 yards south of edge of bank 3 feet high, and 400 yards north of lone sycamore tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Earle" (N 64° 37' W).....	0	00	00	5/8 mile.
Church steeple at Crosby.....	14	03	..	4 1/4 miles.
East gable of barn.....	19	13	..	3 1/2 miles.
South gable of Sissel barn.....	33	12	..	3/4 mile.
South gable of Emory barn.....	73	18	..	5/8 mile.
Southwest corner of Emory Wharf house....	75	44	..	1/2 mile.
West gable of barn.....	114	51	..	3/4 mile.
West gable of barn.....	135	37	..	1 5/8 miles.
West chimney of house.....	148	56	..	1 1/4 miles.
East chimney of house.....	231	23	..	3/4 mile.
Nail in blaze in apple tree (12 inches diameter).....	327	14	30	16.00 meters.
Southeast corner of Earle Wharf house.....	354	51	..	1/2 mile.

## RUTH.

*General locality.*—Southern shore of Corsica River about 1 1/2 miles east of Chester River and one-eighth mile northwest of entrance to Tilghmans Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is in cultivated field about 15 feet above high water, 10 yards south of shore, 2 yards west of edge of slope, and 6 yards south of edge of slope.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Hydrographic" (N 82° 13' W).....	0	00	00	3/8 mile.
East chimney of Earle tenant house.....	0	11	..	1 mile.
South gable of Sissel barn.....	36	30	..	1 mile.
Southeast corner of Emory Wharf house....	54	13	..	5/8 mile.
South gable of Emory barn.....	60	05	..	3/4 mile.
Chimney of Emory house.....	64	17	..	3/4 mile.
East post of front porch of house.....	109	34	..	3/4 mile.
Nail in blaze in oak tree (24 inches diameter) 119	49	10	..	9.98 meters.
Nail in blaze in cedar tree (6 inches diameter).....	223	53	20	14.30 meters.
East gable of small barn.....	308	56	..	3/8 mile.
Lone sycamore tree.....	319	36	..	3/4 mile.

## MELFIELD.

*General locality.*—Southern shore of Corsica River about 1 1/8 miles east of Chester River, 1 mile southeast of Emory Wharf, and one-eighth mile east of entrance to Tilghmans Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is in cultivated field about 18 feet above high water, 10 yards south of shore, 5 yards south of edge of bluff, and 10 yards west of a ravine.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Ruth" (N 71° 32' W).....	0	00	00	3/8 mile.
East gable of barn.....	11	02	..	5 miles.
Left tangent of Emory Wharf.....	29	50	..	7/8 mile.
East chimney of Emory house.....	38	10	..	1 mile.
Southwest corner of house.....	74	26	..	3/4 mile.
Cupola on Emory Wharf house.....	96	53	..	1 1/8 miles.
Nail in blaze in walnut tree (8 inches diameter).....	119	34	10	3.81 meters.
Nail in blaze in gum tree (7 inches diameter).....	179	56	10	16.18 meters.
West gable of barn.....	195	19	..	3/8 mile.
Nail in blaze in locust tree (6 inches diameter).....	336	32	10	13.85 meters.
South chimney of Earle house.....	350	42	..	1 3/8 miles.

BATH.

*General locality.*—Southern shore of Corsica River on Wash Point about 2 miles east of Chester River, one-half mile west of Rocky Point, and one-fourth mile southeast of Ship Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 15 yards east of shore, 13 yards west of a pond, and surrounded by dense growth of bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 8 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Melfield" (S 30° 54' W).....	0	00	00	1/2 mile.
Left tangent of peak of barn.....	24	38	..	1 mile.
Earle windmill.....	53	43	..	1 5/8 miles.
Left edge of Earle Wharf house.....	56	38	..	1 1/2 miles.
East chimney of house.....	86	14	..	1 mile.
South chimney of house.....	120	55	..	3/8 mile.
West chimney of house.....	217	12	..	3/4 mile.
North one of two cedar trees on hill.....	267	01	..	1/4 mile.
Nail in blaze in hackberry tree (12 inches diameter).....	326	23	50	3.06 meters.
Nail in blaze in pear tree (15 inches diameter).....	345	11	50	6.79 meters.

SHIP.

*General locality.*—Northern shore of Corsica River on Ship Point at west side of entrance to Emorys Creek, about 1 7/8 miles east of Chester River, and five-eighths-mile east of Emory Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point covered with bushes about 1 foot above high water, 6 yards west of shore, and 75 yards south of a cedar tree covered with grape vines.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References —

	°	'	"	
"Ruth" (S 39° 11' W).....	0	00	00	5/8 mile.
North gable of barn.....	3	22	..	3/4 mile.
Earle windmill.....	40	59	..	1 1/2 miles.
Left edge of Earle Wharf house.....	43	35	..	1 1/4 miles.
East gable of barn.....	128	34	..	1/4 mile.
Nail in blaze in cedar tree (7 inches diameter).....	144	33	30	12.52 meters.
West gable of barn.....	217	05	..	1 1/4 miles.
West chimney of house.....	220	00	..	1 1/4 miles.
North chimney of house.....	229	59	..	1 1/4 miles.
West chimney of house.....	251	20	..	3/4 mile.

## ENGINEER.

*General locality.*—Northern shore of Corsica River about 1 mile east of Chester River, five-eighths mile northeast of Earle Wharf, and 50 yards west of Emory Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marshland about 1 foot above high water, 12 yards north of shore, 50 yards west of Emory Wharf, and 50 yards southeast of a pond.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Ruth" (S 29° 36' E).....	0	00	00	5/8 mile.
East chimney of house.....	29	31	..	7/8 mile.
Nail in blaze in pear tree (6 inches diameter).....	70	38	40	99.95 feet.
Earle windmill.....	90	13	..	7/8 mile.
Lone cedar tree.....	165	42	..	125 yards.
South gable of Emory barn.....	219	59	..	300 yards.
East chimney of Emory house.....	257	47	..	250 yards.
West chimney of house.....	317	59	..	1 3/8 miles.
Northeast corner of Emory Wharf house.....	321	35	..	156.94 feet.

## SWEPSON.

*General locality.*—Northern shore of Corsica River opposite Town Bar Point about one-half mile east of Chester River, three-eighths mile north of Earle Wharf, and three-eighths mile west of Emory Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marshland about 1 foot above high water, 12 yards north of shore, 10 yards south of lone cedar tree, and 12 yards east of small ditch draining swamp.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Hydrographic" (S 32° 06' E).....	0	00	00	5/8 mile.
East chimney of house.....	6	32	..	3/4 mile.
Chimney of house.....	44	28	..	5/8 mile.
Earle windmill.....	71	46	..	1/2 mile.
Nail in blaze in cedar tree (15 inches diameter).....	230	15	30	9.50 meters.
South gable of Emory barn.....	282	58	..	1/2 mile.
West gable of barn.....	332	36	..	1 1/4 miles.
North chimney of small house.....	355	19	..	1 1/2 miles.
Chimney of small house.....	357	28	..	2 1/2 miles.



## CORSIKA.

*General locality.*—Eastern shore of Chester River at north side of entrance to Corsika River about three-eighths mile south of Lower Spaniard Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 7 feet above high water, 16 yards east of shore, 11 yards east of edge of bank, and 5 yards south of young peach orchard.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Swepson" (S 54° 31' E).....	0	00	00	¾ mile.
North chimney of house.....	19	17	..	1½ miles.
Earle windmill.....	52	39	..	¾ mile.
Northwest corner of Earle bathhouse.....	54	01	..	¾ mile.
Left tangent of woods on Gordon Point.....	93	50	..	2¾ miles.
Chimney of small house.....	145	49	..	3¾ miles.
South gable of barn.....	187	43	..	2½ miles.
West gable of Sissel corn crib.....	318	25	..	½ mile.
Locust tree (24 inches diameter).....	359	07	..	150 yards.

## DEEP COVE.

*General locality.*—Western shore of Chester River on point at west side of entrance to Langford Creek and south side of entrance to Deep Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marshland about 1 foot above high water, 10 yards inshore, 50 yards east of a dead tree 2 feet in diameter, 80 yards southeast of a tall poplar tree, and 300 yards east of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Gordon" (S 6° 44' E).....	0	00	00	2¾ miles.
East pine tree of group on Piney Point.....	5	25	..	3½ miles.
Spindle on gable of barn.....	47	08	..	1¾ miles.
Lone poplar tree.....	59	20	..	¼ mile.
Northeast corner of Ashley house.....	87	57	..	300 yards.
Southeast corner of fishing shack.....	124	34	..	200 yards.
Lone pine tree.....	136	01	..	¼ mile.
South gable of house.....	193	59	..	1¼ miles.
West chimney of house.....	200	47	..	1½ miles.
West gable of barn.....	243	30	..	1 mile.
North chimney of house at Cliffs Landing.....	256	16	..	2 miles.
North gable of barn.....	288	41	..	2¼ miles.
Southwest corner of Earle bathhouse.....	307	09	..	2½ miles.
North gable of barn.....	355	07	..	2½ miles.

## SNUB.

*General locality.*—Western shore of Langford Creek on prominent point about three-eighths mile north of Chester River between Deep Cove and Long Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a low sand point about 2 feet above high water, 8 yards west of shore, and 75 yards north of cedar trees on shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Deep Cove" (S 5° 21' W).....	0	00	00	¾ mile.
Lone pine tree.....	11	37		75 yards.
Lone poplar tree (18 inches diameter).....	140	34		300 yards.
East chimney of house.....	160	56		1 mile.
West chimney of house.....	174	57		1 mile.
West chimney of house.....	193	06		¾ mile.
South chimney of house.....	212	17		2¾ miles.
West chimney of house.....	228	09		1¾ miles.
South chimney of Brown house.....	249	07		1½ miles.
West gable of house.....	267	36		4 miles.
Left edge of Earle bathhouse.....	305	40		2½ miles.
West gable of barn on Reeds Creek.....	334	41		4 miles.

## LAWYER.

*General locality.*—Western shore of Langford Creek on Long Point about 1 mile north of Chester River between Long Cove and Lawyers Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a low sand point about 1 foot above high water, 8 yards west of extreme east end of point, and 30 yards east of group of pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Peach" (S 41° 41' E).....	0	00	00	¾ mile.
East gable of barn.....	20	38		3¾ miles.
Southeast chimney of Strong house.....	84	03		½ mile.
Nail in blaze in twin pine tree (18 inches diameter).....	121	07	20	26.76 meters.
Nail in blaze in pine tree (12 inches diameter).....	134	41	50	26.07 meters.
South chimney of house.....	141	33		¾ mile.
East chimney of house.....	170	21		¾ mile.
East chimney of house.....	194	05		¼ mile.
West chimney of house.....	242	39		¾ mile.
West chimney of Brown house.....	323	45		¾ mile.

## DRUM.

*General locality.*—Western shore of Langford Creek on Drum Point about 1¼ miles north of Chester River, between Lawyers Cove and Davis Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a marsh meadow, about 2 feet above high water, 13 yards north of shore, 15 yards south of shore, and 13 yards west of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Major" (S 54° 41' E).....	0	00	00	¾ mile.
West gable of Brown house.....	9	59		¾ mile.
Left tangent of woods on Hail Point.....	65	19		6 miles.
East chimney of Ashley house.....	88	26		1¼ miles.
East gable of house.....	171	22		½ mile.
Chimney of small house.....	215	51		¾ mile.
South gable of barn.....	249	18		1½ miles.
West chimney of house.....	271	20		1½ miles.
West chimney of house.....	305	02		¾ mile.

## DAVIS.

*General locality.*—Western shore of Langford Creek on point about  $1\frac{7}{8}$  miles north of Chester River, one-eighth mile northeast of entrance to Davis Creek, five-eighths mile north of Drum Point, and nearly opposite Orchard Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 20 yards northwest of shore, and 10 yards northwest of top of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Drum" (S $1^{\circ} 07'$ E).....	0	00	00	$\frac{3}{8}$ mile.
Nail in blaze in oak tree (4 inches diameter).....	21	47	30	16.50 meters.
Chimney of small house.....	207	06	..	1 mile.
South gable of barn.....	234	11	..	$1\frac{1}{4}$ miles.
West chimney of house.....	267	34	..	$1\frac{1}{2}$ miles.
West chimney of house.....	294	35	..	1 mile.
Nail in blaze in oak tree (15 inches diameter).....	324	22	10	10.46 meters.
Chimney of house.....	337	30	..	$1\frac{1}{2}$ miles.
North gable of house on Reeds Creek.....	357	28	..	6 miles.

## ISLE.

*General locality.*—Western shore of West Fork of Langford Creek, on Island Point, about one-fourth mile north of main body of creek and three-eighths mile northwest of Cacaway Island. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a low sand point about 1 foot above high water, 5 yards south of shore, 8 yards north of shore, 50 yards west of extreme end of point, and 20 yards east of foot of wooded bluff 15 feet high. Cement monument marking reference station is 5.55 meters S  $79^{\circ} 32'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	'	"	
"Eagle" (N $43^{\circ} 25'$ W).....	0	00	00	$\frac{1}{2}$ mile.
South gable of Leary corncrib.....	1	41	..	$1\frac{3}{4}$ miles.
West chimney of house.....	47	18	..	$1\frac{1}{4}$ miles.
Chimney of small house.....	75	51	..	$\frac{1}{2}$ mile.
North chimney of house.....	142	13	..	$1\frac{1}{4}$ miles.
North gable of barn.....	153	58	..	1 mile.
Lone cedar tree on Drum Point.....	234	51	..	1 mile.
REFERENCE STATION.....	302	57	00	5.55 meters.
South chimney of house.....	355	56	..	$1\frac{1}{4}$ miles.

## EAGLE.

*General locality.*—Western shore of West Fork of Langford Creek, on Eagle Point at south side of entrance to Graveyard Cove, about three-fourths mile northwest of main body of Langford Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on prominent bluff about 20 feet above high water, 26 yards west of extreme end of point, 11 yards south of top of bank, 8 yards north of top of bank, and 2 yards north of small cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Hornor" (N 84° 09' E) .....	0	00	00	¼ mile.
Left tangent of Cacaway Island.....	42	07	..	¾ mile.
Nail in blaze in stump near top of bank....	85	52	40	9.96 meters.
North chimney of house.....	131	49	..	1 mile.
Lone oak tree (12 inches diameter).....	153	29	..	¼ mile.
Nail in blaze in stump (15 inches diameter). 202	06	10	..	4.54 meters.
East chimney of De Ford house.....	216	44	..	¾ mile.
South chimney of house.....	224	39	..	¾ mile.
Lone cedar tree.....	268	44	..	¾ mile.
Chimney of small house.....	280	49	..	1½ miles.

## FORD.

*General locality.*—Western shore of West Fork of Langford Creek about 1 mile northwest of main body of Langford Creek, three-eighths mile northwest of Eagle Point, and one-half mile south of Whale Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in garden about 20 feet above high water, 9 yards southwest of shore, 7 yards southwest of top of bank, and 80 yards southeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Kinsley" (N 21° 24' W).....	0	00	00	¼ mile.
Nail in blaze in cherry tree (12 inches diameter).....	18	56	20	10.76 meters.
Lone cedar tree.....	50	01	..	½ mile.
South gable of old barn.....	71	15	..	1 mile.
Nail in blaze in cedar tree (8 inches diameter).....	136	05	20	6.23 meters.
Twin oak tree on Eagle Point.....	148	51	..	¼ mile.
East gable of De Ford house.....	311	47	..	80 yards.
Walnut tree (12 inches diameter).....	324	13	..	50 yards.

## KINSLEY.

*General locality.*—Western shore of West Fork of Langford Creek on Pastor Point about 1¼ miles northwest of main body of Langford Creek and one-fourth mile south of Whale Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 2 feet above high water, 6 yards west of shore, 200 yards north of a wharf, and at foot of slope rising to an elevation of 10 feet.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Whale" (N 3° 10' E).....	0	00	00	¼ mile.
Chimney of house.....	22	01	..	1¼ miles.
Lone cedar tree.....	63	18	..	¾ mile.
South gable of barn.....	71	35	..	¾ mile.
West chimney of De Ford house.....	168	05	..	¼ mile.
End of Kinsley wharf.....	178	58	..	200 yards.
Nail in blaze in wild-cherry tree (12 inches diameter).....	195	51	10	4.01 meters.
Nail in blaze in twin stump.....	242	42	30	2.57 meters.
North chimney of Leary house.....	329	45	..	¾ mile.

## WHALE.

*General locality.*—Western shore of West Fork of Langford Creek, on Whale Point, at south side of entrance to Bungay Creek, about  $1\frac{1}{2}$  miles northwest of main body of Langford Creek, and three-eighths mile southwest of Vickers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 2 feet above high water, 6 yards south-west of shore, and 300 yards northeast of a house. Cement monument marking reference station is 8.75 meters S  $35^{\circ} 27'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

<i>References.</i> —	o	'	''	
"Nat" (S $76^{\circ} 46'$ E).....	0	00	00	$\frac{1}{8}$ mile.
Left tangent of Eagle Point.....	46	25	..	$\frac{3}{4}$ mile.
West chimney of De Ford house.....	73	51	..	$\frac{3}{8}$ mile.
Nail in blaze in cedar tree (6 inches diameter).....	82	53	50	7.20 meters.
REFERENCE STATION.....	112	12	10	8.75 meters.
Nail in blaze in cedar tree (12 inches diameter).....	130	49	20	13.55 meters.
North chimney of house.....	307	45	..	$\frac{3}{4}$ mile.
Left tangent of piles of Vickers Wharf.....	307	54	..	$\frac{1}{4}$ mile.
West chimney of house.....	354	11	..	$\frac{3}{4}$ mile.

## BUNGAY.

*General locality.*—Western shore of West Fork of Langford Creek, on point at north side of entrance to Bungay Creek, about  $1\frac{3}{8}$  miles northwest of main body of Langford Creek and one-fourth mile west of Vickers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a low sand point at north side of entrance to Bungay Creek, about 1 foot above high water, and 16 yards west of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	'	''	
"Nat" (S $28^{\circ} 21'$ E).....	0	00	00	$\frac{1}{4}$ mile.
Left edge of bank on Eagle Point.....	7	25	..	$\frac{7}{8}$ mile.
West gable of barn.....	38	01	..	$\frac{1}{2}$ mile.
North chimney of Kinsley house.....	45	08	..	$\frac{3}{8}$ mile.
North chimney of Leary house.....	58	02	..	$\frac{1}{4}$ mile.
North gable of house.....	60	26	..	$\frac{1}{2}$ mile.
South gable of house.....	205	43	..	$1\frac{1}{4}$ miles.
South gable of barn.....	238	01	..	$\frac{3}{4}$ mile.
North chimney of house.....	268	18	..	$\frac{1}{2}$ mile.
West chimney of house.....	292	48	..	$\frac{3}{8}$ mile.
Lone cedar tree (12 inches diameter).....	344	58	..	$\frac{1}{4}$ mile.

## LOCUST.

*General locality.*—Eastern shore of West Fork of Langford Creek, near Vickers Wharf, about  $1\frac{5}{8}$  miles northwest of main body of Langford Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 2 feet above high water, 5 yards southeast of shore, and immediately back of loading platform on Vickers Wharf.

*Marks.*—Observed station is nail in root of a leaning locust tree 12 inches in diameter.

*References.*—

Drift pin in top of pile head at southeast end of Vickers Wharf.....	5.78 meters.
Drift pin in top of pile head at northwest end of Vickers Wharf.....	7.78 meters.

## NAT.

*General locality.*—Eastern shore of West Fork of Langford Creek, opposite Whale Point, about  $1\frac{3}{8}$  miles northwest of main body of Langford Creek and one-fourth mile south of Vickers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 2 feet above high water, 7 yards south of shore, 8 yards north of shore, 25 yards east of extreme end of point, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Mill" (S 29° 19' E).....	0	00	00	$\frac{1}{8}$ mile.
Left tangent of Eagle Point.....	10	49	..	$\frac{3}{8}$ mile.
West gable of house.....	31	29	..	$1\frac{1}{2}$ miles.
Left edge of De Ford kitchen.....	48	38	..	$\frac{3}{8}$ mile.
North chimney of house.....	71	35	..	$\frac{3}{8}$ mile.
North gable of barn.....	75	40	..	$\frac{3}{8}$ mile.
East gable of barn.....	134	57	..	$\frac{1}{2}$ mile.
Chimney of house.....	227	58	..	$\frac{3}{4}$ mile.
Persimmon tree (3 inches diameter).....	266	01	..	70 yards.
South gable of barn.....	302	15	..	$\frac{3}{8}$ mile.

## MILL.

*General locality.*—Eastern shore of West Fork of Langford Creek, on point at west side of a small cove about  $1\frac{3}{4}$  miles northwest of main body of Langford Creek and three-eighths mile south of Vickers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 2 feet above high water, 6 yards west of shore, 7 yards east of shore, 15 yards northwest of extreme end of point, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite. Cement monument marking reference station is 9.48 meters N 2° 57' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Ford" (S 32° 51' W).....	0	00	00	$\frac{3}{8}$ mile.
East chimney of De Ford house.....	9	46	..	$\frac{3}{8}$ mile.
South chimney of house.....	38	14	..	$\frac{3}{8}$ mile.
North chimney of house.....	72	11	..	$\frac{3}{8}$ mile.
South chimney of house.....	142	59	..	2 miles.
REFERENCE STATION.....	150	06	20	9.48 meters.
Lone cedar tree.....	163	32	..	300 yards.
South gable of barn.....	213	24	..	$\frac{1}{2}$ mile.
Chimney of house.....	343	48	..	$\frac{3}{4}$ mile.

## WEST.

*General locality.*—Eastern shore of West Fork of Langford Creek, on Cedar Point, at west side of entrance to Long Cove, about seven-eighths mile north of main body of Langford Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 5 yards west of shore, 8 yards east of shore, and 25 yards northwest of extreme end of point. Cement monument marking reference station is 21.85 meters N 27° 40' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Mill" (N 53° 43' W).....	0	00	00	¾ mile.
Nail in blaze in cherry tree (6 inches diameter).....	77	22	30	15.45 meters.
REFERENCE STATION.....	81	22	30	21.85 meters.
Nail in blaze in oak tree (12 inches diameter).....	93	38	40	26.24 meters.
Twin oak tree on Eagle Point.....	267	17	..	¼ mile.
Chimney of house.....	282	45	..	¾ mile.
East chimney of De Ford house.....	315	37	..	½ mile.
South chimney of house.....	330	57	..	¾ mile.
North chimney of house.....	348	50	..	1¼ miles.

## HORNOR.

*General locality.*—Eastern shore of West Fork of Langford Creek on point between Long Cove and Hornors Cove about three-fourths mile north of main body of Langford Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a marsh meadow about 1 foot above high water, 15 yards northeast of shore, and 30 yards south of fringe of woods parallel with shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Eagle" (S 84° 10' W).....	0	00	00	¼ mile.
West chimney of De Ford House.....	20	40	..	¾ mile.
South chimney of house.....	29	03	..	1¼ miles.
North chimney of house.....	40	41	..	1½ miles.
Left edge of small house.....	242	40	..	1 mile.
Right tangent of Cacaway Island.....	261	55	..	¾ mile.
Chimney of house.....	353	56	..	¾ mile.

## KING.

*General locality.*—On point between East Fork and West Fork of Langford Creek about 150 yards north of Cacaway Island. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a point about 14 feet high at edge of cultivated field, 3 yards northwest of edge of bank, 3 yards east of edge of bank at gully, and 8 yards east-northeast of point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Ash" (N 44° 53' E).....	0	00	00	¾ mile.
Left peak of large house.....	55	52	..	1¾ miles.
Nail in blaze in oak tree (8 inches diameter).....	70	26	..	6.25 meters.
Left chimney of house.....	113	18	..	3 miles.
Nail in blaze in tree (4 inches diameter).....	163	48	10	8.27 meters.
Right peak of barn.....	174	35	..	2 miles.
Nail in blaze in tree (4 inches diameter).....	246	34	20	7.49 meters.
Left chimney on mansion house.....	259	16	..	.....
Chimney of house among trees.....	295	12	..	.....

## ASH.

*General locality.*—Western shore of East Fork of Langford Creek about one-half mile north of main body of Langford Creek and one-eighth mile northeast of north end of Cacaway Island. (See Chart No. 30.)

*Immediate locality.*—Observed station is in cultivated land about 10 feet above high water, 35 yards northwest of shore, 14 yards northwest of edge of low bank, 20 yards northwest of line of trees along shore, and 36 yards south-southwest of point of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Noth" (S 81° 49' E) . . . . .	0	00	00	3/8 mile.
Left peak of long barn . . . . .	9	25	..	1 1/2 miles.
Nail in blaze in oak tree (14 inches diameter) . . . . .	13	43	10	19.55 meters.
Nail in blaze in oak tree (14 inches diameter) . . . . .	69	49	10	27.87 meters.
Left peak of house . . . . .	128	38	..	1 mile.
Chimney of small house . . . . .	183	37	..	1 3/4 miles.
Near peak of large house . . . . .	196	17	..	1 1/2 miles.
Left chimney of large mansion . . . . .	200	11	..	1 3/4 miles.
Nail in blaze in oak tree (5 inches diameter). . . . .	324	03	50	21.37 meters.

## NOTH.

*General locality.*—Western shore of East Fork of Langford Creek on point opposite Kings Creek about three-fourths mile northeast of main body of Langford Creek and one-half mile east of north end of Cacaway Island. (See Chart No. 30.)

*Immediate locality.*—Observed station is in cultivated land about 3 feet above high water, 6 yards west of shore, 23 yards northeast of shore, and 40 yards north of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Leary" (N 36° 47' E) . . . . .	0	00	00	1/4 mile.
Southwest peak of large barn . . . . .	24	50	..	1/2 mile.
Nail in blaze of oak tree (8 inches diameter). . . . .	53	29	40	5.95 meters.
Left chimney of Stoop store . . . . .	74	51	..	3/4 mile.
Left peak of Stoop long barn . . . . .	77	18	..	3/4 mile.
Near peak of barn . . . . .	125	11	..	3/8 mile.
Nail in blaze in locust tree (3 inches diameter) . . . . .	141	54	10	4.91 meters.
Chimney of house . . . . .	174	18	..	1/2 mile.
Chimney of house . . . . .	200	00	40	3 miles.
Nail in blaze in locust tree (5 inches diameter) . . . . .	354	35	10	8.11 meters.

## LEARY.

*General locality.*—Western shore of East Fork of Langford Creek about 1 mile northeast of main body of Langford Creek and three-eighths mile north of Haw Bush Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point near Leary's old wharf, about 1 foot above high water, 6 yards west of shore, 10 yards northeast of shore, and 10 yards north of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.



## References.—

	°	'	"	
"Nest" (N 33° 43' E).....	0	00	00	3/8 mile.
North chimney of house.....	38	43	..	5/8 mile.
House among trees.....	150	10	..	5/8 mile.
Chimney of house.....	179	15	..	7/8 mile.
Chimney of house.....	194	37	..	2 3/8 miles.
Nail in blaze in cedar tree (14 inches diameter).....	255	59	40	17.45 meters.
Nail in blaze in locust tree (6 inches diameter).....	280	30	40	15.75 meters.
Nail in blaze in locust tree (7 inches diameter).....	298	51	30	15.80 meters.

## NEST.

*General locality.*—Western shore of East Fork of Langford Creek on point about 1 3/8 miles northeast of main body of Langford Creek and five-eighths mile southwest of entrance to Philips Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a pasture about 10 feet above high water, 11 yards north of edge of bank, 12 yards west of edge of bank, 16 yards west-northwest of point of bank, and 125 yards south of clump of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Woll" (N 18° 22' E).....	0	00	00	1/4 mile.
Large chimney of house.....	4	41	..	3 miles.
Near large chimney of house.....	62	00	..	1 mile.
Nail in blaze in hickory stump (4 inches diameter).....	115	06	10	10.07 meters.
Chimney of small house.....	166	21	..	2 miles.
Chimney of rambling house.....	194	49	..	1 5/8 miles.
Nail in blaze in locust tree (4 inches diameter).....	212	15	..	12.59 meters.
Large tree in small clump.....	275	24	..	.....
Nail in blaze in oak tree (20 inches diameter).....	334	44	00	38.40 meters.
East peak of shed.....	346	12	..	.....

## WOLL.

*General locality.*—Western shore of East Fork of Langford Creek about 1 mile north of Haw Bush Point and three-eighths mile southwest of entrance to Philips Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in corner of cultivated field about 10 feet above high water, 10 yards southwest of edge of bank, 17 yards north of edge of bank, 19 yards northwest of extreme point of bank, and 125 yards east-northeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Harp" (N 5° 32' W).....	0	00	00	¾ mile.
South peak of barn.....	8	52	..	¾ mile.
Large chimney of house.....	29	32	..	2 ½ miles.
Chimney on ell of large house.....	37	37	..	1 ⅝ miles.
Chimney of shanty.....	56	06	..	1 mile.
Right corner of west chimney of large brick house.....	107	59	..	¾ mile.
East peak of large barn.....	151	18	..	½ mile.
Right corner of north chimney of brick house.....	155	52	..	¾ mile.
Left tangent of chimney of house.....	247	13	..	125 yards.

## HARP.

*General locality.*—Western shore of East Fork of Langford Creek on point opposite entrance to Philips Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is at southeast end of row of bushes on a marsh point about 1 foot above high water, 20 yards southwest of edge of marsh, 20 yards west of edge of marsh, 24 yards northwest of edge of marsh, and 40 yards from a tree-fringed bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Clay" (N 46° 44' W).....	0	00	00	½ mile.
East chimney of brick house.....	23	45	..	¾ mile.
South peak of large barn.....	52	31	..	1 mile.
Chimney of house.....	76	58	..	2 miles.
Large square chimney on west end of house.....	167	17	..	¾ mile.
Northeast peak of long barn.....	201	39	..	¾ mile.
Chimney of small house.....	204	11	..	¾ mile.

## CLAY.

*General locality.*—Western shore of East Fork of Langford Creek about one-eighth mile south of Lovely Cove and five-eighths mile northwest of entrance to Philips Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in woods about 20 feet above high water and 6 yards southwest of edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Lovely" (N 7° 19' E).....	0	00	00	¾ mile.
Left tangent of chimney of brick house.....	31	46	..	½ mile.
Nail in blaze in oak tree (12 inches diameter).....	50	30	..	4.61 meters.
Nail in blaze in oak tree (12 inches diameter).....	109	36	30	4.13 meters.
West chimney of large brick house.....	118	24	..	1 ¼ miles.
Nail in blaze in chestnut tree (10 inches diameter).....	141	50	50	6.23 meters.
Nail in blaze in chestnut tree (10 inches diameter).....	172	22	50	6.24 meters.
Nail in blaze in chestnut tree (13 inches diameter).....	220	44	20	8.15 meters.
Nail in blaze in oak tree (9 inches diameter).....	255	37	50	5.06 meters.

LOVELY.

*General locality.*—Western shore of East Fork of Langford Creek on north side of entrance to Lovely Cove and three-fourths mile northwest of entrance to Philips Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is at edge of cultivated field about 5 feet above high water, 12 yards north of shore, 1 yard north of top of slight slope, and 70 yards east of a cut in shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Gut" (S 48° 15' E).....	0	00	00	¾ mile.
Chimney of large brick house.....	5	32	..	1¾ miles.
East peak of long barn.....	22	39	..	2 miles.
Nail in blaze in gum tree (3 inches diameter)	84	51	40	5.24 meters.
Nail in blaze in locust tree (3 inches diameter)	132	22	30	13.99 meters.
Chimney on east end of brick house.....	219	10	..	¼ mile.
Near chimney of brick house.....	291	03	..	½ mile.
Nail in blaze in locust tree (3 inches diameter)	326	51	40	2.28 meters.
Nail in blaze in locust tree (4 inches diameter)	327	37	20	4.55 meters.

GUT.

*General locality.*—Eastern shore of East Fork of Langford Creek on point at north side of entrance to a small cove about one-fourth mile east of entrance to Lovely Cove and one-half mile northwest of entrance to Philips Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 15 yards northeast of edge of marsh, 16 yards north of edge of marsh, 21 yards east of edge of marsh, and 65 yards north-northwest of extreme point of marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Philip" (S 38° 26' E).....	0	00	00	¼ mile.
Northeast peak of long barn.....	19	32	..	1½ miles.
Chimney on southwest end of small house..	140	06	..	1 mile.
East end of small shed.....	185	04	..	½ mile.
Near corner of brick house.....	234	02	..	¼ mile.
Southeast peak of barn.....	238	07	..	1¼ miles.
Chimney on ell of house.....	268	40	..	½ mile.
Chimney on west end of house.....	357	47	..	1½ miles.

PHILIP.

*General locality.*—Eastern shore of East Fork of Langford Creek at north side of entrance to Philips Creek and about five-eighths mile southeast of entrance to Lovely Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 10 yards east of edge of marsh, 15 yards northeast of edge of marsh, 17 yards southeast of edge of marsh, and southwest of a small group of cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Ide" (S 33° 46' E).....	0	00	00	¾ mile.
Northeast peak of large barn.....	22	22	..	1 mile.
Chimney on ell of house.....	24	40	..	¾ mile.
North peak of building.....	110	21	..	¾ mile.
Southwest chimney of small house.....	160	38	..	1½ miles.
East peak of small shed.....	178	21	..	1¼ miles.
Nail in blaze in cedar tree (4 inches diameter).....	241	33	20	15.79 meters.
Nail in blaze in water bush (3 inches diameter).....	272	24	10	9.00 meters.
Nail in blaze in cedar tree (4 inches diameter).....	340	46	00	13.97 meters.

## IDE.

*General locality.*—Eastern shore of East Fork of Langford Creek at south side of entrance to Philips Creek about 2 miles northeast of main body of Langford Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 2 feet above high water, 17 yards east of shore, 15 yards southeast of a cut in shore, and 18 yards northeast of another cut in shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Hoo" (S 17° 22' W).....	0	00	00	¾ mile.
Northeast peak of house.....	19	30	..	1½ miles.
Chimney of house.....	49	45	..	¾ mile.
South peak of barn.....	148	20	..	¾ mile.
Chimney of True house.....	293	22	..	¾ mile.
East peak of large barn.....	346	27	..	¾ mile.

## HOO.

*General locality.*—Eastern shore of East Fork of Langford Creek about 1½ miles northeast of main body of Langford Creek, seven-eighths mile north of Haw Bush Point and three-eighths mile south of entrance to Philips Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 10 yards southeast of shore, 14 yards east of shore, 20 yards north of shore, and in front of water bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Cult" (S 37° 20' W).....	0	00	00	¾ mile.
North peak of barn.....	23	23	..	¾ mile.
South peak of barn.....	74	54	..	¾ mile.
East peak of barn.....	115	33	..	1¼ miles.
South peak of barn.....	135	05	..	2 miles.
North peak of large barn.....	311	01	..	¼ mile.
Left corner of east chimney of brick house..	318	56	..	¼ mile.

## CULT.

*General locality.*—Eastern shore of East Fork of Langford Creek on point about 1¼ miles northeast of main body of Langford Creek and one-fourth mile east of Leary's old wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 3 feet above high water, 12 yards south-southeast of shore, 16 yards east of shore, 4 yards south-southeast of a road, and 40 yards southeast of a wharf.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Wann" (S 28° 24' W).....	0	00	00	¼ mile.
Peak of house showing through trees.....	12	57	..	1 mile.
Chimney of house.....	22	32	..	2¼ miles.
South peak of house.....	53	03	..	¾ mile.
South peak of house.....	147	08	..	¾ mile.
Chimney of house.....	170	26	..	1 mile.
North chimney of house.....	224	39	..	.....
Near peak of barn.....	355	43	..	¾ mile.

WANN.

*General locality.*—Eastern shore of East Fork of Langford Creek on Haw Bush Point at west side of entrance to Kings Creek and Wanns Cove, and about seven-eighths mile northeast of main body of Langford Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 3 feet above high water, 2 yards south of shore, 2 yards north of shore, and 16 yards west-southwest of a persimmon tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Corn" (S 58° 36' W).....	0	00	00	¼ mile.
Chimney of house near shore.....	6	19	..	1½ miles.
Chimney on south end of house.....	11	25	..	2¼ miles.
South peak of large barn.....	58	58	..	½ mile.
East chimney of house.....	93	05	..	½ mile.
Peak of house among trees.....	134	33	..	¾ mile.
Nail in blaze in persimmon tree (9 inches diameter).....	184	32	00	12.76 meters.
Nail in blaze in oak tree.....	196	22	10	1.31 meters.
North chimney of Stoop storehouse.....	226	54	..	½ mile.
North peak of Stoop long barn.....	230	32	..	½ mile.
South chimney of house.....	271	15	..	½ mile.

CORN.

*General locality.*—Eastern shore of East Fork of Langford Creek on east side of a small cove about three-eighths mile east of main body of Langford Creek, and one-half mile southwest of Haw Bush Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in edge of cultivated land about 3 feet above high water, 12 yards east-southeast of shore, and 4 yards east-southeast of line of trees between shore and station.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Neck" (S 55° 31' W).....	0	00	00	¾ mile.
Chimney of house near shore.....	13	03	..	1 mile.
Chimney of large house.....	20	38	..	2 miles.
Nail in blaze in locust tree (5 inches diameter).....	41	48	20	3.98 meters.
Nail in blaze in locust tree (4 inches diameter).....	83	31	00	4.60 meters.
Nail in blaze in locust tree (4 inches diameter).....	132	57	00	10.47 meters.
Near peak of barn.....	144	10	..	¾ mile.
Near corner of house.....	320	42	..	½ mile.

## NECK.

*General locality.*—Eastern shore of Langford Creek on Orchard Point at south side of entrance to East Fork of Langford Creek about one-fourth mile south of Cacaway Island. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 6 feet above high water, 6 yards south of shore, 12 yards east of shore, 10 yards east-southeast of point of bank in cultivated field, and 30 yards northwest of corner of peach orchard.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Major" (S 4° 41' W).....	0	00	00	¾ mile.
Right peak of barn.....	31	47	..	1 7/8 miles.
Right chimney of house.....	51	44	..	7/8 mile.
Right chimney of small house.....	73	59	..	1 1/8 miles.
Chimney on right end of house among trees.....	196	18	..	1/2 mile.
Nail in blaze in cedar tree (3 inches diameter).....	218	40	00	11.67 meters.
Nail in blaze in peach tree (3 inches diameter).....	305	26	50	27.58 meters.

## MAJOR.

*General locality.*—Eastern shore of Langford Creek about 1 3/8 miles north of Chester River, three-eighths mile southeast of Drum Point and three-fourth mile south of Orchard Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 15 feet above high water, 25 yards southeast of shore, 17 yards southeast of edge of bluff, 9 yards southeast of wire fence, and 18 yards south of locust trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Peach" (S 24° 02' W).....	0	00	00	5/8 mile.
North chimney of house.....	19	35	..	3 1/4 miles.
East gable of house.....	25	54	..	1 1/2 miles.
North chimney of Ashley house.....	47	01	..	1 mile.
East gable of house.....	68	32	..	1 1/4 miles.
East gable of house.....	95	52	..	1 mile.
East chimney of house.....	103	30	..	1 mile.
Nail in blaze in locust tree (6 inches diameter).....	128	02	10	16.49 meters.
North chimney of Brown house.....	305	20	..	1/4 mile.

## PEACH.

*General locality.*—Eastern shore of Langford Creek about one-half mile north of Chester River and three-fourths mile south of Drum Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 4 yards east of shore, 300 yards west of peach orchard, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Langford" (S 15° 55' E).....	0	00	00	3½ mile.
North gable of house.....	11	54	..	3¾ miles.
Left tangent of woods on Hail Point.....	28	23	..	6¼ miles.
North chimney of house.....	72	35	..	2½ miles.
East gable of barn.....	123	41	..	¾ mile.
East chimney of small house.....	158	14	..	1½ miles.
East chimney of house.....	167	58	..	¾ mile.
Chimney of small house.....	179	01	..	1¼ miles.
East chimney of house.....	199	02	..	2½ miles.

LANGFORD.

*General locality.*—Western shore of Chester River, on Nichols Point, at east side of entrance to Langford Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a sandy point among persimmon trees about 2 feet above high water, 12 yards inshore, and 200 yards south of a marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Gordon" (S 10° 42' W).....	0	00	00	2½ miles.
East one of group of four pine trees.....	2	21	..	3½ miles.
East chimney of house.....	45	45	..	2½ miles.
Chimney of small house.....	56	27	..	2¼ miles.
Nail in blaze in persimmon tree (6 inches diameter).....	72	02	30	4.59 meters.
East chimney of house.....	87	27	..	1 mile.
South gable of barn.....	115	53	..	1½ miles.
South chimney of house.....	141	02	..	1½ miles.
Chimney of house.....	152	40	..	1½ miles.
Nail in blaze in persimmon tree (6 inches diameter).....	218	39	20	2.23 meters.
Nail in blaze in persimmon tree (4 inches diameter).....	287	15	30	7.63 meters.
Northwest corner of Earle bathhouse.....	299	00	..	1¾ miles.
Cupola on barn.....	332	26	..	2 miles.
North gable of house.....	346	57	..	2¼ miles.

SPANIARD POINT 2 UPPER.

*General locality.*—Southeastern shore of Chester River on Lower Spaniard Point about 1¼ miles east of Nichols Point, seven-eighths mile south of Cliffs Landing and one-half mile southwest of Spaniard Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a sand beach about 1 foot above high water, 8 yards southeast of shore, and 300 yards northwest of woods. Cement monument marking reference station is 11.72 meters S 70° 51' E of observed station.

*Marks.*—Observed station is nail in 3-inch cement-filled tile pipe bearing the legend "U. S. C. S. 1896," with top 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

## References.—

	°	'	"	
"Langford" (N 87° 27' W).....	0	00	00	1¼ miles.
South gable of barn.....	2	44	..	2¾ miles.
East gable of barn.....	16	10	..	2¾ miles.
Church steeple.....	29	25	..	3 miles.
West chimney of Brown house.....	37	38	..	1¾ miles.
West chimney of house.....	76	08	..	1 mile.
Right tangent of piles of Cliffs Landing....	100	40	..	¾ mile.
South gable of house.....	101	05	..	1¾ miles.
"Westcotts Windmill".....	117	31	..	2¼ miles.
REFERENCE STATION.....	196	36	50	11.72 meters.
North gable of barn.....	295	57	..	3 miles.
Right tangent of woods on Gordon Point....	302	00	..	3 miles.
East chimney of house on Grays Inn Creek..	352	39	..	3¾ miles.

## QUAKER.

*General locality.*—Western shore of Chester River in Cliff Bight about three-fourths mile north of Nichols Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 3 feet above high water, 8 yards north-west of shore, 8 yards southeast of a wire fence and a row of pear trees, and 6 yards south of a group of persimmon trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Brown" (N 80° 42' E).....	0	00	00	¾ mile.
West gable of barn.....	15	05	..	2¾ miles.
Left tangent of Spaniard Wharf.....	24	17	..	1¼ miles.
Northeast corner of Earle house.....	70	08	..	2 miles.
North gable of house near Reeds Creek.....	102	24	..	3¼ miles.
Right tangent of woods on Gordon Point....	114	37	..	3½ miles.
Lone oak tree.....	147	43	..	½ mile.
Nail in blaze in hackberry tree (6 inches diameter).....	203	08	30	4.81 meters.
Nail in blaze in persimmon tree (8 inches diameter).....	319	19	..	3.43 meters.
West chimney of house.....	351	40	..	¾ mile.

## EVANS.

*General locality.*—Southeastern shore of Chester River on Upper Spaniard Point about five-eighths mile south of Cliffs Landing and one-eighth mile northeast of Spaniard Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 10 yards north of shore, and 200 yards east of end of Spaniard Wharf.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.



References.—	°	'	"	
"Chester" (S 80° 13' E).....	0	00	00	¾ mile.
Lone walnut tree (6 inches diameter).....	106	17	..	200 yards.
South gable of fishing shack near shore.....	136	00	..	½ mile.
"Spaniard Wharf 1896" (old triangulation station).....	124	49	30	2.49 meters.
Right tangent of piles at end of Spaniard Wharf.....	167	23	..	250 yards.
North chimney of house.....	189	26	..	1½ miles.
West chimney of house.....	212	13	..	1½ miles.
Chimney of Martin cabin.....	219	20	..	¾ mile.
North gable of Cliffs Landing house.....	234	31	..	¾ mile.
East chimney of house.....	247	28	..	¾ mile.
North gable of barn.....	276	23	..	1¾ miles.
"Westcotts Windmill".....	282	55	10	1¾ miles.
East gable of barn.....	308	31	..	1½ miles.
North gable of Hay barn.....	318	03	..	2¼ miles.
East gable of barn.....	348	39	..	1¾ miles.

## BROWN.

*General locality.*—Northwestern shore of Chester River on Cliffs Point between Cliffs Bight and Commegys Bight about one-fourth mile west of Cliffs Landing. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 12 feet above high water, 25 yards north of shore, 7 yards north of edge of bank, and 45 yards southeast of a large cherry tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Deep Point 2" (N 80° 15' E).....	0	00	00	1¾ miles.
West gable of barn.....	4	49	..	2½ miles.
West chimney of house.....	22	55	..	1¾ miles.
North gable of small fishing shack.....	82	04	..	¾ mile.
North gable of barn.....	115	26	..	3½ miles.
Nail in blaze in locust tree (5 inches diameter).....	157	07	10	13.55 meters.
Nail in blaze in walnut tree (15 inches diameter).....	209	09	50	14.13 meters.
East gable of house.....	220	55	..	300 yards.
East gable of barn.....	334	04	..	300 yards.
West chimney of house.....	338	33	..	1½ miles.
Northwest corner of Martin shack.....	343	03	..	77 yards.
West gable of wharf house.....	355	27	..	¼ mile.

## STRATTON.

*General locality.*—Northwestern shore of Chester River at west side of entrance to Commegys Bight near Cliffs Landing and about one-fourth mile northeast of Cliffs Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about on level with high water, 5 feet north of shore, and 21 yards southwest of entrance to a small creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Deep Point 2" (N 83° 53' E).....	0	00	00	1¼ miles.
Cupola on barn.....	7	50	..	2 miles.
West gable of cornerib .....	23	27	..	1½ miles.
Southwest corner of wharf house.....	82	04	..	100 yards.
North gable of house.....	114	03	..	3 miles.
Right tangent of woods on Gordon Point ....	125	14	..	3¾ miles.
Pine tree on line with bulkhead of wharf....	154	29	..	100 yards.
North chimney of house.....	266	37	..	400 yards.
West gable of Westcott barn.....	319	58	..	1¼ miles.
West gable of barn.....	340	32	..	1¼ miles.

## CHESTER.

*General locality.*—Southeastern shore of Chester River about three-fourths mile east of Upper Spaniard Point and seven-eighths mile south of Deep Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a low meadow about 2 feet above high water, 10 yards south of shore, 2 yards south of board and wire fence, 2 yards east of rail fence, and 35 yards northwest of gate to front yard of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Evans" (N 80° 12' W).....	0	00	00	¾ mile.
South chimney of house.....	6	21	..	2¼ miles.
East gable of Cliffs Landing house.....	23	38	..	1½ miles.
East gable of house.....	35	11	..	1½ miles.
Chimney of house.....	51	47	..	1½ miles.
South chimney of Westcott house.....	76	43	..	1¾ miles.
West gable of barn.....	85	17	..	1 mile.
Left tangent of piles of Indiantown Wharf....	116	41	..	1½ miles.
South cupola of barn.....	139	37	..	1¼ miles.
West chimney of Emory house.....	158	45	..	½ mile.
West chimney of Emory tenant house.....	218	16	..	100 yards.
Nail in blaze in persimmon tree (6 inches diameter).....	247	33	10	11.67 meters.
Nail in blaze in locust tree (12 inches diameter).....	328	54	50	24.18 meters.

## WESTCOTT'S WINDMILL.

*General locality.*—Northwestern side of Chester River about one-eighth mile inshore from northern end of Commegys Bight and 1¾ miles northeast of Cliffs Landing.

*Immediate locality.*—Observed station is about 35 feet high and on a barn. It is separate from the water tank which is back of the barn.

*Marks.*—Observed station is center point of windmill.

*References.*—None necessary.

## CORPSE.

*General locality.*—Southeastern shore of Chester River about three-eighths mile southeast of Deep Point, 1½ miles east-northeast of Spaniard Wharf, and five-eighths mile southwest of Indiantown Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a sanded marsh strip about 1 foot above high water, 3 yards east of shore, 18 yards south-southeast of a point, 43 yards north by east of another point, and one-eighth mile west of a large house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Chester" (S 39° 24' W).....	0	00	00	¾ mile.
Right tangent of Spaniard Wharf.....	30	29		1½ miles.
Chimney of house near Cliffs Landing.....	61	43		1¾ miles.
Right peak of house on Deep Point.....	83	48		½ mile.
Left one of two chimneys on south end of brick house.....	147	03		1 mile.
Left tangent of Indiantown Wharf.....	173	17		¾ mile.
Chimney of ell of house near Indiantown Wharf.....	181	53		¾ mile.
Left tangent of large house.....	228	11		¼ mile.
Right chimney of house.....	297	55		¾ mile.
Chimney outside of old house.....	359	07		¾ mile.

## DEEP POINT 2.

*General locality.*—Northwestern shore of Chester River on Deep Point about 1¼ miles east of Cliffs Landing, 1¼ miles northeast of Spaniard Wharf, and three-fourths mile west of Indiantown Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 1 foot above high water, among several cedar and poplar trees on a point, 13 yards northeast of shore, 21 yards southwest by west of shore, 40 yards northwest of extreme end of point, and 120 yards southeast of a 1½-story house. Cement monument marking reference station is on line with west end of house 17.14 meters N 53° 52' W of observed station.

*Marks.*—Observed station is nail in center of 2-inch tile pipe set in cement with top 2 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Thorn" (N 40° 10' E).....	0	00	00	¾ mile.
Left chimney of house.....	11	43		3¾ miles.
Left tangent of Ashland Wharf.....	13	04		1¾ miles.
Near chimney on west peak of house.....	22	58		2½ miles.
Southwest peak of house near Indiantown Wharf.....	31	23		¾ mile.
Nail in blaze in branch of cedar tree (15 inches diameter).....	45	27	00	11.48 meters.
Cupola on barn.....	61	43		1 mile.
Nail in blaze in poplar tree (11 inches diam- eter).....	93	54	00	15.02 meters.
Largest one of three chimneys of house.....	102	07		1¾ miles.
Chimney of brick house.....	153	25		1 mile.
Chimney on near peak of house.....	233	39		1¼ miles.
REFERENCE STATION.....	265	58	20	17.14 meters.
Nail in blaze in poplar tree (10 inches diam- eter).....	266	00	20	17.78 meters.
Right tangent of back of Westcott house.....	279	56		120 yards.
Nail in blaze in branch of double tree (8 inches diameter).....	340	43	00	19.74 meters.

## INDIAN.

*General locality.*—Southeastern shore of Chester River near Indiantown Wharf about three-fourths mile east-northeast of Deep Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 2 feet above high water, 10 yards east of shore end of Indiantown Wharf, 10 yards southeast of shore, 21 yards north of curved fence of yard of a small house, and 40 yards north by west of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Corpse" (S 38° 10' W).....	0	00	00	5/8 mile.
Right tangent of Spaniard Wharf.....	22	40	..	2 miles.
Right chimney of Westcott bungalow.....	34	55	..	3/4 mile.
Near corner of wharf house.....	72	50	..	100 yards.
Left tangent of Massey brick house.....	96	48	..	1/2 mile.
Large chimney of house beyond trees.....	146	08	..	1 mile.
Chimney of small house near Quaker Neck Wharf.....	161	24	..	1 1/4 miles.
Left tangent of Ashland Wharf.....	176	19	..	5/8 mile.
Lone cedar tree.....	182	24	..	120 yards.
Nail in blaze in cedar tree (12 inches diameter).....	287	43	30	31.24 meters.
Near corner of house.....	288	24	..	5/8 mile.
Nail in blaze in cedar tree (10 inches diameter).....	305	59	10	18.68 meters.
Nail in blaze in cedar tree (20 inches diameter).....	319	41	10	30.92 meters.
Right tangent of curved fence.....	324	40	..	40 yards.
Chimney of large house.....	334	58	..	1/2 mile.

## THORN.

*General locality.*—Northwestern shore of upper Chester River opposite White Cove near Westcott Wharf, and about three-fourths mile northeast of Deep Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 6 feet above high water, 15 yards northwest of shore, 5 yards southwest of corner of board fence, 60 yards south-southeast of a brick house, and 42 yards southwest of piles of old wharf at shore line.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Shippen" (N 43° 17' E).....	0	00	00	1/2 mile.
Near peak of large house.....	18	40	..	4 1/2 miles.
Left tangent of Ashland Wharf.....	23	21	..	5/8 mile.
Corner post of fence (4 inches diameter)....	33	23	10	4.33 meters.
Cupola of barn.....	104	13	..	7/8 mile.
Chimney of small house.....	159	09	..	1 3/4 miles.
Near corner of Massey house.....	208	40	..	1/2 mile.
Nail in blaze in peach tree (6 inches diameter).....	283	57	22	13.74 meters.
Nail in blaze in fence post (3 inches diameter).....	338	27	20	5.35 meters.

## ASHLAND.

*General locality.*—Southeastern shore of upper Chester River near Ashland Wharf and about one-fourth mile northeast of White Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 1 foot above high water, 5 yards southeast of shore, 32 yards southwest of fence, and 20 yards west-northwest of persimmon trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	"	
"Indian" (S 43° 29' W).....	0	00	00	1/2 mile.
Right tangent of Indiantown Wharf.....	5	44	..	1/2 mile.
Chimney on ell of Massey house.....	37	46	..	5/8 mile.
Chimney of small house.....	116	46	..	3/4 mile.
Peak of Quaker Neck Wharf house.....	145	43	..	3/4 mile.
Nail in blaze in fence post (4 inches diameter).....	171	12	50	28.80 meters.
Nail in blaze in persimmon tree (3 inches diameter).....	247	22	50	22.81 meters.
Nail in blaze in persimmon tree (3 inches diameter).....	289	34	10	17.29 meters.
Chimney of summerhouse.....	356	04	..	1/2 mile.

## SHIPPEN.

*General locality.*—Northwestern shore of upper Chester River opposite Ashland Wharf on point at southern side of entrance to Shippen Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on sand and marsh point about 1 foot above high water, 6 yards southwest of shore, 12 yards northeast of shore, 15 yards north of end of sand point, and 25 yards southeast of trees along edge of cultivated field.

*Marks.*—Observed station is center point of triangle on standard cement monument with top projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	"	
"Oyster" (N 38° 22').....	0	00	00	3/4 mile.
Chimney on left end of house.....	18	37	..	2 1/2 miles.
Peak of barn.....	26	40	..	2 1/4 miles.
Chimney on end of house.....	27	59	..	2 1/4 miles.
Chimney on right end of house.....	54	23	..	1 mile.
Left tangent of piles of Ashland Wharf.....	69	40	..	1/2 mile.
Chimney on near end of house.....	79	08	..	1 mile.
Spindle on barn cupola.....	135	58	..	1 mile.
Tangent of piles at Indiantown Wharf.....	154	35	..	5/8 mile.
Tangent of Deep Point.....	182	24	..	1 1/4 miles.
Near chimney of house.....	189	40	..	1/2 mile.
Nail in blaze in pear tree (12 inches diameter).....	263	35	40	22.59 meters.
Nail in blaze in cedar tree (10 inches diameter).....	292	46	10	20.70 meters.
Near peak of barn.....	341	44	..	5/8 mile.
Smoke pipe on Quaker Neck wharf house.....	359	56	..	5/8 mile.

## BURNS.

*General locality.*—Southeastern shore of upper Chester River opposite Quaker Neck Wharf, about one-half mile northeast of Ashland Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in meadow land about 1 foot above high water, 10 yards southeast of shore, 50 yards southwest by south of point, 145 yards northeast by east of a fence, and 200 yards northwest of another fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Ashland" (S 45° 22' W).....	0	00	00	5/8 mile.
Chimney of house on Westcott Wharf.....	18	36	..	1 3/4 miles.
South peak of large barn.....	78	48	..	5/8 mile.
Near chimney of Quaker Neck Wharf house.....	89	20	..	1/2 mile.
Left chimney of old house.....	108	41	..	.....
Left tangent of hook-shaped point of marsh.....	183	22	..	1/2 mile.
Near peak of house.....	196	25	..	1 1/2 miles.
Windmill.....	234	22	30	3/4 mile.
Chimney of house.....	280	56	..	1 mile.
Left chimney of house on Ashland Road.....	323	57	..	1 mile.

## OYSTER.

*General locality.*—Northwestern shore of upper Chester River about one-eighth mile northeast of Quaker Neck Wharf and one-half mile southwest of entrance to Jarretts Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 20 feet above high water, 8 yards west-northwest of edge of bank, 9 yards north-northwest of edge of bank, 25 yards northeast by north of a cedar tree, 100 yards southwest of low land, and 115 yards east of fence near a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Jarrett" (N 67° 48' E).....	0	00	00	5/8 mile.
Left peak of Bookers Wharf house.....	21	00	..	1 3/8 miles.
Cupola.....	50	14	..	1 mile.
Windmill.....	50	55	..	7/8 mile.
Left chimney of house.....	107	14	..	1 3/8 miles.
Cupola on barn.....	123	50	..	1 3/4 miles.
Nail in blaze in cedar tree (7 inches diameter).....	143	13	30	24.90 meters.
Smoke pipe of wharf house.....	151	03	..	1/2 mile.
Left chimney of house.....	180	43	..	130 yards.
Left chimney of old house on near side of Jarretts Creek.....	277	29	..	3/8 mile.
Chimney of house among trees.....	309	06	..	1 1/4 miles.

## STARKLEY.

*General locality.*—Southeastern shore of upper Chester River, about three-fourths mile east of Quaker Neck Wharf and one-half mile southwest of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in meadow land about 1 foot above high water, 10 yards east by south of shore, 33 yards south of first cut in shore, 140 yards north by west of a fence, 145 yards southwest of point where another fence meets shore, and 275 yards south of large cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Burns" (S 61° 34' W).....	0	00	00	½ mile.
Left chimney of Quaker Neck Wharf house.....	39	02		¾ mile.
Right peak of barn.....	66	43		1 mile.
Peak of middle dormer window of large house.....	114	30		¾ mile.
Left peak of large house.....	163	49		1¼ miles.
Left peak of Bookers Wharf house.....	187	48		½ mile.
Large cedar tree.....	191	11		275 yards.
Spindle on left cupola of barn.....	262	00	20	½ mile.
Weather vane on barn.....	320	01	50	½ mile.

## JARRETT.

*General locality.*—Northwestern shore of upper Chester River, about five-eighths mile southwest of Melton Point, one-fourth mile east of entrance to Jarretts Creek, and five-eighths mile west of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 1 foot above high water, 14 yards north of shore, 50 yards from a short fence at shore, 65 yards west of entrance to slough, and 175 yards from another fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Melton" (N 61° 34' E).....	0	00	00	¾ mile.
Left peak of house on ridge.....	1	35		1½ miles.
Right peak of small house.....	47	58		¾ mile.
West peak of Bookers Wharf house.....	48	50		¾ mile.
Spindle on left cupola on barn.....	96	01		¾ mile.
Weather vane on cupola on barn.....	125	48		1 mile.
Chimney of house near Indiantown Wharf.....	155	29		1¾ miles.
Large chimney of Massey brick house.....	169	16		1¾ miles.
Smoke pipe of Quaker Neck Wharf house.....	182	50		¾ mile.
Peak of middle dormer window of large house.....	299	07		½ mile.

## BOOKER.

*General locality.*—Southeastern shore of upper Chester River, about 175 yards northeast of Bookers Wharf and one-half mile south of Melton Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on sanded marsh about 1 foot above high water, 6 yards southeast of shore, 13 yards east by south of a small point, 30 yards southwest by south of locust trees, 125 yards northwest by north of a house on 20-foot bank, and 140 yards northwest of a creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Starkley" (S 67° 55' W).....	0	00	00	¾ mile.
Left chimney of Quaker Neck Wharf house.....	17	46		1½ miles.
Near peak of house in woods.....	53	23		¾ mile.
Peak of middle dormer window on left side of house among trees.....	68	05		¾ mile.
Chimney of house.....	113	38		1 mile.
Nail in blaze in locust tree (4 inches diameter).....	182	23	40	29.46 meters.
Near peak of house on bank.....	293	48		125 yards.
Right peak of Bookers Wharf house.....	350	47		175 yards.

## JOURNEY.

*General locality.*—Eastern shore of upper Chester River, opposite Melton Point, about one-half mile northeast of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in cultivated land about 20 feet above high water, 3 yards southeast by east of edge of bank, south of large elm tree, and northeast of several sycamore and locust trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Booker" (S 28° 13' W).....	0	00	00	½ mile.
Right peak of Bookers Wharf house.....	4	24	..	½ mile.
Smoke pipe of Quaker Neck Wharf house... ..	41	21	..	1½ miles.
Near peak of house with three dormer windows.....	77	01	..	¾ mile.
Right chimney of 2½-story house.....	107	02	..	1½ miles.
Nail in blaze in elm tree (10 inches diameter).....	134	27	40	22.70 meters.
Large cedar tree in yard near fence.....	187	30	..	400 yards.
Near peak of old house.....	318	16	..	200 yards.
Nail in blaze in sycamore tree (8 inches diameter).....	355	05	..	21.00 meters.

## MELTON.

*General locality.*—Western shore of upper Chester River, on Melton Point, about one-half mile north of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 2 feet above high water, 4 yards south of shore, 40 yards north of shore, 32 yards northwest of extreme end of point, 2 yards northeast of marsh, and 125 yards east-southeast of clump of cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Pomona" (N 53° 38' W).....	0	00	00	¾ mile.
Right chimney of house on knoll.....	17	17	..	1½ miles.
Right peak of roof of building.....	68	07	..	¾ mile.
Left chimney of house.....	118	37	..	¾ mile.
Northwest chimney of house on bank near Bookers Wharf.....	219	20	..	½ mile.
Northwest peak of Bookers Wharf house....	226	38	..	½ mile.
Smoke pipe of Quaker Neck Wharf house... ..	296	46	..	1¼ miles.
Near chimney of house with dormer windows	346	50	..	¾ mile.

## CAKE.

*General locality.*—Eastern shore of upper Chester River, about three-eighths mile north of Melton Point and seven-eighths mile north of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a marsh about 1 foot above high water, 13 yards east-southeast of shore, 35 yards northeast by north of shore, 35 yards northeast of rounded point, 150 yards north-northwest of entrance to a creek, 200 yards south-southwest of buildings, and 300 yards south of a house among trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.



References.	°	'	''	
"Journey" (S 36° 29' E).....	0	00	00	1/2 mile.
Chimney on ell of house to left of trees.....	3	40	.....	3/8 mile.
Northwest peak of Bookers Wharf house.....	38	53	.....	7/8 mile.
South chimney of near one of twin houses.....	142	40	.....	3/4 mile.
East chimney of brick house among trees on ridge.....	169	16	.....	1 1/2 miles.
South peak of building.....	229	41	.....	1/2 mile.
Large lone tree on ridge.....	299	10	.....	1/2 mile.
Left chimney of large house.....	324	39	.....	1/4 mile.

POMONA.

*General locality.*—Western shore of upper Chester River about five-eighths mile northwest of Melton Point and one-half mile south of entrance to Browns Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is among small trees near edge of cultivated field, about 12 feet above high water, 6 yards west of edge of bank, and 8 yards from top of slope to marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Taste" (N 5° 30' W).....	0	00	00	1/2 mile.
Nail in blaze in locust tree (3 inches diam- eter).....	14	28	20	5.23 meters.
Windmill.....	52	20	30	2 miles.
Right corner of house.....	71	49	.....	1 1/4 miles.
Large lone tree in field.....	93	20	.....	1 1/4 miles.
Left chimney of large house.....	103	47	.....	1 1/2 miles.
Ell of house to left of trees.....	126	48	.....	1 1/2 miles.
Nail in blaze in locust tree (4 inches diam- eter).....	107	10	50	7.74 meters.
Nail in blaze in cedar tree (8 inches diam- eter).....	196	39	40	12.18 meters.
Large cherry tree.....	277	32	.....	300 yards.

BILL.

*General locality.*—Eastern shore of upper Chester River about three-fourths mile north of Melton Point and nearly opposite Browns Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in grove of elm, ash, and oak trees on north side of a point about 20 feet above high water, 7 yards south-southeast of edge of bank, 30 yards east-northeast of a small house, and 40 yards west-southwest of a fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Cake" (S 15° 41' E).....	0	00	00	3/8 mile.
Right peak of Bookers Wharf house.....	12	04	.....	1 1/4 miles.
Nail in blaze in elm tree (10 inches diam- eter).....	20	43	40	12.37 meters.
Nail in blaze in elm tree (9 inches diameter).....	69	23	10	0.92 meters.
Nail in blaze in oak tree (24 inches diam- eter).....	129	28	40	2.95 meters.
East chimney of brick house.....	137	29	.....	3/4 mile.
Peak of sharp roof.....	155	53	.....	1/2 mile.
"Robertson Windmill".....	243	52	40	2 3/4 miles.
Spindle on peak of house on Rolphs Wharf.....	247	37	40	2 3/4 miles.
Nail in blaze in tree (8 inches diameter).....	280	24	50	7.60 meters.
Left chimney of house on ridge.....	322	17	.....	3/4 mile.
Nail in blaze in tree (15 inches diameter).....	343	25	10	12.30 meters.
Chimney on ell of house.....	349	32	.....	1 mile.

## TASTE.

*General locality.*—Western shore of upper Chester River on point at east side of entrance to Browns Creek, about 1 mile northwest of Melton Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point between Chester River and Browns Creek, about 5 yards north of shore of Chester River, 30 yards south of shore of Browns Creek, 50 yards southwest of point of shore of Browns Creek, and 55 yards west-southwest of cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Make" (N 52° 14' E).....	0	00	00	3/8 mile.
Windmill.....	7	11	30	1 3/4 miles.
Chimney of house.....	25	20	.....	1 3/4 miles.
Left chimney of house on ridge.....	68	58	.....	1 3/4 miles.
Chimney on ell of house.....	84	20	.....	1 3/4 miles.
West chimney of left one of twin houses....	142	19	.....	3/8 mile.
Right chimney of brick house.....	266	13	.....	3/4 mile.
Largest cedar tree in clump (15 inches diam- eter).....	350	28	.....	54 yards.

## MAKE.

*General locality.*—Western shore of upper Chester River about 1 1/8 miles north of Melton Point and three-eighths mile northeast of entrance to Browns Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a pasture land, about 2 feet above high water, 10 yards north of shore, 110 yards west of tangent of point of curve of shore, and 325 yards southeast of farm buildings behind trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Broad" (N 61° 13' E).....	0	00	00	1/2 mile.
Windmill.....	0	22	30	1 1/2 miles.
Near peak of canning house at Wilmers Wharf.....	18	26	.....	1 1/8 miles.
Chimney on ell of house on ridge.....	45	45	.....	1 1/4 miles.
Left chimney of house on ridge.....	80	05	.....	1 1/2 miles.
Spindle on cupola on barn.....	118	55	.....	2 1/4 miles.
Left chimney of left one of twin houses....	155	18	.....	3/4 mile.
West chimney of house.....	227	30	.....	1 mile.
South peak of building in woods.....	307	04	.....	1 mile.

## DOWN.

*General locality.*—Southeastern shore of upper Chester River about 2 miles southwest of entrance to Southeast Creek and 1 mile east of entrance to Browns Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a small rounded point of sanded marsh, about 1 foot above high water, 5 yards south of shore, 40 yards east by south of an inlet, and 95 yards west of a fence beyond trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Bill" (S 73° 52' W).....	0	00	00	1/2 mile.
East peak of large barn.....	33	37	..	1 mile.
Chimney of house.....	75	53	..	1 1/2 miles.
"Robertson Windmill".....	138	57	20	1 mile.
Right peak of small house near Rolphs Wharf.....	153	54	..	2 1/4 miles.
Left peak of taller of two barns.....	197	17	..	1/2 mile.
Nail in blaze in cedar tree (5 inches diameter).....	232	06	10	52.50 meters.
Nail in blaze in cedar tree (5 inches diameter).....	253	25	40	47.18 meters.
Nail in blaze in pear tree (3 inches diameter).....	348	29	50	14.34 meters.

JULIUS.

General locality.—Southeastern shore of upper Chester River about one-half mile southwest of Wilmers Wharf. (See Chart No. 30.)

Immediate locality.—Observed station is on a sanded grass point fringed by cedar trees and about 2 yards south of shore.

Marks.—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Down" (S 56° 12' W).....	0	00	00	1/2 mile.
Chimney of left one of twin houses.....	10	37	..	1 1/2 miles.
Near peak of large barn.....	37	29	..	1 mile.
Middle one of three large trees.....	39	50	..	3/8 mile.
"Robertson Windmill".....	130	23	30	1 1/4 miles.
South chimney of house at Rolphs Wharf.....	165	38	..	1 3/8 miles.
Weather vane on large barn.....	176	18	..	1 1/4 miles.
Northwest peak of Wilmers Wharf cannery.....	187	53	..	3/8 mile.
Nail in blaze in cedar tree (8 inches diameter).....	198	52	..	4.77 meters.
Nail in blaze in cedar tree (8 inches diameter).....	318	06	20	4.30 meters.
Nail in blaze in cedar tree (9 inches diameter).....	345	21	..	13.11 meters.

BROAD.

General locality.—Northwestern side of upper Chester River, on an island at entrance to Broad Creek, about 1 mile northeast of entrance to Browns Creek. (See progress map.)

Immediate locality.—Observed station is on western end of a marsh island, about 9 yards north of shore, 43 yards south of shore, and 52 yards east-southeast of shore.

Marks.—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Nils" (N 80° 24' E).....	0	00	00	1/2 mile.
Near peak of cannery.....	7	17	..	1 3/8 miles.
Chimney on ell of house on ridge.....	51	09	..	2 1/4 miles.
Right peak of barn.....	98	26	..	1 mile.
Peak of middle dormer window of large house.....	132	08	..	1 1/2 miles.
East peak of large barn to left of large tree.....	190	34	..	1 mile.
"Robertson Windmill".....	341	25	30	1 1/2 miles.

## NILLS.

*General locality.*—Northwestern shore of upper Chester River, about three-fourths mile west of entrance to Southeast Creek and one-half mile east of an island at entrance to Broad Creek. (See progress map.)

*Immediate locality.*—Observed station is in edge of cultivated field, about 5 feet above high water, 4 yards north of shore, 110 yards east by south of tangent of point of curve of shore, and 450 yards southwest of a house and windmill.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Robertson" (N 59° 04' E).....	0	00	00	½ mile.
Weather vane on southwest peak of largest barn on ridge.....	10	46		1½ miles.
North peak of Wilmers Wharf cannery.....	37	03		½ mile.
Chimney of house near Wilmers Wharf.....	41	52		½ mile.
West chimney of large house on ridge.....	133	32		1 mile.
Near peak of roof of house on hill.....	158	22		1 mile.
"Robertson Windmill".....	336	55		½ mile.

## WILMERS.

*General locality.*—Southeastern shore of upper Chester River on southwest side of entrance to Southeast Creek, about 175 yards northeast of Wilmers Wharf. (See progress map.)

*Immediate locality.*—Observed station is on a sanded grass point between river and marsh, about 3 feet above high water, 7 yards east of shore, 5 yards southwest of shore, and 6 yards southeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Julius" (S 60° 34' W).....	0	00	00	½ mile.
Chimney on near one of twin houses.....	4	58		2½ miles.
East peak of large barn.....	27	14		1½ miles.
"Robertson Windmill".....	74	09	30	⅝ mile.
Cupola on Robertson barn.....	83	23		½ mile.
Flagpole on Rolphs Wharf.....	154	06	20	1¼ miles.
Weather vane on large barn.....	169	23		1½ miles.
Cupola on barn.....	212	59		300 yards.
Cupola on barn.....	284	57		⅝ mile.
Right peak of Wilmers Wharf cannery.....	348	26		175 yards.

## ROBERTSON WINDMILL.

*General locality.*—Northwestern side of upper Chester River opposite entrance to Southeast Creek, about 1¼ miles southeast of Rolphs Wharf. (See progress map.)

*Immediate locality.*—Observed station is on windmill on high tower in rear of house.

*Marks.*—Observed station is center point of windmill.

*References.*—None necessary.

## ROBERTSON.

*General locality.*—Northwestern shore of upper Chester River near Riverside Wharf opposite entrance to Southeast Creek. (See Progress map.)

*Immediate locality.*—Observed station is about 2 feet above high water, 5 yards northwest of shore, 45 yards northeast of shore end of a wharf, and 100 yards southwest of a point of land.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Thorsten" (N 52° 00' E).....	0	00	00	5 $\frac{1}{8}$ mile.
Weathervane on large barn.....	9	30	.....	1 $\frac{3}{4}$ miles.
Cupola on old barn.....	50	31	.....	1 $\frac{1}{2}$ miles.
Chimney of house near Wilmers Wharf.....	97	11	.....	$\frac{3}{8}$ mile.
Pinnacle on cupola on barn.....	105	15	.....	$\frac{1}{2}$ mile.
Northwest peak of cannery.....	117	41	.....	$\frac{1}{4}$ mile.
Weathervane on cupola on barn.....	256	15	20	$\frac{1}{4}$ mile.
Spindle on cupola on another barn.....	260	56	.....	$\frac{1}{4}$ mile.
Spindle on peak of Rolphs lower wharf house	359	29	.....	1 $\frac{1}{4}$ miles.

## SOUTHEAST.

*General locality.*—Southeastern shore of upper Chester River on Deep Point at northeastern side of entrance to Southeast Creek about three-fourths mile south-southwest of Rolphs Wharf and one-half mile northeast of Wilmers Wharf. (See Progress map.)

*Immediate locality.*—Observed station is on cultivated land about 15 feet above high water, 19 yards south of edge of bank, 21 yards east by north of edge of bank, and 27 yards east by south of extreme point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Wilmers" (S 57° 46' W).....	0	00	00	$\frac{1}{2}$ mile.
Right tangent of Wilmers Wharf.....	2	57	.....	$\frac{1}{2}$ mile.
"Robertson Windmill".....	34	41	20	$\frac{3}{4}$ mile.
Spindle on cupola on barn.....	38	02	.....	$\frac{3}{4}$ mile.
Weathervane on cupola on barn.....	38	32	.....	$\frac{3}{4}$ mile.
Near peak of long, small shanty.....	118	31	.....	2 miles.
Left peak of large barn.....	134	39	.....	1 $\frac{1}{4}$ miles.
Flagstaff on Rolphs Wharf house.....	140	54	10	$\frac{7}{8}$ mile.
Right peak of long barn.....	191	46	.....	$\frac{3}{4}$ mile.
Lightning rod between two chimneys on house.....	248	51	.....	$\frac{7}{8}$ mile.
Right peak of Wilmers Wharf cannery	358	34	.....	$\frac{5}{8}$ mile.

## THORSTEN.

*General locality.*—Northwestern shore of upper Chester River about three-fourths mile northeast of Wilmers Wharf and one-half mile north of entrance to Southeast Creek. (See Progress map.)

*Immediate locality.*—Observed station is about 3 feet above high water, 12 yards northwest of shore, 10 yards northeast of short fence, and 4 yards southeast of lone cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Blank" (N 19° 37' E).....	0	00	00	3/8 mile.
Northwest peak of large barn.....	4	34	..	1 1/4 miles.
Northwest peak of large barn.....	21	09	..	1 mile.
Flagstaff on Rolphs Wharf.....	23	33	..	5/8 mile.
Weathervane on very large barn.....	48	01	..	1 1/4 miles.
West peak of barn behind wharf.....	81	03	..	1 mile.
Lightning rod to right of two chimneys of house.....	111	15	..	1 3/4 miles.
Nail in blaze in fence post.....	115	15	30	8.85 meters.
Top point of roof of large brick house on ridge.....	135	05	40	2 1/4 miles.
Spindle on cupola on left one of two barns at Wilmers Wharf.....	177	08	40	3/4 mile.
Northwest peak of Wilmers Wharf cannery..	190	15	..	3/4 mile.
Nail in blaze in cedar tree (10 inches diameter).....	279	43	30	3.40 meters.

## BLANK.

*General locality.*—Northwestern shore of upper Chester River about one-fourth mile west of Rolphs Wharf and three-fourths mile north of entrance to Southeast Creek. (See Progress map.)

*Immediate locality.*—Observed station is on a grassy point about 2 feet above high water, 7 yards west of shore, 0 yards north of shore, 8 yards northwest of extreme end of point, and 40 yards from a dense clump of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Rolphs" (N 82° 37' E).....	0	00	00	1/4 mile.
Weathervane on wharf house.....	10	19	..	1/4 mile.
Left peak of wharf house.....	71	30	..	1/2 mile.
Left peak of small house among trees.....	104	28	30	1 3/4 miles.
Spindle on barn cupola.....	115	06	..	1 3/4 miles.
Peak of middle dormer window of house....	271	38	..	1 1/2 miles.
Peak of large barn.....	333	25	..	5/8 mile.
Flagstaff on Rolphs Wharf house.....	356	27	..	1/4 mile.

## ROLPHS.

*General locality.*—Eastern shore of upper Chester River about 100 yards southeast of Rolphs Wharf and three-fourths mile north of entrance to Southeast Creek. (See Progress map.)

*Immediate locality.*—Observed station is on a grass bank between two large willow trees about 6 feet above high water, 5 yards northeast of shore, 19 yards south-southwest of side gate to yard, and 7 yards southwest of a road 3 feet higher than observed station.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.—</i>	°	'	"	
"Southeast" (S 22° 53' W).....	0	00	00	¾ mile.
Peak of Wilmers Wharf cannery.....	15	06	..	1¼ miles.
Flagstaff on Rolphs Wharf.....	76	59	..	100 yards.
Nail in blaze in willow tree (24 inches diameter).....	88	06	20	7.16 meters.
Chimney on ell of Story house.....	151	36	..	53 yards.
Nail in blaze in willow tree (27 inches diameter).....	220	31	10	13.96 meters.
Chimney on ell of Story house.....	261	56	..	120 yards.
Nail in blaze in willow tree (25 inches diameter).....	309	26	40	8.51 meters.
Weathervane on middle of lower wharf house.....	347	42	..	100 yards.

## BOUNDARIES OF OYSTER BARS.

### EXPLANATION.

The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the designation and employment by the Department of Commerce and Labor of such officers, experts, and other technically qualified persons "as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland." The oyster laws of Maryland provide that the Maryland Shell Fish Commissioners, with the aid of such persons as may be designated by the Government, shall proceed "to have laid out, surveyed, and designated on the said charts the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts." The oyster laws of Maryland also provide in another section that there shall "be made a true and accurate survey of the natural oyster beds, bars, and rocks \* \* \* with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey."

Under the provisions of the laws quoted above the State of Maryland, in cooperation with the Department of Commerce and Labor, must define the boundaries of the natural oyster bars "as accurately as practicable" and also "with reference to fixed and permanent objects on the shore, giving courses and distances." The requirement of "as accurately as practicable" is easily fulfilled by definition of the location of the corners of the oyster bars by latitude and longitude. In fact, this method is probably the most satisfactory and accurate one that could be used for all purposes of legal definition or for relocation of the oyster-bar boundaries by competent engineers. Therefore the additional requirement of "giving courses and distances" is superfluous and is only fulfilled in the published definitions on account of the specific provisions of the law making it compulsory. This part of the description of boundaries has involved an immense amount of extra computations in order to prevent technical discrepancies between the latitude and longitude of a corner of an oyster bar and its distance and bearing from objects on shore of known latitude and longitude without adding anything to the accuracy and very little to the convenience of practical use of the descriptions of the oyster-bar boundaries.

As provided by law the boundaries of the oyster bars are all straight lines, but in the work already completed they have inclosed areas of all shapes from triangles to



complicated 14-sided figures, and of all sizes from 4 acres to 7,548 acres. The sizes have varied in length from 93 to 7,529 yards, and in some cases the corners of the boundaries have been practically at the triangulation stations from which they are located, while in other instances they were over 13,600 yards from the landmarks most available for the purpose of fixing their position.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made and the magnitude of the work with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and great importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the Commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and the future.

#### METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in each county.

*Title.*—At the top of each tabular form is given the legal name of the oyster bar to be described, and the one by which it is known and designated in the published oyster records and on the oyster charts. The adopted name of the oyster bar is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission; and when there was no local name in common use a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the oyster bar was located.

Underneath the name, in parentheses, is given the general locality of the oyster bar and the serial number of the Maryland Oyster Chart on which its legal boundaries are shown.<sup>1</sup>

*First column.*—This column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar. Where a corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars, only the number of the corner of the oyster bar being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the Commission as the primary technical definition of the location of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

of the survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>1</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>2</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars: one, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

(1) *Triangulation.*—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those not familiar

<sup>1</sup> The mean magnetic variation for Kent County was  $6^{\circ} 15'$  west of north in 1911 and increasing at the rate of  $5'$  yearly.

<sup>2</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D. C.

with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the Commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant, the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "Phoenix Shoal" oyster bar, which is the first one described in this publication, and assume that "Corner No. 3," is to be examined as to its position. The angle between the two landmarks "Worton Point 2" and "Pooles Island 2" as determined from right to left from the forward bearings from this corner is  $132^{\circ} 04'$  and the angle between "Pooles Island 2" and "Bramble" is  $68^{\circ} 13'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor ("position finder"), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The

second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant then the other until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic location of a point is attained. In fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the Commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State fishery force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer can take compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>1</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks, for which the bearings are published, have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used. This can be done by getting their bearings directly from the chart by parallel rulers or a protractor and then applying these new bearings in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fifth column of the tables opposite the "corner" in question. The direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

<sup>1</sup> The mean magnetic variation for Kent County is 6° 15' west of north in 1911 and increasing at the rate of 5' yearly.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

## BOUNDARIES OF NATURAL OYSTER BARS.

## PHOENIX SHOAL.

(Chesapeake Bay—Chart No. 28.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance	U. S. C' & G. S. triangulation station
			Forward	Back		
1	39 17 05.86	76 12 43.06	N 30 43 E	S 30 44 W	4821	Worton Point 2. Pooles Island 2. Bramble.
			N 86 00 W	S 86 01 E	4702	
			S 16 23 W	N 16 23 E	3737	
2	39 17 09.44	76 12 52.05	N 33 37 E	S 33 38 W	4830	Worton Point 2. Pooles Island 2. Bramble.
			N 87 17 W	S 87 18 E	4574	
			S 12 48 W	N 12 48 E	3800	
3	39 17 32.06	76 12 37.70	N 35 26 E	S 35 27 W	3064	Worton Point 2. Pooles Island 2. Bramble.
			S 83 22 W	N 83 20 E	4978	
			S 15 09 W	N 15 09 E	4691	
4	39 17 29.08	76 12 28.86	N 31 35 E	S 31 36 W	3945	Worton Point 2. Pooles Island 2. Bramble.
			S 85 05 W	N 85 03 E	5105	
			S 18 23 W	N 18 22 E	4602	

## DEEP SHOAL.

(Chesapeake Bay—Chart No. 28.)

1	39 14 46.00	76 13 47.63	N 28 31 E	S 28 31 W	1288	Bramble. Pooles Island 2. Mitchells Bluff 2.
			N 31 37 W	S 31 38 E	5935	
			S 18 29 W	N 18 29 E	2754	
2	39 14 47.05	76 14 00.80	N 42 01 E	S 42 01 W	1435	Bramble. Pooles Island 2. Mitchells Bluff 2.
			N 20 01 W	S 20 02 E	5704	
			S 11 09 W	N 11 09 E	2729	
3	39 15 10.80	76 13 54.11	S 10 30 W	N 10 30 E	5817	Mitchells Bluff 2. Bramble. Pooles Island 2.
			S 89 26 E	N 89 26 W	793	
			N 36 50 W	S 36 51 E	4895	
4	39 15 15.75	76 13 37.10	S 17 38 W	N 17 38 E	3793	Mitchells Bluff 2. Bramble. Pooles Island 2.
			N 69 12 E	S 69 12 W	363	
			N 39 54 W	S 39 55 E	5281	

## Survey of Oyster Bars, Kent County, Md.

## COAL LUMP.

(Chesapeake Bay—Chart No. 28.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	39 14 38.93	76 14 47.98	S 16 40 E N 58 03 E N 16 07 W	N 16 40 W S 58 03 W S 16 08 E	2477 2591 5508	Mitchells Bluff 2. Bramble. Pooles Island 2.
2	39 14 39.91	76 15 05.52	S 25 57 E N 63 17 E N 11 30 W	N 25 56 W S 63 18 W S 11 30 E	2675 2975 5366	Mitchells Bluff 2. Bramble. Pooles Island 2.
3	39 15 26.40	76 15 15.75	S 19 54 E S 85 30 E N 12 16 W	N 19 54 W N 85 31 W S 12 16 E	4226 2035 3776	Mitchells Bluff 2. Bramble. Pooles Island 2.
4	39 15 22.30	76 14 41.05	S 7 51 E S 87 24 E N 24 05 W	N 7 50 W N 87 23 W S 24 06 E	3871 2018 4195	Mitchells Bluff 2. Bramble. Pooles Island 2.

## GALES LUMPS.

(Chesapeake Bay—Chart No. 28.)

1	39 11 37.54	76 19 11.77	N 58 42 W S 61 08 W S 31 43 E	S 58 44 E N 61 04 E N 31 41 W	8263 9640 7304	Craighill Channel Light (Rear Range). Seven Foot Knoll Light. Swan Point 3.
2	39 14 19.47	76 17 12.25	N 20 44 E S 83 26 W S 3 26 E	S 20 45 W N 83 20 E N 3 26 W	6360 10261 11697	Pooles Island 2. Craighill Channel Light (Rear Range). Swan Point 3.
3	39 13 33.60	76 16 24.20	S 3 10 W S 87 01 E N 7 32 E	N 3 10 E N 87 00 W S 7 33 W	10144 3239 7561	Swan Point 3. Mitchells Bluff 2. Pooles Island 2.
4	39 12 56.97	76 17 19.57	S 5 44 E N 77 08 E N 15 38 E	N 5 44 W S 77 10 W S 15 39 W	8938 4797 9066	Swan Point 3. Mitchells Bluff 2. Pooles Island 2.
5	39 12 07.50	76 16 48.30	S 0 34 E N 54 43 E N 8 52 E	N 0 34 W S 54 45 W S 8 53 W	7227 4736 10526	Swan Point 3. Mitchells Bluff 2. Pooles Island 2.

MITCHELLS BLUFF BUOY.

(Chesapeake Bay—Chart No. 28.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	39 12 46.80	76 16 23.97	N 6 12 E	S 6 12 W	9127	Pooles Island 2. Craighill Channel Light (Rear Range).
			N 80 20 W	S 80 24 E	11626	
			S 75 33 W	N 75 29 E	11841	
2	39 12 58.32	76 16 28.50	N 7 15 E	S 7 15 W	8755	Pooles Island 2. Craighill Channel Light (Rear Range).
			N 82 09 W	S 82 14 E	11449	
			S 73 35 W	N 73 31 E	11829	
3	39 13 11.93	76 15 50.42	N 0 45 E	S 0 45 W	8226	Pooles Island 2. Craighill Channel Light (Rear Range).
			N 84 53 W	S 84 57 E	12390	
			S 72 53 W	N 72 48 E	12918	
4	39 13 00.00	76 15 45.28	N 0 11 W	S 0 11 E	8621	Pooles Island 2. Craighill Channel Light (Rear Range).
			N 83 06 W	S 83 11 E	12567	
			S 74 46 W	N 74 41 E	12936	

TOICHESTER LUMP.

(Chesapeake Bay—Chart No. 28.)

1	39 12 52.81	76 14 51.48	N 33 37 E	S 33 37 W	1448	Mitchells Bluff 2. Pooles Island 2. Craighill Channel Light (Rear Range).
			N 9 13 W	S 9 13 E	8085	
			N 82 48 W	S 82 54 E	13996	
2	39 12 55.41	76 15 00.00	N 42 31 E	S 42 31 W	1517	Mitchells Bluff 2. Pooles Island 2. Craighill Channel Light (Rear Range).
			N 7 53 W	S 7 53 E	8865	
			N 83 03 W	S 83 09 E	13764	
3	39 13 18.14	76 14 49.58	N 64 55 E	S 64 55 W	830	Mitchells Bluff 2. Pooles Island 2. Craighill Channel Light (Rear Range).
			N 10 31 W	S 10 32 E	8153	
			N 86 19 W	S 86 24 E	13965	
4	39 13 15.80	76 14 41.60	N 51 33 E	S 51 33 W	693	Mitchells Bluff 2. Pooles Island 2. Craighill Channel Light (Rear Range).
			N 11 50 W	S 11 51 E	8270	
			N 86 03 W	S 86 08 E	14180	

## Survey of Oyster Bars, Kent County, Md.

HODGES.

(Chesapeake Bay—Chart No. 28.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 10 21.87	76 16 48.10	N 57 43 W	S 57 47 E	Yards. 12807	Craighill Channel Light (Rear Range). Seven Foot Knoll Light. Swan Point 3.
			S 80 15 W	N 80 10 E	12393	
			S 1 02 E	N 1 02 W	3664	
2	39 11 00.00	76 16 53.07	N 62 34 W	S 62 38 E	12053	Craighill Channel Light (Rear Range). Craighill Channel Light (Front Range). Bodkin Point (Old Tower).
			N 86 33 W	S 86 37 E	10697	
			S 66 30 W	N 66 25 E	14762	
3	39 11 31.73	76 15 34.17	N 1 35 W	S 1 35 E	11610	Pooles Island 2. Craighill Channel Light (Rear Range). Seven Foot Knoll Light.
			N 70 38 W	S 70 43 E	13532	
			S 72 32 W	N 72 27 E	14839	
4	39 10 53.01	76 16 06.10	N 2 18 E	S 2 18 W	12922	Pooles Island 2. Craighill Channel Light (Rear Range). Seven Foot Knoll Light.
			N 64 06 W	S 64 11 E	13261	
			S 76 42 W	N 76 37 E	13684	
5	39 10 45.70	76 16 34.24	N 61 39 W	S 61 44 E	12715	Craighill Channel Light (Rear Range). Craighill Channel Light (Front Range). Bodkin Point (Old Tower).
			N 84 14 W	S 84 19 E	11253	
			S 68 56 W	N 68 51 E	15036	



SWAN POINT.

(Chesapeake Bay—Charts Nos. 28 and 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	39 05 39.09	76 16 48.20	S 23 51 E	N 24 00 W	8732	Wickes Beach.
			N 47 48 E	S 47 49 W	4158	Stevens.
			N 0 40 E	S 0 40 W	5875	Swan Point 3.
2	39 07 20.67	76 17 51.73	N 35 21 E	S 35 22 W	3002	Swan Point 3.
			N 48 44 W	S 48 47 E	12192	Craighill Channel Light (Front Range).
			N 82 50 W	S 82 54 E	12102	Bodkin Point (Old Tower).
3	39 07 25.11	76 19 00.00	N 56 55 E	S 56 57 W	4213	Swan Point 3.
			N 43 03 W	S 43 06 E	10797	Craighill Channel Light (Front Range).
			N 82 25 W	S 82 29 E	10293	Bodkin Point (Old Tower).
4	39 08 50.00	76 19 00.00	N 36 34 W	S 36 37 E	12369	Craighill Channel Light (Rear Range).
			N 55 42 W	S 55 45 E	8922	Craighill Channel Light (Front Range).
			S 81 36 W	N 81 32 E	10314	Bodkin Point (Old Tower).
5	39 10 25.76	76 17 01.90	N 57 20 W	S 57 25 E	12431	Craighill Channel Light (Rear Range).
			S 79 21 W	N 79 16 E	12059	Seven Foot Knoll Light.
			S 6 27 E	N 6 27 W	3818	Swan Point 3.
6	39 10 21.87	76 16 48.10	N 57 43 W	S 57 47 E	12807	Craighill Channel Light (Rear Range).
			S 80 15 W	N 80 10 E	12393	Seven Foot Knoll Light.
			S 1 02 E	N 1 02 W	3664	Swan Point 3.
7	39 08 24.73	76 17 29.16	N 42 06 W	S 42 10 E	14543	Craighill Channel Light (Rear Range).
			S 86 58 W	N 87 03 E	12607	Bodkin Point (Old Tower).
			S 4 15 E	N 4 15 W	10116	Love Point Light.
8	39 08 05.36	76 17 05.35	N 74 27 E	S 74 28 W	2301	Gratitude.
			N 28 53 E	S 28 53 W	1075	Swan Point 3.
			N 89 59 W	N 89 56 E	13214	Bodkin Point (Old Tower).
9	39 07 51.73	76 17 20.18	N 67 33 E	S 67 34 W	2819	Gratitude.
			N 32 58 E	S 32 59 W	1670	Swan Point 3.
			N 87 56 W	S 88 01 E	12833	Bodkin Point (Old Tower).
10	39 06 46.38	76 17 02.03	S 0 19 E	N 0 19 W	6756	Love Point Light.
			N 81 21 E	S 81 22 W	3483	Stevens.
			N 6 50 E	S 6 50 W	3631	Swan Point 3.
11	39 06 41.57	76 16 21.77	S 8 47 W	N 8 48 E	6687	Love Point Light.
			N 73 58 E	S 73 59 W	2483	Stevens.
			N 9 26 W	S 9 26 E	3819	Swan Point 3.

## Survey of Oyster Bars, Kent County, Md.

## SWAN CREEK.

(Swan Creek—Chart No. 28.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	39 00 09.48	76 15 15.10	S 42 10 W	N 42 18 E	338	Fork.
			N 57 02 W	S 57 02 E	431	Elliason.
			N 28 28 W	S 28 29 E	770	Urie.
2	39 00 10.05	76 15 25.67	S 72 32 E	N 72 31 W	480	Rail.
			N 40 11 E	S 40 11 W	408	Spike.
			N 7 45 W	S 7 45 E	664	Urie.
3	39 09 13.10	76 15 27.13	S 42 41 E	N 42 41 W	1033	Haven.
			N 55 18 E	S 55 18 W	367	Spike.
			N 25 47 E	S 25 47 W	700	Corr.
4	39 09 12.78	76 15 15.30	S 31 35 W	N 31 35 E	423	Fork.
			N 70 56 W	S 70 56 E	377	Elliason.
			N 32 37 W	S 32 37 E	671	Urie.

## ROCKHALL.

(Swan Creek—Charts Nos. 28 and 29.)

1	39 08 53.00	76 15 02.98	N 17 48 W	S 17 48 E	453	Rail.
			N 60 41 W	S 60 42 E	626	Fork.
			S 74 00 W	N 74 00 E	1020	Orchard.
2	39 08 54.20	76 15 14.33	N 22 14 E	S 22 14 W	422	Rail.
			N 42 57 W	S 42 57 E	363	Fork.
			S 64 46 W	N 64 46 E	755	Orchard.
3	39 08 58.57	76 15 05.23	N 18 04 W	S 18 04 E	256	Rail.
			N 76 10 W	S 76 10 E	501	Fork.
			S 63 02 W	N 63 01 E	1035	Orchard.

## WHITE HORSE.

(Swan Creek—Chart Nos. 28 and 29.)

1	39 08 44.82	76 15 18.15	N 20 12 E	S 20 12 W	754	Rail.
			N 14 11 W	S 14 11 E	600	Fork.
			S 89 28 W	N 89 28 E	583	Orchard.
2	39 08 51.58	76 15 19.85	S 86 15 E	N 86 15 W	510	Haven.
			N 16 08 W	S 16 08 E	369	Fork.
			S 66 33 W	N 66 32 E	586	Orchard.
3	39 08 54.20	76 15 14.33	N 22 14 E	S 22 14 W	422	Rail.
			N 42 57 W	S 42 57 E	363	Fork.
			S 64 46 W	N 64 46 E	755	Orchard.
4	39 08 48.40	76 15 12.32	N 76 39 E	S 76 39 W	320	Haven.
			N 33 03 W	S 33 03 E	550	Fork.
			S 80 16 W	N 80 16 E	746	Orchard.
5	39 08 47.37	76 15 15.93	N 75 02 E	S 75 02 W	420	Haven.
			N 22 29 W	S 22 29 E	537	Fork.
			S 81 53 W	N 81 53 E	647	Orchard.

Survey of Oyster Bars, Kent County, Md.

THE HAVEN.

(Swan Creek—Charts Nos. 28 and 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	39 08 38.00	76 15 02.73	N 7 57 E	S 7 57 W	429	Haven. Rail. Fork.
			N 8 48 W	S 8 48 E	946	
			N 34 12 W	S 34 12 E	982	
2	39 08 43.86	76 15 11.20	N 51 09 E	S 51 09 W	362	Haven. Rail. Urie.
			N 5 59 E	S 6 00 W	744	
			N 16 57 W	S 16 57 E	1611	
3	39 08 46.15	76 15 08.73	N 55 23 E	S 55 23 W	264	Haven. Rail. Elliason.
			N 1 05 E	S 1 05 W	662	
			N 27 23 W	S 27 23 E	1149	
4	39 08 41.23	76 15 00.77	N 1 26 E	S 1 26 W	316	Haven. Fork. Treasure.
			N 40 38 W	S 40 38 E	027	
			N 64 17 W	S 64 17 E	402	

DEEP LANDING HOLE.

(Swan Creek—Charts Nos. 28 and 29.)

1	39 08 46.24	76 15 45.56	S 71 21 W	N 71 21 E	616	Bank. Gratitude. Tavern.
			S 9 02 E	N 9 02 W	772	
			N 46 13 W	S 46 13 E	588	
2	39 08 49.37	76 15 44.33	S 63 51 W	N 63 51 E	687	Bank. Gratitude. Tavern.
			S 5 50 E	N 5 50 W	872	
			N 56 35 W	S 56 35 E	548	
3	39 08 49.39	76 15 36.27	S 33 46 W	N 33 46 E	191	Orchard. Tavern. Rail.
			N 05 47 W	S 05 47 E	733	
			N 53 05 E	S 53 05 W	921	
4	39 08 46.71	76 15 36.40	N 48 59 E	S 48 59 W	980	Rail. Tavern. Bank.
			N 59 32 W	S 59 33 E	772	
			S 75 32 W	N 75 31 E	852	

LITTLE NECK.

(Swan Creek—Charts Nos. 28 and 29.)

1	39 08 14.80	76 16 02.94	N 62 42 E	S 62 42 W	650	Gratitude. Bank. Swan Point 3.
			N 8 24 W	S 8 24 E	873	
			N 60 55 W	S 60 55 E	1282	
2	39 08 28.87	76 16 01.60	S 71 59 E	N 71 59 W	571	Gratitude. Bank. Swan Point 3.
			N 22 41 W	S 22 41 E	421	
			N 82 41 W	S 82 41 E	1165	
3	39 08 38.08	76 15 46.39	N 35 39 E	S 35 39 W	273	Orchard. Bank. Gratitude.
			N 82 04 W	S 82 05 E	568	
			S 16 21 E	N 16 21 W	507	
4	39 08 35.73	76 15 44.00	N 17 45 E	S 17 45 W	316	Orchard. Bank. Gratitude.
			N 75 51 W	S 75 51 E	644	
			S 11 07 E	N 11 07 W	416	

## Survey of Oyster Bars, Kent County, Md.

## TAVERN CREEK.

(Tavern Creek—Charts Nos. 28 and 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	39 08 27.51	76 16 11.76	S 80 50 E	N 80 50 W	Yards. 819 447 909	Gratitude. Bank. Swan Point 3.
			N 13 29 E	S 13 29 W		
			N 77 40 W	S 77 40 E		
2	39 08 30.27	76 16 15.46	S 76 09 E	N 76 08 W	934 397 797	Gratitude. Bank. Swan Point 3.
			N 30 31 E	S 30 32 W		
			N 82 43 W	S 82 43 E		
3	39 08 40.79	76 16 02.68	S 44 37 E	N 44 37 W	812 602 592	Gratitude. Orchard. Tavern.
			N 77 28 E	S 77 28 W		
			N 2 25 E	S 2 25 W		
4	39 08 38.68	76 15 59.86	S 44 24 E	N 44 24 W	710 551 664	Gratitude. Orchard. Tavern.
			N 68 32 E	S 68 32 W		
			N 4 15 W	S 4 15 E		

## WINDMILL FLATS.

(Entrance Rockhall Harbor—Chart No. 29.)

1	39 07 43.39	76 15 55.17	S 50 19 E	N 50 19 W	2192 1344 2140	Stevens. Windmill Point. Swan Point 3.
			N 66 52 E	S 66 52 W		
			N 38 12 W	S 38 13 E		
2	39 08 05.75	76 16 00.56	S 40 20 E	N 40 19 W	2825 793 1504	Stevens. Gratitude. Swan Point 3.
			N 40 28 E	S 40 29 W		
			N 51 52 W	S 51 53 E		
3	39 08 08.86	76 15 40.29	S 68 37 E	N 68 37 W	908 499 1902	Windmill Point. Gratitude. Swan Point 3.
			N 2 00 W	S 2 00 E		
			N 64 21 W	S 64 22 E		
4	39 07 55.20	76 15 15.66	S 19 51 E	N 19 51 W	1912 237 1167	Stevens. Windmill Point. Gratitude.
			N 56 43 E	S 56 43 W		
			N 34 42 W	S 34 43 E		

## MUDDY DRAIN.

(Entrance Rockhall Harbor—Chart No. 29.)

1	39 07 11.20	76 15 47.38	S 78 02 E	N 78 02 W	1515 1915 3162	Stevens. Windmill Point. Swan Point 3.
			N 32 35 E	S 32 36 W		
			N 28 55 W	S 28 55 E		
2	39 07 20.43	76 16 10.52	S 73 22 E	N 73 21 W	2182 2094 2624	Stevens. Windmill Point. Swan Point 3.
			N 51 32 E	S 51 33 W		
			N 20 33 W	S 20 33 E		
3	39 08 01.67	76 16 23.83	S 50 26 E	N 50 25 W	3165 1348 1210	Stevens. Gratitude. Swan Point 3.
			N 56 40 E	S 56 40 W		
			N 28 12 W	S 28 12 E		
4	39 08 05.75	76 16 00.56	S 40 20 E	N 40 19 W	2825 793 1504	Stevens. Gratitude. Swan Point 3.
			N 40 29 E	S 40 29 W		
			N 51 52 W	S 51 53 E		

HUNTINGFIELD.

(Entrance Rockhall Harbor—Chart No. 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 07 03.80	76 15 28.48	S 86 16 E	N 86 15 W	Yards. 988 1939 3634	Stevens. Windmill Point. Swan Point 3.
			N 16 01 E	S 16 01 W		
			N 33 52 W	S 33 53 E		
2	39 07 11.20	76 15 47.38	S 78 02 E	N 78 02 W	1515 1915 3162	Stevens. Windmill Point. Swan Point 3.
			N 32 35 E	S 32 36 W		
			N 28 55 W	S 28 55 E		
3	39 07 43.39	76 15 55.17	S 50 19 E	N 50 19 W	2192 1344 2140	Stevens. Windmill Point. Swan Point 3.
			N 66 52 E	S 66 52 W		
			N 38 12 W	S 38 13 E		
4	39 07 55.20	76 15 15.66	S 19 51 E	N 19 51 W	1912 237 1167	Stevens. Windmill Point. Gratitude.
			N 56 43 E	S 56 43 W		
			N 34 42 W	S 34 43 E		
5	39 07 45.55	76 14 58.40	N 44 34 W	S 44 35 E	2597 3243 1485	Bank. Swan Point 3. Stevens.
			N 60 14 W	S 60 15 E		
			S 7 33 E	N 7 33 W		
6	39 07 15.96	76 14 57.43	N 10 56 W	S 10 56 E	1480 3856 8476	Windmill Point. Swan Point 3. Love Point Light.
			N 47 27 W	S 47 26 E		
			S 22 38 W	N 22 37 E		

GUM SPRING.

(Entrance Chester River—Chart No. 29.)

1	39 06 18.23	76 15 01.87	N 11 00 E	S 11 00 W	1500 5306 6605	Stevens. Swan Point 3. Love Point Light.
			N 30 53 W	S 30 54 E		
			S 28 12 W	N 28 11 E		
2	39 06 34.48	76 15 26.56	N 45 20 E	S 45 20 W	1315 2893 4512	Stevens. Windmill Point. Swan Point 3.
			N 9 39 E	S 9 39 W		
			N 27 23 W	S 27 24 E		
3	39 07 01.33	76 15 09.20	N 87 45 E	S 87 45 W	479 1947 4003	Stevens. Windmill Point. Swan Point 3.
			N 0 51 E	S 0 51 W		
			N 39 13 W	S 39 14 E		

## Survey of Oyster Bars, Kent County, Md.

## WHITE MARSH.

(Entrance Chester River—Chart No. 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / ''	° / ' / ''	° / ' / ''	° / ' / ''	Yards.	
1	39 04 59.92	76 14 11.55	N 14 08 W	S 14 08 E	4241	Stevens.
			N 29 21 W	S 29 22 E	8253	Swan Point 3.
			S 54 25 W	N 54 24 E	5466	Love Point Light.
2	39 05 04.52	76 14 39.16	N 4 29 W	S 4 29 E	3970	Stevens.
			S 48 07 W	N 48 06 E	4996	Love Point Light.
			S 1 09 E	N 1 09 W	6822	Wickes Beach.
3	39 05 32.80	76 15 16.79	N 12 43 E	S 12 44 W	3081	Stevens.
			N 20 58 W	S 20 59 E	6518	Swan Point 3.
			S 32 28 W	N 32 27 E	5085	Love Point Light.
4	39 06 34.48	76 15 26.56	N 45 20 E	S 45 20 W	1315	Stevens.
			N 9 39 E	S 9 39 W	2893	Windmill Point.
			N 27 23 W	S 27 24 E	4512	Swan Point 3.
5	39 06 18.23	76 15 01.87	N 11 00 E	S 11 00 W	1500	Stevens.
			N 30 54 W	S 30 54 E	5306	Swan Point 3.
			S 28 12 W	N 28 11 E	6605	Love Point Light.
6	39 06 01.63	76 14 35.07	N 11 37 W	S 11 38 E	2075	Stevens.
			N 33 50 W	S 33 51 E	6157	Swan Point 3.
			S 36 02 W	N 36 00 E	6506	Love Point Light.

## UNDER THE BAR.

(Entrance Chester River—Chart No. 29.)

1	39 05 32.80	76 15 16.79	N 12 43 E	S 12 44 W	3081	Stevens.
			N 20 58 W	S 20 59 E	6518	Swan Point 3.
			S 32 28 W	N 32 27 E	5085	Love Point Light.
2	39 05 57.81	76 15 50.02	S 13 04 E	N 13 04 W	8847	Wickes Beach.
			N 35 40 E	S 35 41 W	2601	Stevens.
			N 15 33 W	S 15 34 E	5442	Swan Point 3.
3	39 06 34.48	76 15 26.56	N 45 20 E	S 45 20 W	1315	Stevens.
			N 9 39 E	S 9 39 W	2893	Windmill Point.
			N 27 23 W	S 27 24 E	4512	Swan Point 3.

HICKORY THICKET.

(Entrance Chester River—Chart No. 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 03 06.52	76 14 54.74	N 0 43 E	S 0 43 W	7937	Stevens. Love Point Light. Wickes Beach.
			N 79 00 W	S 79 01 E	3373	
			S 10 54 E	N 10 54 W	2894	
2	39 03 35.38	76 14 49.45	N 0 20 W	S 0 20 E	6063	Stevens. Love Point Light. Wickes Beach.
			S 84 33 W	N 84 31 E	3465	
			S 6 06 E	N 6 06 W	3837	
3	39 05 04.52	76 14 39.16	N 4 29 W	S 4 29 E	3970	Stevens. Love Point Light. Wickes Beach.
			S 48 07 W	N 48 06 E	4996	
			S 1 09 E	N 1 09 W	6822	
4	39 04 59.92	76 14 11.55	N 14 08 W	S 14 08 E	4241	Stevens. Swan Point 3. Love Point Light.
			N 20 21 W	S 20 22 E	8253	
			S 54 25 W	N 54 24 E	5466	
5	39 03 44.38	76 14 28.17	N 5 08 W	S 5 09 E	6687	Stevens. Love Point Light. Wickes Beach.
			S 81 02 W	N 81 00 E	4058	
			S 2 07 W	N 2 07 E	4122	

EAST NECK BAY.

(Entrance Chester River—Chart No. 29.)

1	39 03 53.27	76 16 11.63	S 30 11 E	N 30 10 W	5112	Wickes Beach. Stevens. Swan Point 3. to corner No. 2.
			N 18 25 E	S 18 26 W	6705	
			N 5 24 W	S 5 24 E	0485	
Thence along county boundary as delineated on Chart No. 29						
2	39 04 15.35	76 16 34.41	S 31 33 E	N 31 31 W	6057	Wickes Beach. Stevens. Swan Point 3.
			N 25 40 E	S 25 50 W	6240	
			N 1 56 W	S 1 56 E	8703	
3	39 04 33.16	76 16 01.82	S 21 51 E	N 21 50 W	6200	Wickes Beach. Stevens. Swan Point 3.
			N 20 22 E	S 20 22 W	5351	
			N 8 05 W	S 8 05 E	8170	
4	39 04 19.08	76 15 42.07	S 18 43 E	N 18 42 W	5584	Wickes Beach. Stevens. Swan Point 3.
			N 13 44 E	S 13 45 W	5653	
			N 11 01 W	S 11 01 E	8733	

## Survey of Oyster Bars, Kent County, Md.

## ENTRANCE LUMPS.

(Entrance Chester River—Chart No. 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	39 03 06.52	76 14 54.74	N 0 43 E	S 0 43 W	7937	Stevens.
			N 79 00 W	S 79 01 E	3373	Love Point Light.
			S 10 54 E	N 10 54 W	2894	Wickes Beach.
2	39 03 13.74	76 15 46.03	N 10 39 E	S 10 39 W	7829	Stevens.
			N 78 28 W	S 78 29 E	2001	Love Point Light.
			S 60 10 W	N 60 08 E	4162	Amour.
3	39 03 34.90	76 15 45.98	N 11 42 E	S 11 42 W	7128	Stevens.
			S 80 55 W	N 80 54 E	1987	Love Point Light.
			S 26 31 E	N 26 30 W	4245	Wickes Beach.
4	39 03 35.38	76 14 49.45	N 0 20 W	S 0 20 E	6963	Stevens.
			S 84 33 W	N 84 31 E	3465	Love Point Light.
			S 6 06 E	N 6 06 W	3837	Wickes Beach.

## WICKES BEACH.

(Entrance Chester River—Chart No. 29.)

1	39 01 21.86	76 15 15.70	N 57 57 E	S 57 57 W	1296	Wickes Beach
			N 33 28 W	S 33 29 E	5002	Love Point Light.
			N 77 57 W	S 77 59 E	5329	Railway Water Tank.
2	39 02 13.18	76 16 24.02	N 21 31 W	S 21 31 E	2625	Love Point Light
			S 79 43 W	N 79 42 E	3470	Railway Water Tank.
			S 10 26 W	N 10 26 E	5562	Macum.
3	39 02 29.54	76 16 03.98	N 38 14 W	S 38 15 E	2407	Love Point Light.
			S 73 27 W	N 73 26 E	4112	Railway Water Tank.
			S 14 18 W	N 14 18 E	6215	Macum.
4	39 02 29.16	76 15 19.18	N 54 30 W	S 54 31 E	3276	Love Point Light.
			S 77 16 W	N 77 14 E	5249	Railway Water Tank.
			S 24 19 W	N 24 18 E	6593	Macum.

## DREDGE ROCK.

(Lower Chester River—Chart No. 29.)

1	39 00 43.67	76 14 46.20	S 22 10 E	N 22 09 W	4223	Muddy.
			S 83 37 E	N 83 36 W	2791	Narrows Point.
			N 9 16 E	S 9 16 W	2001	Wickes Beach.
2	39 00 52.68	76 15 19.53	S 80 27 E	N 80 26 W	3702	Narrows Point.
			N 35 39 E	S 35 39 W	2057	Wickes Beach.
			N 67 42 W	S 67 44 E	5524	Railway Water Tank
3	39 01 16.43	76 16 09.35	S 74 05 E	N 74 03 W	5159	Narrows Point.
			N 70 52 E	S 70 52 W	2656	Wickes Beach.
			N 17 12 W	S 17 12 E	4559	Love Point Light.
4	39 01 18.75	76 15 22.18	S 68 08 E	N 68 06 W	4008	Narrows Point.
			N 58 01 E	S 58 01 W	1496	Wickes Beach.
			N 31 11 W	S 31 12 E	5000	Love Point Light.



SIDE SHOAL.

(Lower Chester River—Charts Nos. 29 and 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	39 00 34.80	76 14 02.32	S 6 55 E	N 6 55 W	3639	Muddy. Narrows Point. Wickes Beach.
			S 89 35 E	N 89 35 W	1619	
			N 20 06 W	S 20 06 E	2422	
2	39 00 59.93	76 14 11.53	N 22 02 W	S 22 02 E	1573	Wickes Beach. Macum. Muddy.
			S 56 33 W	N 56 32 E	5387	
			S 8 44 E	N 8 44 W	4482	
3	39 00 52.93	76 13 48.20	N 35 53 W	S 35 54 E	2053	Wickes Beach. Macum. Muddy.
			S 61 36 W	N 61 34 E	5816	
			S 0 54 E	N 0 54 W	4225	

MUD.

(Lower Chester River—Charts Nos. 29 and 30.)

1	39 00 10.92	76 14 17.37	S 16 33 E	N 16 33 W	2928	Muddy. Narrows Point. Wickes Beach.
			N 68 30 E	S 68 31 W	2165	
			N 8 04 W	S 8 04 E	3110	
2	39 00 43.67	76 14 46.20	S 22 10 E	N 22 09 W	4223	Muddy. Narrows Point. Wickes Beach.
			S 83 37 E	N 83 36 W	2701	
			N 9 16 E	S 9 16 W	2001	
3	39 00 55.02	76 14 34.42	S 16 38 E	N 16 38 W	4482	Muddy. Narrows Point. Wickes Beach.
			S 74 17 E	N 74 16 W	2559	
			N 0 27 E	S 0 27 W	1592	
4	39 00 34.80	76 14 02.32	S 6 55 E	N 6 55 W	3639	Muddy. Narrows Point. Wickes Beach.
			S 89 35 E	N 89 34 W	1619	
			N 20 06 W	S 20 06 E	2422	
5	39 00 23.40	76 13 40.32	S 2 30 W	N 2 30 E	3231	Muddy. Narrows Point. Wickes Beach.
			N 70 17 E	S 70 17 W	1105	
			N 27 57 W	S 27 57 E	3010	

FERRY (KENT COUNTY).

(Lower Chester River—Chart No. 20.)

1	39 00 04.45	76 14 38.00	S 28 01 E	N 28 00 W	2932	Muddy. Narrows Point. Wickes Beach.
			N 68 25 E	S 68 26 W	2750	
			N 1 51 E	S 1 51 W	3299	
Thence along county boundary as delineated on Chart No. 20 to corner No. 2.						
2	39 00 29.37	76 15 30.72	S 38 53 E	N 38 52 W	4405	Muddy. Narrows Point. Wickes Beach.
			N 87 30 E	S 87 32 W	3949	
			N 31 17 E	S 31 18 W	2876	
3	39 00 44.20	76 15 09.62	S 29 21 E	N 29 20 W	4507	Muddy. Narrows Point. Wickes Beach.
			S 84 27 E	N 84 26 W	3398	
			N 25 37 E	S 25 37 W	2171	

## Survey of Oyster Bars, Kent County, Md.

## BUOY ROCK.

(Lower Chester River—Charts Nos. 29 and 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 59 28.23	76 12 41.30	S 78 44 E	N 78 43 W	Yards. 2669 2895 2291	Bluebeard. Rain. Narrows Point.
			N 29 44 E	S 29 45 W		
			N 12 56 W	S 12 57 E		
2	39 00 10.92	76 14 17.37	S 16 33 E	N 16 33 W	2928 2165 3110	Muddy. Narrows Point. Wickes Beach.
			N 68 30 E	S 68 31 W		
			N 8 04 W	S 8 04 E		
3	39 00 23.40	76 13 40.32	S 2 30 W	N 2 30 E	3231 1105 3010	Muddy. Narrows Point. Wickes Beach.
			N 70 17 E	S 70 17 W		
			N 27 57 W	S 27 57 E		
4	39 00 02.44	76 13 39.18	S 67 59 E	N 67 57 W	4467 1479 3661	Bluebeard. Narrows Point. Wickes Beach.
			N 43 05 E	S 43 06 W		
			N 23 10 W	S 23 11 E		
5	38 59 54.30	76 12 29.26	S 58 40 E	N 58 39 W	2695 1981 1588	Bluebeard. Rain. Narrows Point.
			N 34 24 E	S 34 25 W		
			N 31 30 W	S 31 31 E		

## HAIL CREEK.

(Lower Chester River—Chart No. 30.)

1	39 00 27.60	76 12 25.07	S 32 12 W	N 32 11 E	3982 3343 1131	Muddy. Bluebeard. Rain.
			S 40 57 E	N 40 57 W		
			N 63 07 E	S 63 08 W		
2	39 00 33.00	76 12 30.88	S 29 00 W	N 29 00 E	4061 3581 1207	Muddy. Bluebeard. Rain.
			S 40 53 E	N 40 53 W		
			N 74 11 E	S 74 11 W		
3	39 00 40.76	76 12 17.24	S 31 24 W	N 31 23 E	4467 3572 4027	Muddy. Bluebeard. Blakeford.
			S 33 46 E	N 33 45 W		
			S 78 51 E	N 78 49 W		
4	39 00 37.85	76 12 06.10	S 35 12 W	N 35 11 E	4546 3332 3720	Muddy. Bluebeard. Blakeford.
			S 30 31 E	N 30 30 W		
			S 79 27 E	N 79 26 W		

HAIL POINT.

(Lower Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 00 03.35	76 12 06.70	N 21 34 E	S 21 34 W	Yards. 1429 1768 3047	Rain. Narrows Point. Muddy.
			S 53 37 W	S 53 38 E		
			S 45 36 W	N 45 35 E		
2	39 00 38.78	76 11 52.80	S 38 25 W	N 38 24 E	4781 3108 3384	Muddy. Bluebeard. Blakeford.
			S 24 49 E	N 24 48 W		
			S 77 51 E	N 77 50 W		
3	39 00 31.00	76 11 34.58	S 18 05 E	N 18 05 W	2777 2863 2702	Bluebeard. Blakeford. Break.
			S 80 58 E	N 80 58 W		
			N 40 07 E	S 40 08 W		
4	39 00 07.90	76 11 43.20	N 83 51 E	S 83 52 W	3072 1179 2230	Blakeford. Rain. Narrows Point.
			N 4 31 W	S 4 31 E		
			N 66 19 W	S 66 20 E		

BLACK BUOY.

(Middle Chester River—Chart No. 30.)

1	39 00 30.80	76 11 21.27	S 11 00 E	N 11 00 W	2681 2516 2497	Bluebeard. Blakeford. Break.
			S 79 52 E	N 79 51 W		
			N 33 52 E	S 33 52 W		
2	39 00 49.90	76 11 48.77	S 71 14 E	N 71 13 W	3380 2551 2491	Blakeford. Break. Overton.
			N 55 57 E	S 55 58 W		
			N 22 19 W	S 22 19 E		
3	39 00 50.95	76 11 16.05	S 64 22 E	N 64 21 W	2595 1874 2901	Blakeford. Break. Overton.
			N 41 58 E	S 41 59 W		
			N 38 31 W	S 38 32 E		

DURDIN.

(Middle Chester River—Chart No. 30.)

1	39 00 59.82	76 11 16.15	S 54 26 W	N 54 26 E	990 2741 1666	Rain. Blakeford. Break.
			S 58 45 E	N 58 44 W		
			N 48 56 E	S 48 57 W		
2	39 01 13.87	76 12 12.17	N 32 32 E	S 32 32 W	1245 2600 1533	Rain. Break. Overton.
			N 77 12 E	S 77 13 W		
			N 12 27 W	S 12 27 E		
3	39 01 56.03	76 12 09.10	S 13 24 E	N 13 24 W	2540 2768 2377	Rain. Break. Fir.
			S 73 11 E	N 73 10 W		
			N 45 38 E	S 45 39 W		
4	39 02 00.58	76 11 57.00	S 5 53 E	N 5 53 W	2638 2519 2045	Rain. Break. Fir.
			S 67 44 E	N 67 43 W		
			N 42 29 E	S 42 29 W		

## Survey of Oyster Bars, Kent County, Md.

## BELTS.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	39 01 56.03	76 12 09.10	S 13 24 E	N 13 24 W	2540	Rain. Break. Fir.
			S 73 11 E	N 73 10 W	2768	
			N 45 38 E	S 45 39 W	2377	
2	39 02 30.78	76 12 29.40	S 58 13 E	N 58 12 W	3745	Break. Fir. Bay Bush Point.
			N 77 37 E	S 77 38 W	2287	
			N 1 24 W	S 1 24 E	1920	
3	39 02 41.53	76 12 18.36	S 51 05 E	N 51 04 W	3718	Break. Fir. Bay Bush Point.
			N 86 14 E	S 86 15 W	1948	
			N 12 13 W	S 12 13 E	1593	
4	39 03 04.03	76 12 29.33	S 3 07 E	N 3 07 W	2221	Overton. Fir. Gordon.
			S 74 13 E	N 74 12 W	2326	
			N 75 41 E	S 75 42 W	2969	
5	39 03 02.02	76 12 10.78	S 9 41 W	N 9 41 E	2182	Overton. Fir. Gordon.
			S 72 08 E	N 72 08 W	1836	
			N 71 26 E	S 71 27 W	2520	
6	39 02 30.33	76 12 16.98	S 55 34 E	N 55 33 W	3462	Break. Fir. Bay Bush Point.
			N 75 09 E	S 75 10 W	1973	
			N 10 55 W	S 10 55 E	1971	
7	39 02 00.58	76 11 57.00	S 5 53 E	N 5 53 W	2638	Rain. Break. Fir.
			S 67 44 E	N 67 43 W	2519	
			N 42 29 E	S 42 29 W	2045	

## PINEY POINT (KENT COUNTY).

(Middle Chester River—Chart No. 30.)

1	39 02 00.00	76 11 41.20	S 63 58 E	N 63 58 W	2131	Break. Fir. Overton.
			N 32 18 E	S 32 18 W	1808	
			S 87 04 W	N 87 04 E	1147	
2	39 02 46.62	76 12 10.62	S 12 50 W	N 12 50 E	1673	Overton. Fir. Gordon.
			S 88 33 E	N 88 33 W	1740	
			N 61 00 E	S 61 01 W	2726	
3	39 03 18.25	76 11 43.76	S 21 47 W	N 21 46 E	2905	Overton. Fir. Gordon.
			S 42 56 E	N 42 56 W	1517	
			N 81 22 E	S 81 23 W	1697	
Thence along county boundary as delineated on Chart No. 30 to corner No. 1.						

Survey of Oyster Bars, Kent County, Md.

\* BAY BUSH POINT.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39° 03' 02.02"	76° 12' 10.78"	S 9 41 W	N 9 41 E	2182	Overton. Fir. Gordon.
			S 72 08 E	N 72 08 W	1836	
			N 71 26 E	S 71 27 W	2520	
2	39° 03' 04.03"	76° 12' 29.33"	S 3 07 E	N 3 07 W	2221	Overton. Fir. Gordon.
			S 74 13 E	N 74 12 W	2320	
			N 75 41 E	S 75 42 W	2969	
3	39° 03' 15.63"	76° 12' 22.55"	S 1 16 W	N 1 16 E	2609	Overton. Fir. Gordon.
			S 63 32 E	N 63 31 W	2293	
			N 82 45 E	S 82 46 W	2720	
4	39° 03' 58.35"	76° 12' 27.02"	S 6 03 W	N 6 03 E	1039	Bay Bush Point. Gordon. Reeds.
			S 68 42 E	N 68 41 W	3022	
			S 88 28 E	N 88 26 W	4609	
5	39° 03' 52.40"	76° 12' 01.00"	S 43 37 W	N 43 37 E	1150	Bay Bush Point. Gordon. Reeds.
			S 67 11 E	N 67 10 W	2312	
			N 88 53 E	S 88 54 W	3925	

BLUFF POINT.

(Middle Chester River—Chart No. 30.)

1	39° 03' 52.40"	76° 12' 01.00"	S 43 37 W	N 43 37 E	1150	Bay Bush Point. Gordon. Reeds.
			S 67 11 E	N 67 10 W	2312	
			N 88 53 E	S 88 54 W	3925	
2	39° 03' 58.35"	76° 12' 27.02"	S 6 03 W	N 6 03 E	1039	Bay Bush Point. Gordon. Reeds.
			S 68 42 E	N 68 41 W	3022	
			S 88 28 E	N 88 26 W	4609	
3	39° 04' 17.59"	76° 11' 58.20"	S 27 16 W	N 27 16 E	1892	Bay Bush Point. Gordon. Reeds.
			S 49 41 E	N 49 40 W	2699	
			S 78 39 E	N 78 38 W	3927	
4	39° 04' 59.05"	76° 11' 48.68"	N 62 39 E	S 62 40 W	2994	Langford. Inn. Little Gum.
			N 1 49 E	S 1 49 W	924	
			N 63 47 W	S 63 48 E	694	
5	39° 04' 59.57"	76° 11' 01.32"	N 46 10 E	S 46 11 W	1962	Langford. Deep Cove. Little Gum.
			N 0 05 W	S 0 05 E	1621	
			N 81 12 W	S 81 13 E	1890	
6	39° 03' 57.95"	76° 11' 42.85"	S 51 15 W	N 51 15 E	1629	Bay Bush Point. Gordon. Reeds.
			S 56 45 E	N 56 45 W	1978	
			S 88 10 E	N 88 09 W	3448	

## Survey of Oyster Bars, Kent County, Md.

## CHESTER RIVER MIDDLEGROUND.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 03 57.95	76 11 42.85	S 51 15 W	N 51 15 E	1629	Bay Bush Point. Gordon. Reeds.
			S 56 45 E	N 56 45 W	1978	
			S 88 10 E	N 88 09 W	3448	
2	39 04 59.57	76 11 01.32	N 46 10 E	S 46 11 W	1062	Langford. Deep Cove. Little Gum.
			N 0 05 W	S 0 05 E	1621	
			N 81 12 W	S 81 13 E	1890	
3	39 04 56.95	76 10 32.18	S 37 07 E	N 37 06 W	2633	Reeds. Holton Point. Langford.
			S 81 32 E	N 81 31 W	2402	
			N 24 10 E	S 24 11 W	1586	
4	39 04 03.60	76 11 24.16	S 55 31 W	N 55 30 E	2138	Bay Bush Point. Gordon. Reeds.
			S 42 22 E	N 42 22 W	1726	
			S 84 11 E	N 84 10 W	2971	

## LIMEKILN.

(Grays Inn Creek Entrance—Chart No. 30.)

1	39 04 59.05	76 11 48.68	N 62 39 E	S 62 40 W	2994	Langford. Inn. Little Gum.
			N 1 49 E	S 1 49 W	924	
			N 63 47 W	S 63 48 E	694	
2	39 05 41.75	76 12 22.00	N 89 19 W	S 89 20 E	557	Lucy. Weeks. Tray.
			S 10 20 W	N 10 20 E	535	
			S 64 11 E	N 64 11 W	833	
3	39 05 45.80	76 12 12.40	S 80 51 W	N 80 51 E	819	Lucy. Weeks. Tray.
			S 27 43 W	N 27 43 E	749	
			S 44 54 E	N 44 54 W	705	
4	39 05 09.67	76 11 43.87	N 68 06 E	S 68 07 W	2731	Langford. Inn. Little Gum.
			N 9 46 W	S 9 46 E	573	
			S 86 04 W	N 86 03 E	750	

## WILLOW BOTTOM.

(Middle Chester River—Chart No. 30.)

1	39 04 59.05	76 11 48.68	N 62 39 E	S 62 40 W	2994	Langford. Inn. Little Gum.
			N 1 49 E	S 1 49 W	924	
			N 63 47 W	S 63 48 E	694	
2	39 05 09.67	76 11 43.87	N 68 06 E	S 68 07 W	2731	Langford. Inn. Little Gum.
			N 9 46 W	S 9 46 E	573	
			S 86 03 W	N 86 03 E	750	
3	39 05 30.75	76 10 45.20	N 72 48 E	S 72 49 W	1038	Langford. Deep Cove. Little Gum.
			N 36 38 W	S 36 38 E	714	
			S 71 36 W	N 71 35 E	2415	
4	39 04 59.57	76 11 01.32	N 46 10 E	S 46 11 W	1062	Langford. Deep Cove. Little Gum.
			N 0 05 W	S 0 05 E	1621	
			N 81 12 W	S 81 13 E	1890	

NICHOLS.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	39 04 59.43	76 11 01.28	N 46 03 E	S 46 04 W	Yards. 1964 1632 1892	Langford. Deep Cove. Little Gum.
			N 0 07 W	S 0 07 E		
			N 81 04 W	S 81 05 E		
2	39 05 30.75	76 10 45.33	N 72 52 E	S 72 52 W	1041 712 2411	Langford. Deep Cove. Little Gum.
			N 36 25 W	S 36 25 E		
			S 71 34 W	N 71 33 E		
3	39 05 27.96	76 10 26.56	N 51 22 E	S 51 22 W	642 1133 2861	Langford. Deep Cove. Little Gum.
			N 53 56 W	S 53 56 E		
			S 76 29 W	N 76 28 E		

HUDSON.

(Langford Creek—Chart No. 30.)

1	39 05 27.96	76 10 26.56	N 51 22 E	S 51 22 W	642 1133 2861	Langford. Deep Cove. Little Gum.
			N 53 56 W	S 53 56 E		
			S 76 29 W	N 76 28 E		
2	39 05 30.75	76 10 45.33	N 72 52 E	S 72 52 W	1041 712 2411	Langford. Deep Cove. Little Gum.
			N 36 25 W	S 36 25 E		
			S 71 34 W	N 71 33 E		
3	39 05 42.00	76 10 41.32	S 85 24 E	N 85 24 W	906 971 550	Langford. Peach. Deep Cove.
			N 44 56 E	S 44 57 W		
			N 69 24 W	S 69 24 E		
4	39 05 51.55	76 10 52.10	S 71 24 E	N 71 24 W	1238 1024 551	Langford. Peach. Snub.
			N 69 05 E	S 69 06 W		
			N 19 31 W	S 19 31 E		
5	39 06 08.55	76 10 26.40	N 8 34 E	S 8 34 W	1231 861 1157	Drum. Snub. Deep Cove.
			S 86 23 W	N 86 23 E		
			S 52 40 W	N 52 40 E		

SAND THISTLE.

(Langford Creek—Chart No. 30.)

1	39 05 51.55	76 10 52.10	S 71 24 E	N 71 24 W	1238 1024 551	Langford. Peach. Snub.
			N 69 05 E	S 69 06 W		
			N 19 31 W	S 19 31 E		
2	39 06 25.20	76 10 43.22	S 34 07 W	N 34 07 E	744 1055 1212	Snub. Peach. Major.
			S 43 12 E	N 43 12 W		
			N 77 31 E	S 77 32 W		
3	39 06 08.55	76 10 26.40	N 8 34 E	S 8 34 W	1231 861 1157	Drum. Snub. Deep Cove.
			S 86 23 W	N 86 23 E		
			S 52 40 W	N 52 40 E		

## Survey of Oyster Bars, Kent County, Md.

## BOATHOUSE.

(Langford Creek—Chart No. 30.)

Corner of bar	Latitude ° ' "	Longitude ° ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	39 06 08.55	76 10 26.40	N 8 34 E	S 8 34 W	1231	Drum. Snub. Deep Cove.
			S 86 23 W	N 86 23 E	861	
			S 52 40 W	N 52 40 E	1157	
2	39 06 25.20	76 10 43.22	S 34 07 W	N 34 07 E	744	Snub. Peach. Major.
			S 43 12 E	N 43 12 W	1055	
			N 77 31 E	S 77 32 W	1212	
3	39 06 29.80	76 10 19.85	S 6 42 E	N 6 42 W	931	Peach. Major. Drum.
			N 79 23 E	S 79 23 W	579	
			N 1 17 E	S 1 17 W	502	
4	39 06 39.54	76 09 58.30	N 5 53 E	S 5 53 W	978	Neck. Drum. Peach.
			N 72 41 W	S 72 42 E	581	
			S 20 04 W	N 20 04 E	1334	

## DRUM POINT.

(Langford Creek—Chart No. 30.)

1	39 06 29.80	76 10 19.85	S 6 42 E	N 6 42 W	931	Peach. Major. Drum.
			N 79 23 E	S 79 23 W	579	
			N 1 17 E	S 1 17 W	502	
2	39 06 54.02	76 10 06.02	N 26 47 W	S 26 47 E	827	Davis. Drum. Major.
			S 48 09 W	N 48 09 E	472	
			S 16 07 E	N 16 07 W	739	
3	39 06 54.14	76 09 58.70	N 12 59 E	S 12 59 W	492	Neck. Drum. Major.
			S 59 36 W	N 59 36 E	631	
			S 1 02 E	N 1 02 W	714	
4	39 06 39.54	76 09 58.30	N 5 53 E	S 5 53 W	978	Neck. Drum. Peach.
			N 72 41 W	S 72 41 E	581	
			S 20 04 W	N 20 04 E	1334	



DAVIS CREEK.

(Langford Creek—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	39 06 54.02	76 10 06.02	N 26 47 W S 48 09 W S 16 07 E	S 26 47 E N 48 09 E N 16 07 W	827 472 739	Davis. Drum. Major.
2	39 07 23.47	76 10 23.08	S 20 59 E S 55 51 E N 62 23 E	N 20 59 W N 55 50 W S 62 24 W	1824 908 1025	Major. Neck. King.
3	39 07 23.03	76 10 15.45	S 4 37 W S 48 04 E N 55 19 E	N 4 37 E N 48 04 W S 55 19 W	1298 740 861	Drum. Neck. King.
4	39 07 11.02	76 09 59.10	N 16 30 W N 73 24 W S 31 00 W	S 16 30 E S 73 25 E N 31 00 E	997 579 1037	Isle. Davis. Drum.
5	39 06 54.14	76 09 58.70	N 12 59 E S 59 36 W S 1 02 E	S 12 59 W N 59 36 E N 1 02 W	492 631 714	Neck. Drum. Major.

ISLAND POINT.

(Langford Creek (West Fork)—Chart No. 30.)

1	39 07 29.42	76 10 04.32	N 23 33 W S 42 31 W S 19 59 E	S 23 33 E N 42 31 E N 19 59 W	365 618 756	Isle. Davis. Neck.
2	39 07 29.93	76 10 12.85	S 22 15 W S 33 33 E N 68 06 E	N 22 15 E N 33 33 W S 68 06 W	511 873 689	Davis. Neck. King.
3	39 07 40.33	76 10 06.33	S 78 40 E N 14 13 W N 49 05 W	N 78 40 W S 14 13 E S 49 05 E	477 673 913	King. Hornor. Eagle.
4	39 07 41.24	76 10 11.92	S 78 33 E N 1 42 W N 43 45 W	N 78 33 W S 1 42 E S 43 46 E	628 622 785	King. Hornor. Eagle.
5	39 07 46.05	76 10 10.35	S 63 26 E N 7 24 W N 55 16 W	N 63 26 W S 7 24 E S 55 16 E	641 463 712	King. Hornor. Eagle.
6	39 07 44.76	76 10 03.80	N 59 20 W S 41 15 W S 58 48 E	S 59 20 E N 41 15 E N 58 47 W	880 237 469	Eagle. Isle. King.

## Survey of Oyster Bars, Kent County, Md.

## EAGLE POINT.

(Langford Creek (West Fork)—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 07 49.80	76 10 15.76	S 60 00 E	N 60 00 W	Yards. 827 342 523	King. Hornor. Eagle.
			N 13 56 E	S 13 56 W		
			N 57 47 W	S 57 47 E		
2	39 08 03.30	76 10 32.17	S 76 33 E	N 76 33 W	528 383 642	Hornor. West. Mill.
			N 40 03 E	S 40 03 W		
			N 17 13 W	S 17 13 E		
3	39 08 07.51	76 10 26.74	S 54 29 E	N 54 29 W	455 182 576	Hornor. West. Mill.
			N 33 48 E	S 33 48 W		
			N 35 13 W	S 35 13 E		
4	39 07 54.00	76 10 10.23	N 28 32 W	S 28 32 E	690 604 494	West. Eagle. Isle.
			N 76 51 W	S 76 52 E		
			S 1 04 E	N 1 04 W		

## WILSONS POINT.

(Langford Creek (West Fork)—Chart No. 30.)

1	39 08 34.45	76 10 43.95	N 31 23 E	S 31 23 W	233 261 598	Locust. Bungay. Kinsley.
			N 52 43 W	S 52 43 E		
			S 36 43 W	N 36 43 E		
2	39 08 36.60	76 10 50.92	S 17 33 W	N 17 33 E	580 286 330	Kinsley. Nat. Locust.
			S 32 12 E	N 32 12 W		
			N 67 24 E	S 67 24 W		
3	39 08 48.27	76 10 43.35	S 32 01 W	N 32 01 E	664 637 287	Whale. Nat. Locust.
			S 4 13 W	N 4 13 E		
			S 21 38 E	N 21 38 W		
4	39 08 47.35	76 10 40.25	S 39 10 W	N 39 10 E	687 618 237	Whale. Nat. Locust.
			S 11 59 W	N 11 59 E		
			S 5 55 E	N 5 55 W		

## KINGS CREEK.

(Langford Creek (East Fork)—Chart No. 30.)

1	39 07 32.33	76 09 21.40	N 84 11 E	S 84 11 W	463 287 734	Wann. Noth. King.
			N 29 48 E	S 29 48 W		
			N 76 07 W	S 76 07 E		
2	39 07 35.85	76 09 22.70	N 85 10 W	S 85 10 E	681 600 500	King. Corn. Wann.
			S 26 29 W	N 26 29 E		
			S 81 44 E	N 81 44 W		
3	39 07 41.33	76 09 00.75	N 33 17 E	S 33 17 W	583 363 494	Cult. Leary. Noth.
			N 15 38 W	S 15 38 E		
			S 82 00 W	N 82 00 E		
4	39 07 37.85	76 08 59.64	N 25 40 E	S 25 41 W	670 483 434	Cult. Leary. Noth.
			N 15 12 W	S 15 12 E		
			N 81 44 W	S 81 44 E		

## BAILEY.

(Langford Creek (East Fork)—Chart No. 30.)

Corner of bar,	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	39 07 46.33	76 09 03.50	N 50 55 E	S 50 55 W	505	Cult. Leary.
			N 8 01 W	S 8 01 E	183	
			S 55 42 W	N 55 42 E	397	
2	39 07 48.83	76 09 06.87	S 37 51 W	N 37 51 E	399	Noth. Wann. Cult.
			S 8 46 E	N 8 46 W	515	
			N 64 00 E	S 64 00 W	535	
3	39 08 02.92	76 08 47.82	N 51 20 E	S 51 20 W	539	Hoo. Nest. Leary.
			N 22 57 W	S 22 57 E	184	
			S 49 06 W	N 49 06 E	579	
4	39 08 00.40	76 08 44.30	N 37 55 E	S 37 55 W	535	Hoo. Nest. Leary.
			N 32 51 W	S 32 51 E	303	
			S 61 00 W	N 61 00 E	606	

## PHILIPS.

(Langford Creek (East Fork)—Chart No. 30.)

1	39 08 09.97	76 08 43.38	N 71 58 E	S 71 58 W	320	Hoo. Woll. Nest.
			N 9 45 W	S 9 45 E	334	
			S 70 01 W	N 70 01 E	200	
2	39 08 36.04	76 08 40.31	N 28 27 W	S 28 27 E	581	Gut. Harp. Ide.
			S 45 19 W	N 45 19 E	245	
			S 44 45 E	N 44 44 W	505	
3	39 08 35.95	76 08 35.33	N 66 59 W	S 67 00 E	959	Clay. Harp. Ide.
			S 60 59 W	N 60 59 E	349	
			S 32 17 E	N 32 17 W	421	
4	39 08 10.16	76 08 37.42	N 57 54 E	S 57 54 W	175	Hoo. Woll. Nest.
			N 33 29 W	S 33 29 E	386	
			S 77 45 W	N 77 45 E	353	

## WARE.

(Langford Creek (East Fork)—Chart No. 30.)

1	39 08 59.38	76 08 54.90	N 73 39 W	S 73 39 E	316	Lovely. Clay. Harp.
			S 41 34 W	N 41 34 E	556	
			S 12 19 E	N 12 19 W	982	
2	39 09 01.97	76 09 00.33	N 89 24 W	S 89 24 E	161	Lovely. Clay. Harp.
			S 24 11 W	N 24 11 E	551	
			S 18 35 E	N 18 35 W	1105	
3	39 09 08.03	76 08 55.65	S 54 28 W	N 54 28 E	348	Lovely. Clay. Harp.
			S 26 15 W	N 26 15 E	788	
			S 10 23 E	N 10 22 W	1272	
4	39 09 05.60	76 08 50.16	S 74 15 W	N 74 15 E	445	Lovely. Clay. Harp.
			S 38 15 W	N 38 15 E	706	
			S 4 09 E	N 4 09 W	1172	

## Survey of Oyster Bars, Kent County, Md.

## EBB POINT.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	39 05 33.00	76 09 47.26	S 37 17 E	N 37 17 W	Yards.	Holton Point. Spaniard Point 2 Upper. Brown.
			N 85 37 E	S 85 38 W	1973	
			N 46 26 E	S 46 26 W	1721 2297	
2	39 06 13.72	76 09 28.55	S 13 26 E	N 13 26 W	3025	Holton Point. Spaniard Point 2 Upper. Brown.
			S 44 37 E	N 44 36 W	1744	
			N 79 51 E	S 79 52 W	1191	
3	39 06 00.20	76 09 10.92	S 5 30 E	N 5 30 W	2498	Holton Point. Spaniard Point 2 Upper. Brown.
			S 44 06 E	N 44 06 W	1095	
			N 46 49 E	S 46 49 W	973	
4	39 05 35.30	76 09 32.67	S 26 14 E	N 26 14 W	1835	Holton Point. Spaniard Point 2 Upper. Brown.
			N 87 41 E	S 87 41 W	1334	
			N 40 23 E	S 40 24 W	1976	

## CLIFF.

(Middle Chester River—Chart No. 30.)

1	39 06 00.20	76 09 10.92	S 5 30 E	N 5 30 W	2498	Holton Point. Spaniard Point 2 Upper. Brown.
			S 44 06 E	N 44 06 W	1095	
			N 46 49 E	S 46 49 W	973	
2	39 06 13.72	76 09 28.55	S 13 26 E	N 13 26 W	3025	Holton Point. Spaniard Point 2 Upper. Brown.
			S 44 37 E	N 44 36 W	1744	
			N 79 51 E	S 79 52 W	1191	
3	39 06 12.68	76 08 40.08	S 2 19 W	N 2 19 E	1208	Spaniard Point 2 Upper. Evans. Stratton.
			S 51 34 E	N 51 33 W	953	
			N 30 40 E	S 30 40 W	517	
4	39 06 21.95	76 08 23.98	N 50 18 W	S 50 18 E	207	Stratton. Brown. Evans.
			S 82 38 W	N 82 38 E	529	
			S 19 39 E	N 19 39 W	960	
5	39 06 12.56	76 08 11.72	N 67 34 E	S 67 35 W	1771	Deep Point 2. Stratton. Brown.
			N 47 00 W	S 47 01 E	658	
			N 73 37 W	S 73 37 E	883	

COMMEGYS BIGHT.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	39 06 12.56	76 08 11.72	N 67 34 E	S 67 35 W	Yards.	Deep Point 2. Stratton. Brown.
			N 47 00 W	S 47 01 E	1771	
			N 73 37 W	S 73 37 E	658 883	
2	39 06 21.95	76 08 23.98	N 50 18 W	S 50 18 E	207	Stratton. Brown. Evans.
			S 82 38 W	N 82 38 E	529	
			S 19 39 E	N 19 39 W	960	
3	39 06 38.73	76 08 14.70	S 42 54 W	N 42 54 E	592	Stratton. Evans. Deep Point 2.
			S 3 05 E	N 3 05 W	1473	
			S 83 07 E	N 83 06 W	1727	
4	39 06 25.00	76 07 12.53	S 11 25 W	N 11 25 E	1258	Chester. Corpse. Deep Point 2.
			S 80 30 E	N 80 30 W	681	
			N 17 33 E	S 17 33 W	269	

SHEEP (KENT COUNTY).

(Middle Chester River—Chart No. 30.)

1	39 06 23.28	76 07 08.81	S 16 26 W	N 16 26 E	1225	Chester. Corpse. Deep Point 2.
			S 84 36 E	N 84 36 W	576	
			N 3 04 W	S 3 04 E	314	
2	39 06 36.86	76 06 50.13	S 9 12 E	N 9 12 W	520	Corpse. Indian. Thorn.
			N 65 54 E	S 65 54 W	820	
			N 19 52 E	S 19 52 W	851	
3	39 06 34.74	76 06 47.60	S 2 09 E	N 2 09 W	441	Corpse. Indian. Thorn.
			N 59 13 E	S 59 13 W	794	
			N 14 19 E	S 14 20 W	900	

DEEP POINT.

(Middle Chester River—Chart No. 30.)

1	39 06 41.60	76 06 52.05	S 11 14 E	N 11 14 W	685	Corpse. Indian. Thorn.
			N 77 39 E	S 77 39 W	818	
			N 27 56 E	S 27 56 W	725	
2	39 06 43.87	76 06 57.40	S 20 06 E	N 20 06 W	797	Corpse. Indian. Thorn.
			N 81 01 E	S 81 01 W	945	
			N 40 25 E	S 40 26 W	740	
3	39 07 04.49	76 06 29.43	S 62 38 W	N 62 38 E	287	Thorn. Indian. Ashland.
			S 18 56 E	N 18 56 W	631	
			N 82 48 E	S 82 48 W	883	

## Survey of Oyster Bars, Kent County, Md.

## SHIPPEN CREEK.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	39 07 13.72	76 06 14.53	S 55 34 W	N 55 34 E	784	Thorn. Ashland. Burns.
			S 67 29 E	N 67 29 W	524	
			N 65 45 E	S 65 46 W	1386	
2	39 07 15.47	76 06 17.35	S 48 44 W	N 48 44 E	763	Thorn. Ashland. Burns.
			S 65 03 E	N 65 02 W	616	
			N 69 07 E	S 69 08 W	1433	
3	39 07 27.58	76 06 05.95	S 21 09 E	N 21 09 W	716	Ashland. Burns. Oyster.
			N 84 24 E	S 84 24 W	1043	
			N 35 47 E	S 35 47 W	952	
4	39 07 25.53	76 06 02.93	S 16 39 E	N 16 39 W	626	Ashland. Burns. Oyster.
			N 79 54 E	S 79 54 W	974	
			N 29 33 E	S 29 34 W	967	

## HADDAWAY.

(Middle Chester River—Chart No. 30.)

1	39 07 43.52	76 05 44.28	S 14 27 W	N 14 27 E	1246	Ashland. Burns. Starkley.
			S 47 07 E	N 47 07 W	641	
			S 86 47 E	N 86 47 W	1156	
2	39 07 45.08	76 05 45.80	S 12 09 W	N 12 09 E	1287	Ashland. Burns. Starkley.
			S 46 12 E	N 46 11 W	705	
			S 84 23 E	N 84 23 W	1200	
3	39 07 53.66	76 05 33.76	S 13 57 E	N 13 57 W	799	Burns. Starkley. Jarrett.
			S 65 08 E	N 65 07 W	967	
			N 67 09 E	S 67 09 W	819	
4	39 07 51.65	76 05 31.78	S 11 13 E	N 11 13 W	724	Burns. Starkley. Jarrett.
			S 67 40 E	N 67 40 W	892	
			N 61 14 E	S 61 14 W	803	

## HOLLYDAY (KENT COUNTY).

(Middle Chester River—Chart No. 30.)

1	39 07 45.52	76 05 27.55	S 3 23 E	N 3 23 W	504	Burns. Starkley. Jarrett.
			S 79 31 E	N 79 31 W	726	
			N 44 58 E	S 44 59 W	839	
2	39 08 00.77	76 05 00.72	S 77 51 E	N 77 50 W	1072	Booker. Starkley. Burns.
			S 0 50 E	N 0 50 W	646	
			S 33 34 W	N 33 34 E	1221	
3	39 07 53.80	76 05 00.86	N 89 29 E	S 89 30 W	1051	Booker. Jarrett. Oyster.
			N 10 07 W	S 10 07 E	333	
			S 84 25 W	N 84 25 E	1159	

MELTON POINT.

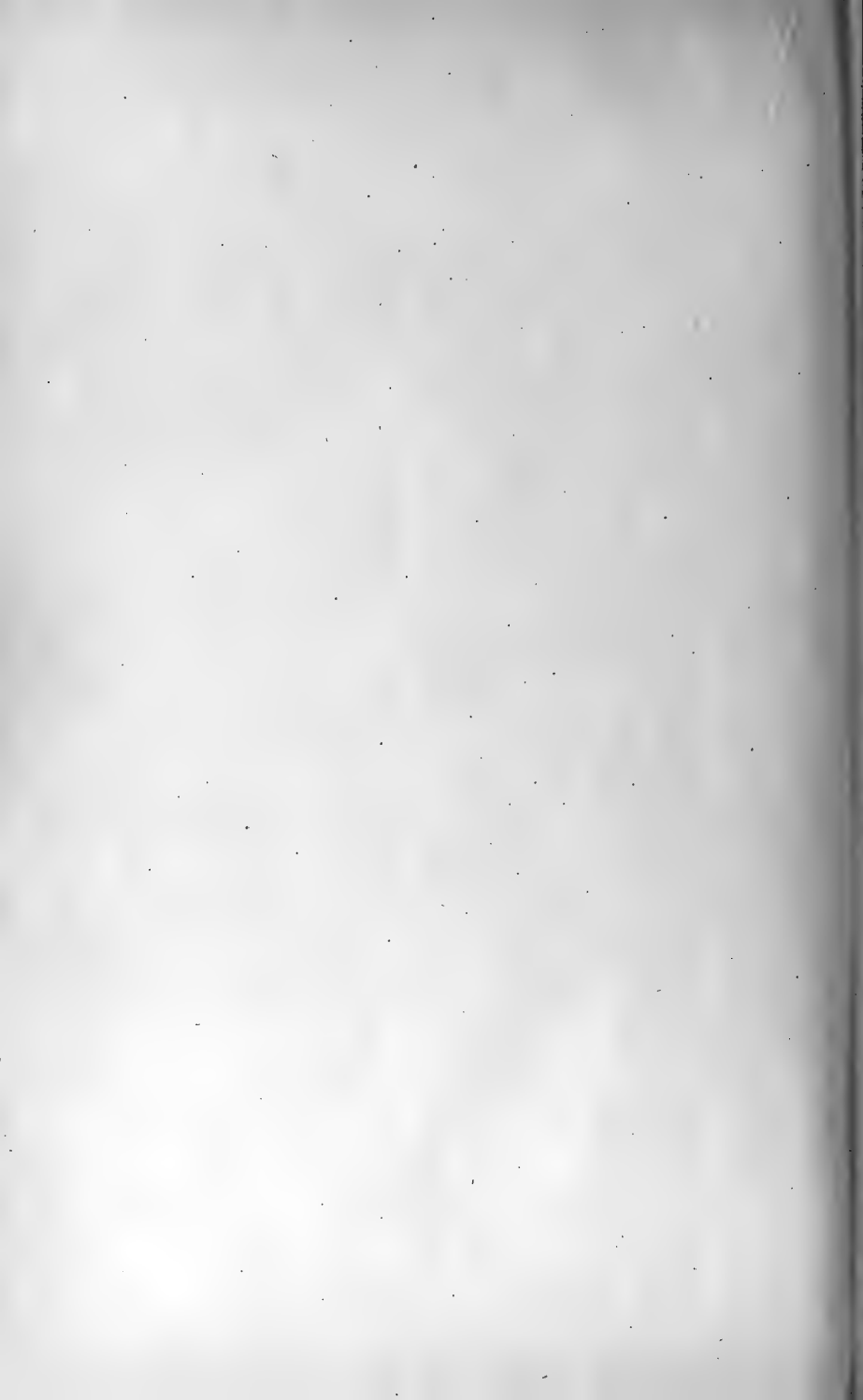
(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	39 08 20.56	76 04 30.15	S 79 04 E	N 79 04 W	668	Journey. Cake. Pomona.
			N 18 47 E	S 18 47 W	550	
			N 57 27 W	S 57 27 E	1036	
2	39 08 31.66	76 04 45.37	S 41 09 E	N 41 09 W	617	Melton. Cake. Taste.
			N 75 46 E	S 75 46 W	595	
			N 28 21 W	S 28 21 E	1169	
3	39 08 25.78	76 04 29.37	S 64 31 E	N 64 31 W	704	Journey. Cake. Pomona.
			N 24 26 E	S 24 26 W	378	
			N 66 53 W	S 66 54 E	972	

NORTHWEST (KENT COUNTY).

(Middle Chester River—Chart No. 30.)

1	39 08 25.78	76 04 29.37	S 64 31 E	N 64 31 W	704	Journey. Cake. Pomona.
			N 24 26 E	S 24 26 W	378	
			N 66 53 W	S 66 54 E	972	
2	39 08 49.92	76 04 53.37	S 59 11 E	N 59 10 W	916	Cake. Bill. Taste.
			N 66 46 E	S 66 46 W	636	
			N 39 52 W	S 39 52 E	538	
3	39 08 30.13	76 04 28.43	S 53 39 E	N 53 39 W	759	Journey. Cake. Pomona.
			N 33 40 E	S 33 40 W	238	
			N 75 40 W	S 75 40 E	948	





## APPENDIXES.

### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioner of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*

SEC. 4. That this act shall take effect from the date of its passage.

[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects herein-after expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars,

*Survey of Oyster Bars, Kent County, Md.*

together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven. \* \* \*

[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

[Act of Congress approved March 4, 1909.]

AN ACT Making appropriation for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and ten, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and ten, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

[Act of Congress approved June 25, 1910.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eleven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eleven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, fifteen thousand dollars.

[Act of Congress approved March 4, 1911.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and twelve, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and twelve, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, thirteen thousand dollars. \* \* \*

[Act of the Legislature of Maryland approved April 2, 1906.]

AN ACT To establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis, and the said commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie. \* \* \*

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

\* \* \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the said to the Clerks of the Circuit court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks shall be construed in all the courts of the State to be barren bottoms and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act; provided, that the said survey and report shall not be construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act.

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the survey, is as follows:

AN ACT Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United

States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or leveling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>1</sup> *And be it enacted*, That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses (to be by them sworn or affirmed and examined), shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted*, That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

#### APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from Second Report of Shell Fish Commission.]

##### OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland, had a twofold object in view:

"1. To encourage an industry in oyster culture upon the barren bottoms beneath the tidewaters of the State.

"2. To prevent the leasing of natural oyster bars for the purpose of oyster culture."

<sup>1</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."

DEFINITION OF A NATURAL OYSTER BAR.

NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, charting and buoying them, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the Commission."

DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturists, may be made to yield a greater number of oysters than they now produce.

"It should be evident to every one that neither of these definitions could be adopted by the Commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by *oystermen* on one hand and by *oyster culturists* on the other is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd v. Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed and is as follows:

What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them, and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters, within the meaning of the Act of Assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the Act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and can not be located or appropriated by any individual.

## APPLICATION OF DEFINITION.

Before this definition may be of use in determining, accurately and scientifically, the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors, and these factors must be combined into a practical scheme of investigating the condition of the ground under consideration.

Stated briefly, a *livelihood* is represented by a *sum of money* obtained from the sale, at a fixed *price*, of a certain *quantity of oysters* gathered in a given *time* from an allotted *area* of ground.

Knowing the value of each of these factors it becomes possible to calculate the number of oysters an oyster ground must produce per square yard in order that oystermen may secure a livelihood by working upon it.

NOTE.—The factors into which the Commission resolved the livelihood problem, the value assigned to each factor, and the scheme devised for practical use in examining and applying the definition to oyster bottoms are given in outline in their second report under the heading of the preceding extract, and in detail in their first report on pages 32 to 69.

## APPENDIX C.—SUMMARY OF THE PARTICULAR SURVEYING OPERATIONS WHICH CONSTITUTE AN "OYSTER SURVEY" AS NOW BEING CARRIED ON IN MARYLAND.

*Explanation.*—A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest practical accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

*Triangulation survey.*—Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a framework or foundation. Therefore, a triangulation survey including the permanent marking of the positions of landmarks with monuments and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

*Topographic survey.*—The technical records which establish the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the leasable bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore, a topographic survey is a necessary operation of a complete oyster survey.

*Hydrographic survey.*—In the settlement of the important question of what is, or what is not, a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore, a hydrographic survey is a necessary operation of a complete oyster survey.

*Necessary foundation for an oyster survey.*—Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

*Special surveys and investigations pertaining to oysters.*—Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>1</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding boat party in addition to the usual hydrographic work.<sup>1</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells or absence of shells.

The special oyster investigations<sup>2</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affect the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

*Preparation of results.*—The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>3</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for publication by the Government, the preparation of that part of the annual report of the Commission covering the special oyster surveys and investigations, the making of the leasing charts and finished projections, and finally the filing of the oyster charts and records with the courts and the Commission, thus opening a county for oyster culture.

*Summary.*—From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

<sup>1</sup> See pages 104 to 123 of "First Annual Report of Maryland Shell Fish Commission."

<sup>2</sup> See pages 30 to 67 and 129 to 199 of "First Annual Report of Maryland Shell Fish Commission."

<sup>3</sup> No mention is made here of the large amount of administrative work of the Commission, which is greatly complicated and increased by the effect of the oyster-survey operations on many thousands of people whose interests are more or less involved; or of the large amount of survey work involved in the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

Survey of Oyster Bars, Kent County, Md.

[The dates of the beginning of field work and the filing of certified charts and reports for the following counties are shown in the order named: Anne Arundel, June 20, 1906, and June 20, 1907; Somerset, May 2, 1907, and July 1, 1908; Wilcomitico, Aug. 27, 1907, and Dec. 1, 1908; Worcester, Nov. 8, 1907, and Apr. 12, 1908; Calvert, May 2, 1908, and Dec. 14, 1909; Charles, Aug. 18, 1908, and Jan. 27, 1911; St. Marys, May 2, 1908, and July 6, 1911; Baltimore, Apr. 10, 1911; Kent, Apr. 14, 1909, and Oct. 5, 1911.]

Operations	Anne Arundel County		Somerset County		Worcester County		Calvert County		Charles County		St. Marys County		Baltimore County		Total <sup>2</sup>
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	
Natural oyster bars surveyed and delineated.....	91	37	15	28	41	15	124	3	64					418	
Acres of natural oyster bars.....	33,666	27,566	2,038	1,655	12,303	2,285	25,778	3,076	12,809					131,110	
Soundings surveyed and delineated.....	54	54												54	
Acres of soundings.....	39,168	39,168												39,168	
Clam beds surveyed and delineated.....		500												500	
Acres of clam beds.....		362	154	53	108	149	51	513	13	211				1,614	
Boundary buoys located and planted.....		123	86	30	48	78	42	238	15	147				650	
Triangulation landmarks established.....		110	125	46	95	95	32	100	12	110				700	
Miles of shore line covered by triangulation.....		220	375	43	110	157	20	180	50	130				1,072	
Soundings covered by chain apparatus.....		340	320	103	143	133	26	167	33	164				1,067	
Miles of examination of shell bottom with chain apparatus.....		440	670	161	141	667	133	1,472	63	1,151				4,895	
Oyster investigation stations occupied.....		4	3	1	1	2	1	1,477	1	3				22	
Tide stations established.....		37,049	17,904	3,387	3,649	11,792	1,631	19,344	1,680	8,423				103,459	
Number of soundings over shell bottoms.....		58	47	3	3	30	4	57	6	21				229	
Square miles covered by soundings and chain apparatus.....		9	13	2	5	8	3	15	4	10				60	
Plots located and plotted.....		13	16	2	3	5	2	11	8	1				43	
Oyster charts prepared.....		2	2	2	2	2	2	2	2	2				12	
Reports published.....		2	2	2	2	2	2	2	2	2				12	
Progress maps published.....		2	2	2	2	2	2	2	2	2				11	

<sup>1</sup> These statistics do not include the large amount of triangulation, topography, and hydrography resulting from previous work of the Coast and Geodetic Survey, which was utilized in the preparation of the published oyster charts and records. Work in Queen Annes, Talbot, and Dorchester Counties has been finished, but final statistics of results will not be published until these counties are opened for oyster culture.

<sup>2</sup> Less quantities covered by statistics of more than one county.

<sup>3</sup> Total area of natural oyster bars of Connecticut is 5,775 acres.



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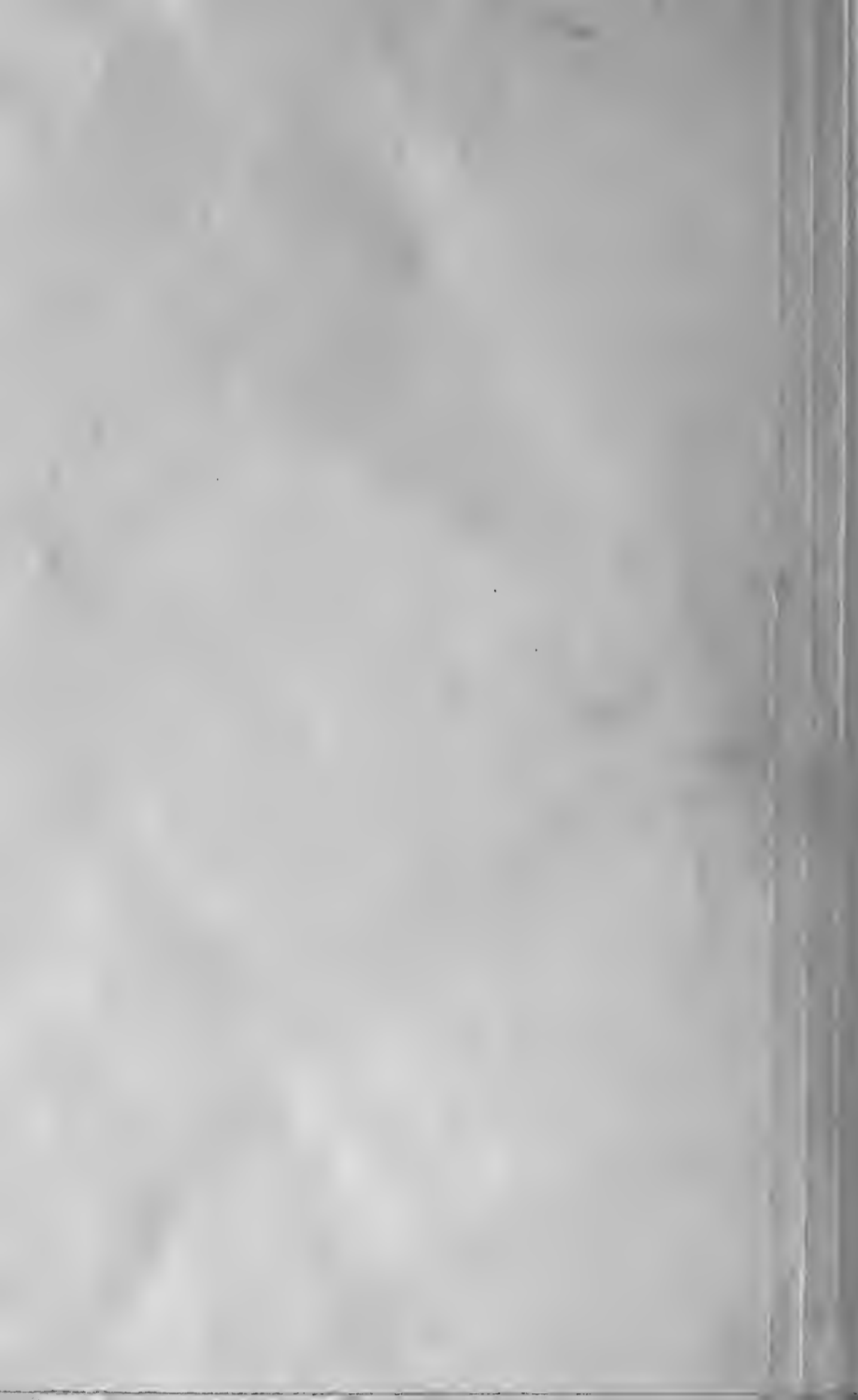


CHART No. 28

# COAST AND GEODETIC SURVEY PROGRESS MAP KENT COUNTY MARYLAND

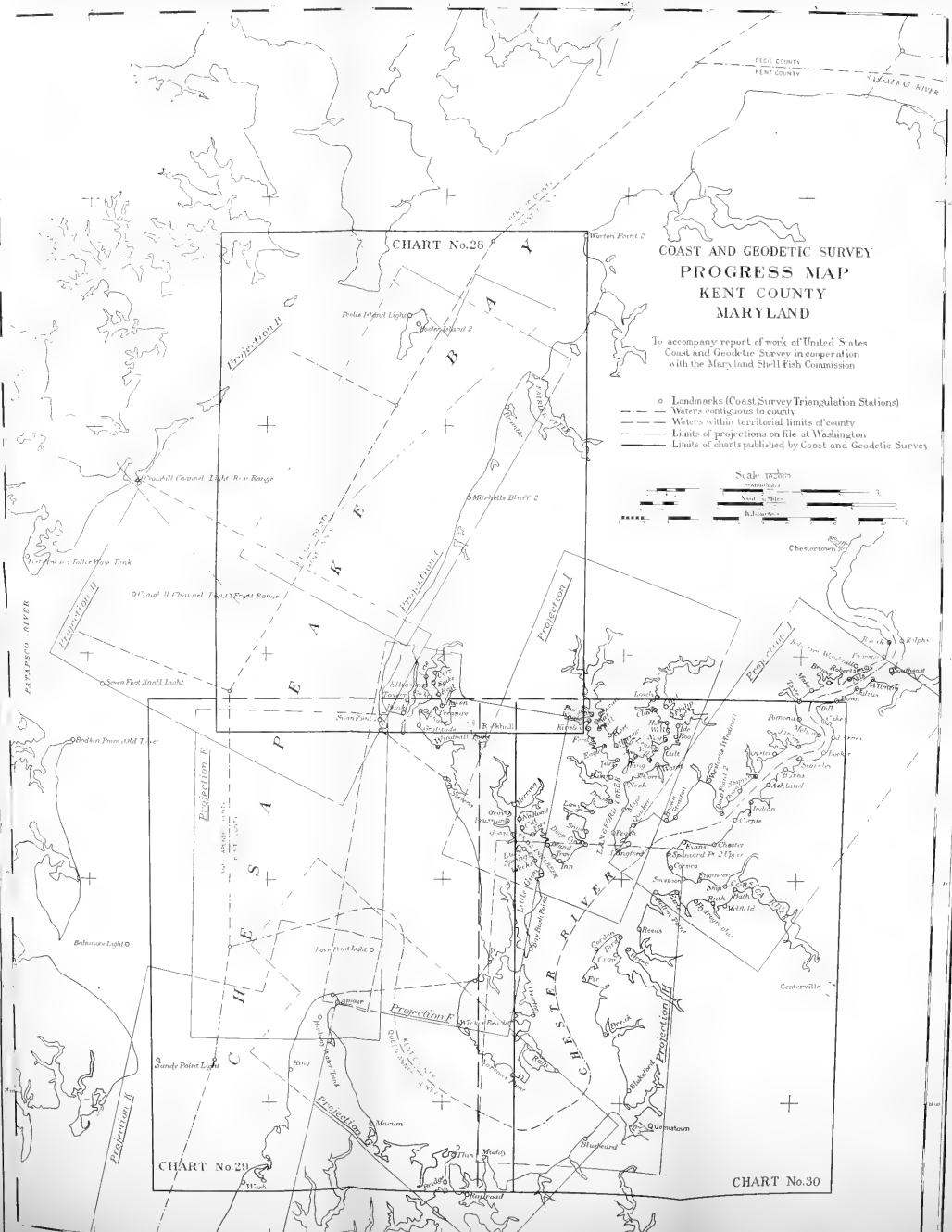
To accompany report of work of United States  
Coast and Geodetic Survey in cooperation  
with the Maryland Shell Fish Commission

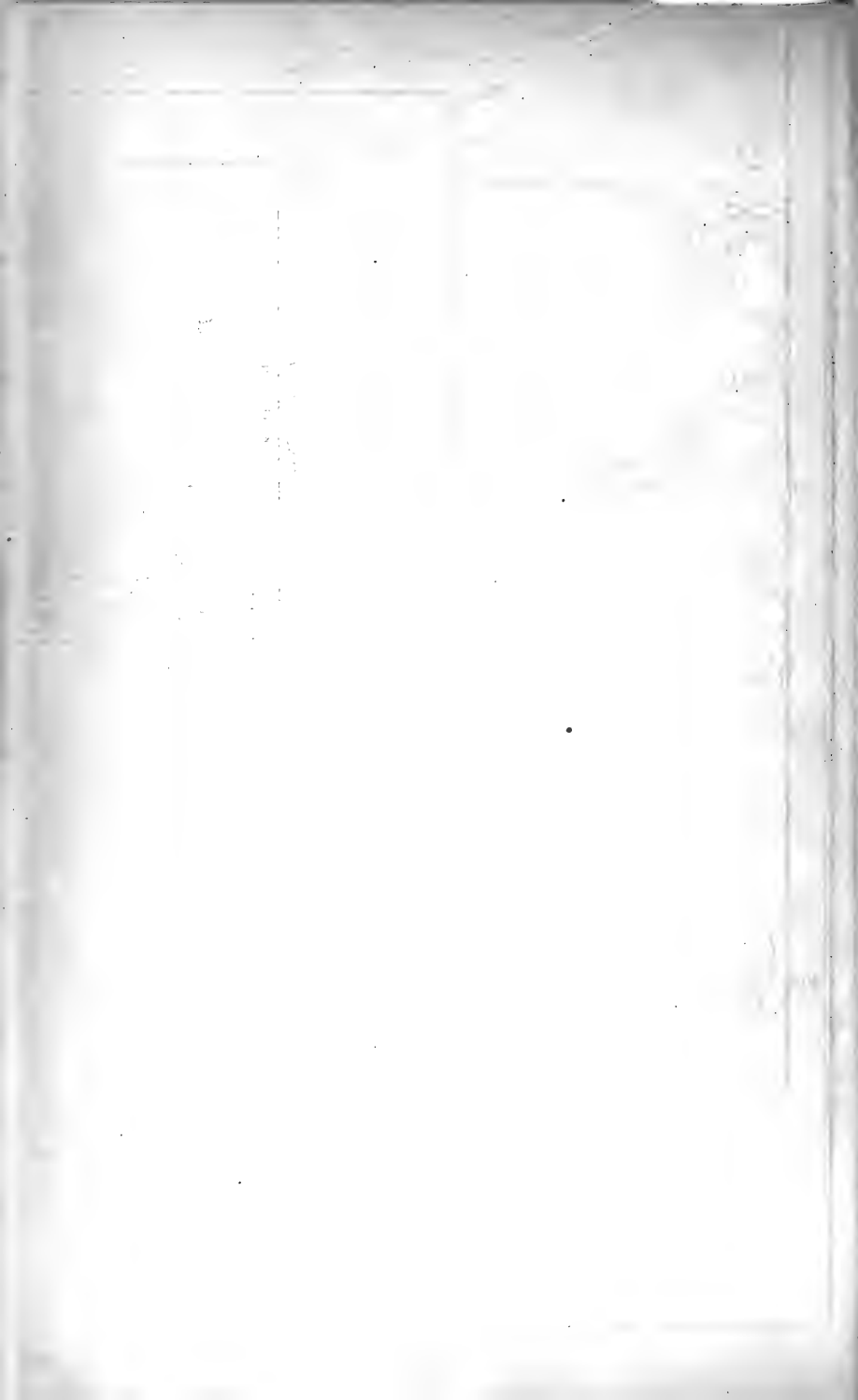
- Landmarks (Coast Survey Triangulation Stations)
- Waters within territorial limits of county
- Limits of projections on file at Washington
- Limits of charts published by Coast and Geodetic Survey

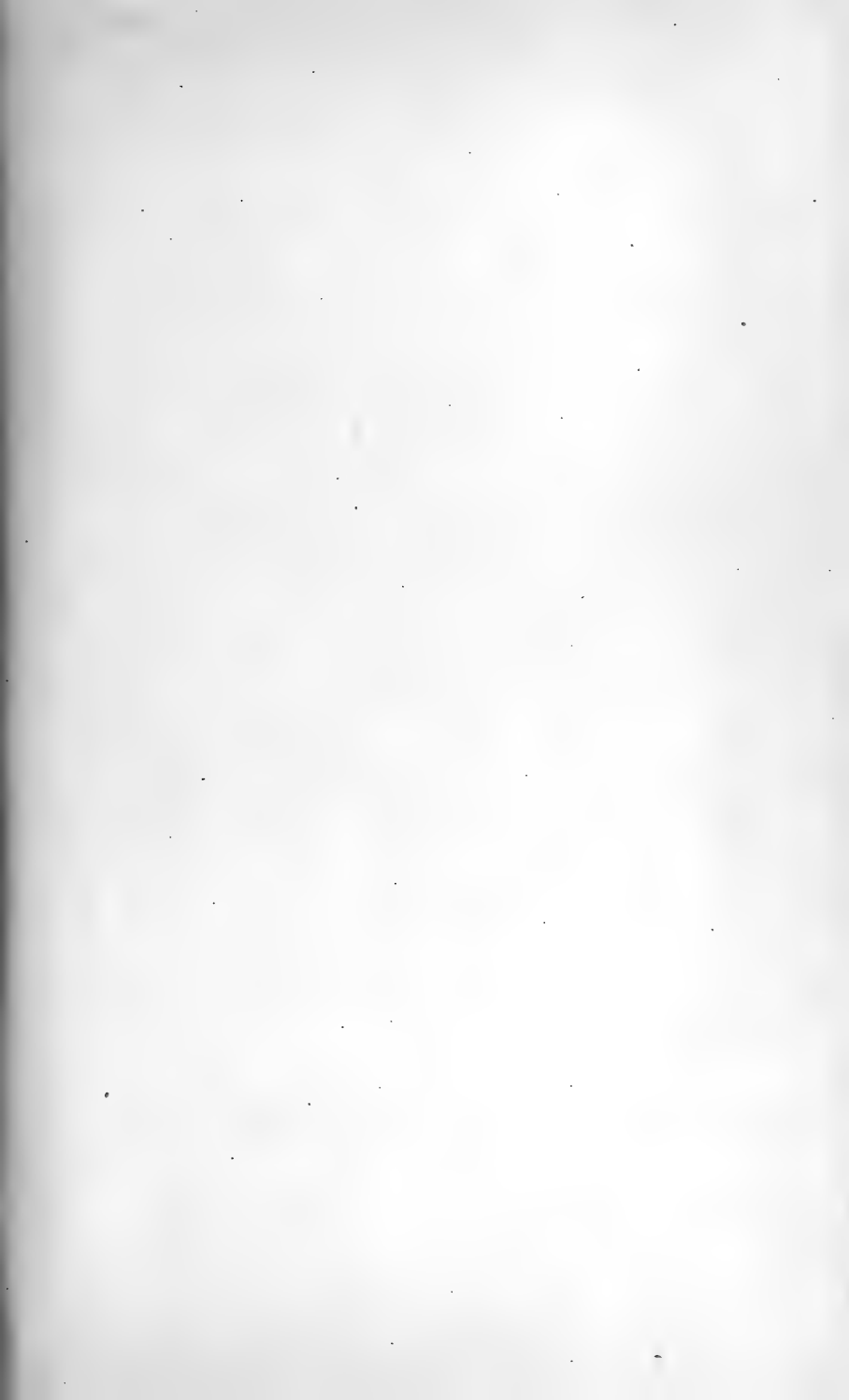


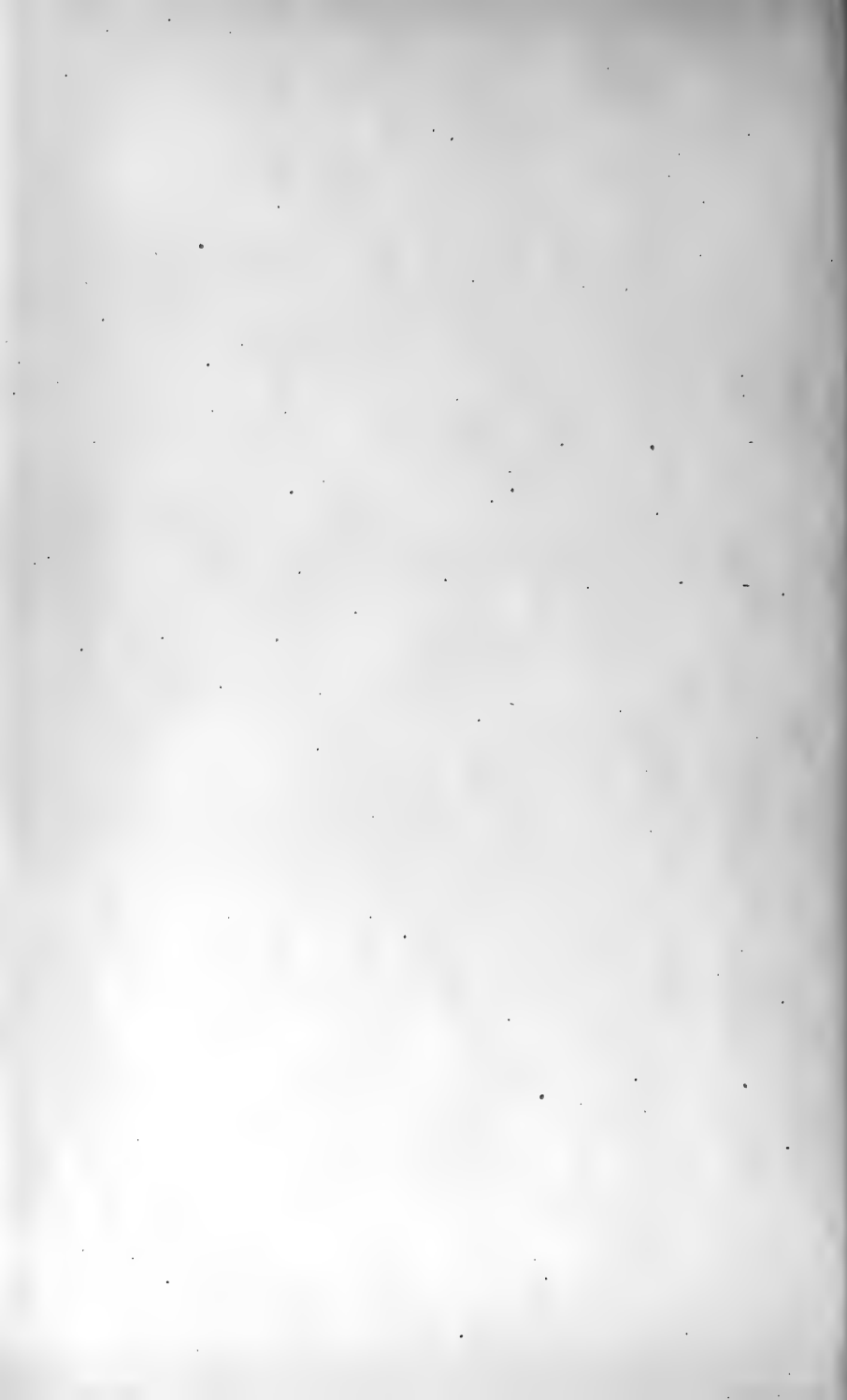
CHART No. 29

CHART No. 30









DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY

O. H. TITTMANN, *Superintendent*

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# SURVEY OF OYSTER BARS

## QUEEN ANNES COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND  
REPORT OF WORK OF UNITED STATES COAST  
AND GEODETIC SURVEY IN COOPERATION  
WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND  
SHELL FISH COMMISSION

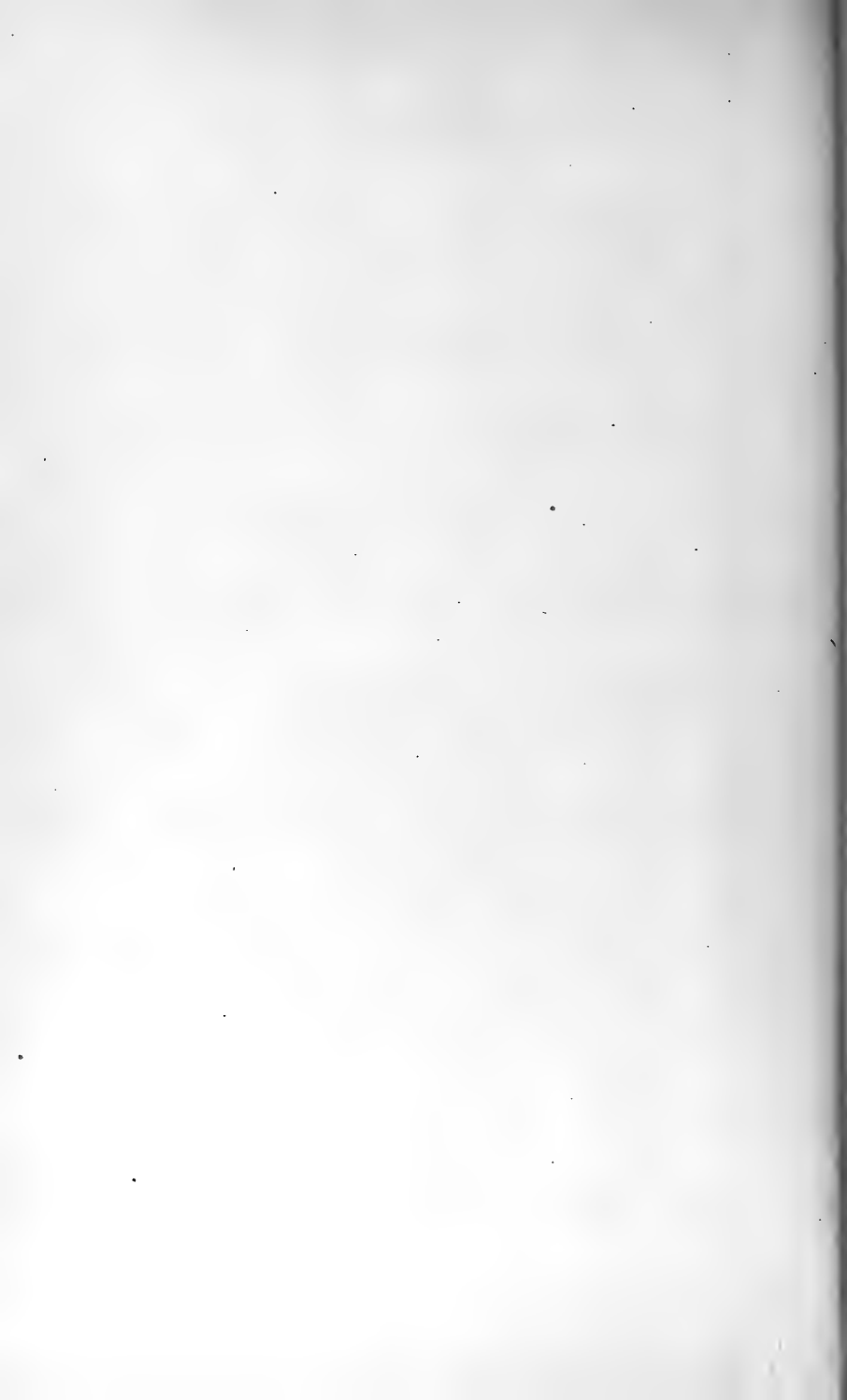
By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE

1912





## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, November 29, 1911.*

SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, together with certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shell fish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, 1909, 1910, 1911, and 1912.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To Hon. CHARLES NAGEL,  
*Secretary of Commerce and Labor.*



## CERTIFICATION.

---

BALTIMORE, MD., *November 28, 1911.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in Queen Annes County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,  
*Chief of Coast and Geodetic Survey Party,  
Assistant, Coast and Geodetic Survey.*

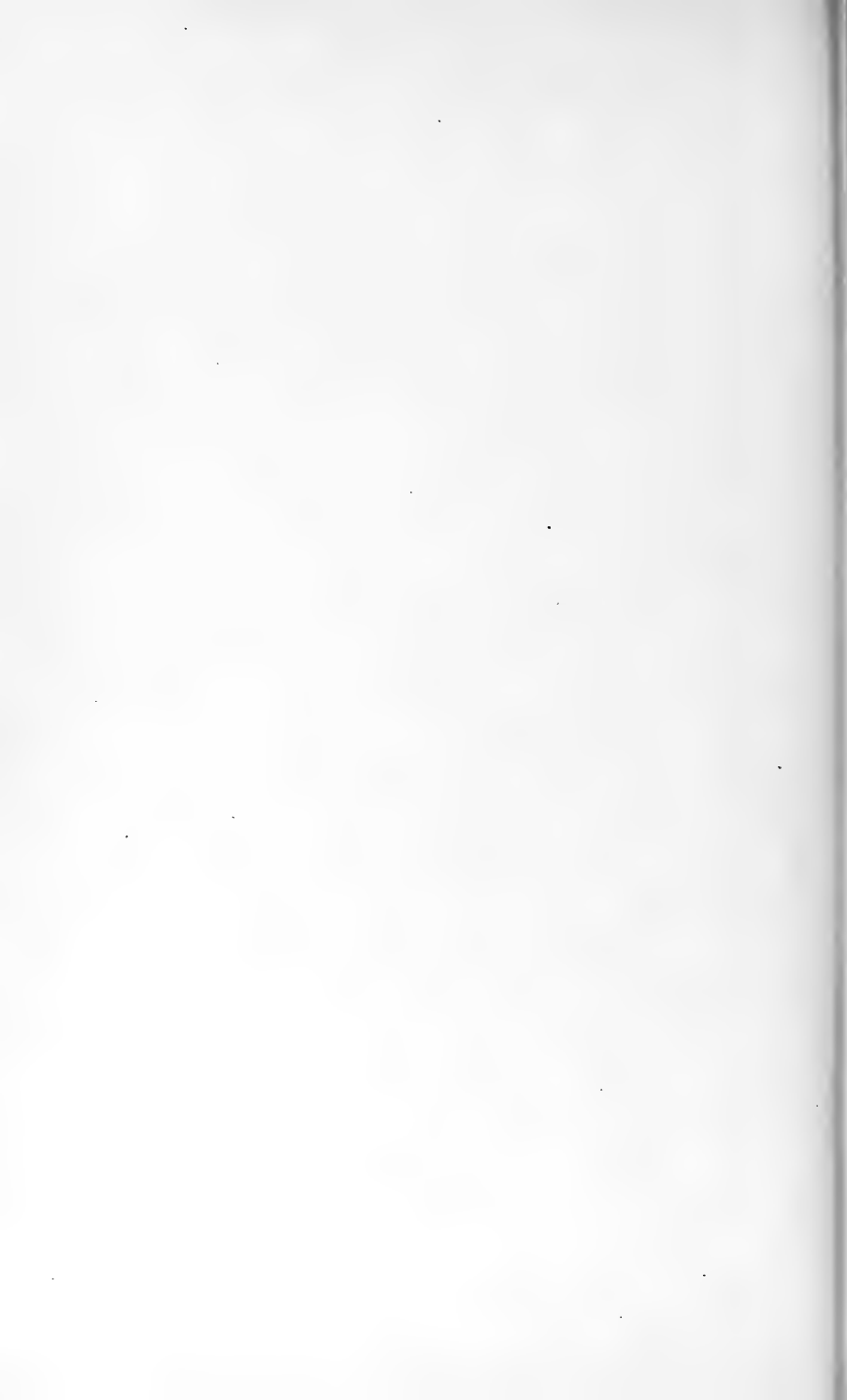
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BALTIMORE, MD., *November 28, 1911.*

Examined and certified to be correct.

WALTER J. MITCHELL,  
CASWELL GRAVE,  
BENJAMIN K. GREEN,  
*Maryland Shell Fish Commission.*  
SWEPSON EARLE,  
*Hydrographic Engineer.*

NOTE.—Certified copies of this publication and of the charts of the natural oyster bars of Queen Annes County were filed in the office of the clerk of the circuit court of Queen Annes County and in the office of the Board of Shell Fish Commissioners on November 29, 1911.



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# SURVEY OF OYSTER BARS, QUEEN ANNES COUNTY, MD.

## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws<sup>1</sup> authorizing the work and the natural division of the surveying operations<sup>2</sup> of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consist of a series of charts and a technical report for each county surveyed.<sup>3</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey in charge of the work of that service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.<sup>4</sup>

The publications prepared and issued by the State under the direction of the Shell Fish Commission consist of annual reports<sup>5</sup> of all the operations of the Commission performed under the provisions of the laws of Maryland,<sup>6</sup> including results of biological and economic oyster investigations, methods and results of the hydrographic survey of

<sup>1</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>2</sup> See Appendix C for a summary of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland.

<sup>3</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C. The publications now ready for issue are those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, St. Marys, Baltimore, Kent, and Queen Annes Counties.

<sup>4</sup> The technical records and charts for each county are published separately on account of the requirements of the oyster-culture laws of the State and the practical considerations which make it desirable to have each county "opened up" for oyster culture as soon as practicable after the completion of its survey. For these reasons and the fact that these reports are each arranged for distribution and use in one county only without reference to other published records, much of the text of this publication is of necessity identical with similar previous publications for other counties.

<sup>5</sup> These reports can be obtained by application to the Shell Fish Commission, Marine Bank Building, Baltimore, Md. They are issued annually in October, and the first, second, and third reports are now available for distribution.

<sup>6</sup> See Appendix B for an extract from the "Second Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman oyster culture law."

the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.<sup>1</sup>

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential as a foundation for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>2</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL STATEMENT OF WORK OF COAST AND GEODETIC SURVEY.<sup>3</sup>

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need very little other summary than is indicated by the published "Charts of Natural Oyster Bars" and the index of hydrographic projections and triangulation stations shown on the county progress maps attached to each report.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, Assistant, Bureau of Fisheries.

<sup>3</sup> For a detail statement of the very large amount of excellent oyster survey work of the Maryland Shell Fish Commission see the "Annual Reports of the Maryland Shell Fish Commission."

The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars, but also to the Government for any future work it may do in the regions covered by the oyster-survey operations.

The hydrographic projections and published charts are prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various shell-fish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to and permanently fixed by published technical descriptions, which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way, and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County":

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last 65 years.

REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY IN  
QUEEN ANNES COUNTY.

INSTRUCTIONS.

The following letters, together with the laws<sup>1</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the survey at Washington, have proved very beneficial to the work and are greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

LAWRENCE O. MURRAY, *Assistant Secretary.*

His Excellency HON. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the commissioners, prepare a program of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. and G. S. Steamer Endeavor, Baltimore, Md.*

ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides

<sup>1</sup> For these laws see Appendix A.



the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the field and the preparation for publication of oyster charts and technical records in the office at Washington.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster*, the Coast and Geodetic Survey party has had the constant use of the large steam launch *Inspector* and several other boats furnished by its own service, and the occasional use of the Bureau of Fisheries launch *Canvasback*<sup>1</sup> and the steamer *Governor McLane*<sup>2</sup> of the State fishery force.

The greater part of the equipment of instruments for the operations of both the Government and State has been furnished by the Coast and Geodetic Survey and consists of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

#### CHRONOLOGICAL STATEMENT OF WORK.

The field work of the Coast and Geodetic Survey in Queen Annes County<sup>3</sup> dates from April 14, 1909, when the Maryland Shell Fish Commission house boat *Oyster* was moved from her winter quarters at Baltimore to an anchorage off Rockhall Landing in Kent County. The surveying operations carried on from this harbor covered a period of about six weeks, in which practically all triangulation was completed on the Chesapeake Bay shores of both Kent and Baltimore counties as well as a considerable part of the same class of work in the mouth of Chester River in both Queen Annes and Kent counties.

On May 26, 1909, the *Oyster* was moved from Rockhall Landing to an anchorage in the upper part of Chester River near Cliffs Landing, where she was used as the headquarters for all the oyster-surveying operations in that region for a little over a month.

On June 30, 1909, the house boat was moved to a temporary anchorage off Queens-town. This date marked the practical completion of the work in Chester River, the triangulation of which was especially notable for the month of June on account of there having been 92 triangulation stations established, these stations all being marked by monuments and signals and their locations described, besides being occupied for theodolite observations.

On July 1, 1909, the house boat *Oyster* was towed by the State steamer *Governor McLane* to Baltimore Harbor, where the following four days, which included a Sunday and a holiday, were spent in taking on coal, water, and other supplies.

On July 6, 1909, the *Governor McLane* again moved the *Oyster*, this time from Baltimore to an anchorage in Queen Annes County in the northern part of Prospect Bay and near the southern entrance to Kent Narrows. From this harbor as headquarters a few additional triangulation observations were made in Kent County, although the greater part of the work was confined to Queen Annes and Talbot counties.

<sup>1</sup> By courtesy of Dr. H. F. Moore, United States Bureau of Fisheries.

<sup>2</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>3</sup> The field work of Queen Annes County was so intermixed with that of Kent and Talbot Counties that the chronological statement of the work in one of these counties necessarily includes a considerable part of the work of the other two counties.

On July 22, 1909, the house boat was again moved to the vicinity of Rockhall Landing to complete certain oyster-survey operations not finished when the *Oyster* was there in the spring. And it was not until August 13, 1909, when the house boat was shifted back to Eastern Bay, near the southern entrance to Kent Narrows, that the work in Queen Annes County was resumed. The *Oyster* remained at this latter anchorage as headquarters for the field work for only two weeks, during which period Governor Crothers, of Maryland, and party visited the house boat and thoroughly examined into the manner and methods by which the work was being conducted.

On August 28, 1909, the *Oyster* was towed to Haddaway Cove, in Talbot County, and work was not resumed in Queen Annes County until October 16, 1909, when the house boat was towed back to Eastern Bay and tied up at the railway wharf at Claiborne. From this latter point as headquarters the triangulation of Eastern Bay and its northern tributaries to the west of Kent Narrows was practically completed.

On October 29, 1909, the *Oyster* moved to an anchorage in a branch of lower Miles River called Tilghmans Creek and the next day completed a month's field work, which was notable as far as triangulation was concerned on account of there having been established, marked, described, and located by theodolite observations over 100 tertiary triangulation stations. Two small parties were engaged on this work during this month, one living on the house boat at Claiborne and the other on shore at Cambridge.

On December 1, 1909, the house boat *Oyster* was moved from Tilghmans Creek to an anchorage off the town of St. Michaels, and from this harbor the remaining triangulation of Wye and Miles rivers was practically completed.

On December 21, 1909, active field work of the Maryland Shell Fish Commission was closed at St. Michaels, but a triangulation signal building party continued work from quarters on shore at Oxford for two days longer.

On December 24, 1909, the field season for the Coast and Geodetic Survey parties was officially closed, the monthly employees remaining on the house boat *Oyster* at Baltimore preparing to lay up the launches and small boats for the winter, and all the officers being on leave from the 25th to 31st.

No further field work was done in Queen Annes County until March 14, 1910, when a small party was put in the field to complete certain necessary details of triangulation in Queen Annes and Talbot counties. This party first went to St. Michaels and then to Oxford, where it joined the main party on the house boat about the end of April.

The next and last field work in Queen Annes County covered only a few days' period, commencing November 7, 1911, when an officer was detailed to check up and obtain certain details relating to the description of triangulation stations required for the technical publication covering the survey of oyster bars of Queen Annes and Talbot counties.

The office work connected with the oyster survey of Queen Annes County, including compilations of geographic information and drafting necessary for the preparation for publication of the oyster charts and the technical records of that county, was continued intermittingly with the office work of other counties from the beginning of the field work in Queen Annes County to the time of filing of the certified oyster charts and technical publications in the archives of the Maryland Shell Fish Commission and with the clerk of the circuit court of Queen Annes County on November 28, 1911.

STATISTICS.<sup>1</sup>

Landmarks and triangulation signals erected.....	186
Monuments planted to mark triangulation stations.....	183
Triangulation stations occupied for observations of horizontal angles.....	178
Old triangulation stations recovered.....	15
New triangulation stations established.....	184
Total old and new triangulation stations marked and described.....	199
Linear miles of shore line covered by triangulation (approximate).....	240
Square miles covered by triangulation (approximate).....	500
Hydrographic projections prepared and completed as records of oyster boundaries.....	12
Triangles computed.....	380
Geographic positions computed.....	190
Corners of oyster boundaries established by computation.....	540
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## GENERAL REMARKS.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore, of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unflinching tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the Commission, who, as editor of the Commission's annual report and commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Mr. Benjamin K. Green, treasurer of the Commission, who has looked after the equipment and commissary of the house boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Mr. Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

And to the many others connected with the Commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

<sup>1</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of this county, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland. See Appendix D of this publication for "Statistics of results of combined operations of the Government and the State."

## CHARTS AND MAPS.<sup>1</sup>

### CHARTS OF NATURAL OYSTER BARS.

The charts of the natural oyster bars of Queen Annes County published by the Coast and Geodetic Survey from results of the surveys of the Government in cooperation with the Maryland Shell Fish Commission consist of four sheets covering all the oyster-producing waters of that county. They are published on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{8}$  inches to a statute mile) and are constructed on polyconic projections; and all information shown on them is based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars and other boundaries established by the Commission, and are certified for the purpose of filing in the office of the clerk of the circuit court of Queen Annes County and in the office of the Maryland Shell Fish Commission, as required by the oyster laws of Maryland.

In addition to the oyster bar and other boundaries, the charts show the location and name of all landmarks (United States Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography<sup>2</sup> necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the heading "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a particular oyster bar or landmark which is only known by name, consult the "Contents" and the desired chart and general location will be indicated. To find the name of a bar or

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> Much of the detail of the inshore topography was obtained from the excellent map of Queen Annes County, prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the United States Geological Survey.

landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shell fish industries. The 1-fathom contour (6 feet) and the 5-fathom curve (30 feet) correspond in a general way to the inner and outer limits of all the oyster bars surveyed. The 3-fathom contour (18 feet) furnishes the curve of about the average depth of water on the oyster bars, and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" and the boundaries of the "waters contiguous to the county" opened up for the leasing with Queen Annes County are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart within the boundaries of the different shell fish bottoms.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Queen Annes County, like those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, St. Marys, Baltimore, and Kent counties, have been prepared under the direction of the hydrographic engineer of the Commission. They are constructed on polyconic projections on the scales of 1 part in 5,000 or 1 part in 10,000 as the needs of oyster culture may require, and the information shown on them is based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts have been divided by parallels of latitude and meridians of longitude into small rectangles of 1 acre or 5 acres, as may be best suited to the area under consideration, and prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as possible.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in the Marine Bank Building at Baltimore.

#### PROJECTIONS.

The polyconic projections<sup>1</sup> covering Queen Annes County waters are 12 in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, but the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission were plotted by the draftsman of the Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the archives of the Shell Fish Commission.

#### PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the United States Coast and Geodetic Survey in Queen Annes County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress maps<sup>2</sup> accompanying the first and second annual reports of the Maryland Shell Fish Commission were prepared under the direction of the hydrographic engineer of the Commission. They are on the scale of 1 part in 400,000, and show the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey.

<sup>1</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>2</sup> These maps and reports can be obtained by application to Maryland Shell Fish Commission, Marine Bank Building, Baltimore, Md.

## BOUNDARIES OF THE COUNTY WATERS.<sup>1</sup>

### WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than 10 acres situated within the territorial limits of any of the counties, or 100 acres in any other place."

The boundary line<sup>2</sup> between the waters "within the territorial limits" of Queen Annes County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the "oyster" charts and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:

Commencing at the intersection of the State boundary line between Maryland and Delaware with the boundary line between Queen Annes County and Kent County; thence following the boundary between Queen Annes and Kent counties and down the channel boundary of the upper part of Chester River; thence continuing down the channel of Chester River following the boundary line between Kent County and Queen Annes County as laid down on "Charts Nos. 29 and 30, Natural Oyster Bars, Maryland," to a point in the mouth of Chester River defined by the intersection of this channel boundary line with a straight line across the mouth of Chester River defined at its western end by a point on Love Point on the western side of Chester River in latitude  $39^{\circ} 02' 25.5''$  and longitude  $76^{\circ} 18' 10.0''$ , and defined at its eastern end by a point on the eastern side of Chester River in latitude  $39^{\circ} 02' 45.3''$  and longitude  $76^{\circ} 14' 05.3''$ ; thence in a straight line ending at a point situated on Love Point on the western side of Chester River defined by latitude  $39^{\circ} 02' 25.5''$  and longitude  $76^{\circ} 18' 10.0''$ ; thence along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay, around Bloody Point to a point situated on Kent Point on the southern extremity of Kent Island defined by latitude  $38^{\circ} 50' 05.1''$  and longitude  $76^{\circ} 22' 06.2''$ ; thence in a straight line ending at a point situated on Wades Point on the eastern side of the entrance of Eastern Bay, defined by latitude  $38^{\circ} 49' 34.2''$  and longitude  $76^{\circ} 18' 04.5''$  to a point on this straight line defined by its intersection with the boundary line in Eastern Bay between Queen Annes County and Talbot County as laid down on "Chart No. 31, Natural Oyster Bars, Maryland;" thence along the boundary line between Queen Annes County and Talbot County in Eastern Bay, around Tilghmans Point, up Miles River, turning between Bennett Point and Herring Island into the mouth of Wye River, and up the channel boundary line of that branch of Wye River to the south of Wye Island to the point off the eastern end of Wye Island, all as laid down on "Charts Nos. 31 and 32, Natural Oyster Bars, Maryland;" thence continuing up the channel boundary line of Wye River between Queen Annes County and Talbot County to the head of the oyster-producing waters.<sup>3</sup>

<sup>1</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, Superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>2</sup> See "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and the progress map at the end of this publication.

<sup>3</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.

## WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the United States Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners in the city of Baltimore," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county and the waters contiguous to but not within the territorial limits of adjacent counties.

This boundary line has been delineated on the "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and is technically described and defined as follows:

Commencing at a point defined by the intersection of the boundary line between Queen Annes County and Kent County as laid down on "Chart No. 29, Natural Oyster Bars, Maryland," with a straight line across the mouth of Chester River, defined at its eastern end by a point on the eastern side of Chester River in latitude  $39^{\circ} 02' 45.3''$  and longitude  $76^{\circ} 14' 05.3''$ , and defined at its western end by a point on Love Point on the western side of Chester River in latitude  $39^{\circ} 02' 25.5''$  and longitude  $76^{\circ} 18' 10.0''$ ; thence following the boundary line between Queen Annes County and Kent County, passing around and about 1 mile to the northeast of Love Point Light, as laid down on "Chart No. 29, Natural Oyster Bars, Maryland," to a point in Chesapeake Bay about  $2\frac{5}{8}$  miles east of Baltimore Light and  $3\frac{5}{8}$  miles west of Love Point Light, defined by latitude  $39^{\circ} 03' 30.0''$  and longitude  $76^{\circ} 21' 00.0''$ ; thence in a straight line with Chesapeake Bay to a point in Chesapeake Bay about  $1\frac{3}{4}$  miles east of Sandy Point Light and defined by latitude  $39^{\circ} 00' 57.2''$  and longitude  $76^{\circ} 21' 34.00''$ ; thence in a straight line with Chesapeake Bay to a point in Chesapeake Bay about  $1\frac{1}{8}$  miles east of Thomas Point Light, defined by latitude  $38^{\circ} 53' 56.2''$  and longitude  $76^{\circ} 24' 50.2''$ ; thence in a straight line with Chesapeake Bay to a point in Chesapeake Bay about  $2\frac{1}{2}$  miles west of Bloody Point Bar Light defined by latitude  $38^{\circ} 50' 01.1''$  and longitude  $76^{\circ} 26' 15.0''$ ; thence in a straight line with Chesapeake Bay to a point in Chesapeake Bay about  $3\frac{1}{2}$  miles southwest of Bloody Point Bar Light defined by latitude  $38^{\circ} 48' 06.6''$  and longitude  $76^{\circ} 26' 37.1''$ ; thence following the boundary line between Queen Annes County and Talbot County passing between Bloody Point Bar Light and Poplar Island, as laid down on "Chart No. 31, Natural Oyster Bars, Maryland," to a point defined by the intersection of this boundary line with a straight line across the entrance of Eastern Bay defined at its western end by a point situated on Kent Point on the southern extremity of Kent Island in latitude  $38^{\circ} 50' 05.1''$  and longitude  $76^{\circ} 22' 06.2''$  and defined at its eastern end by a point situated on Wades Point on the eastern side of the entrance of Eastern Bay in latitude  $38^{\circ} 49' 34.2''$  and longitude  $76^{\circ} 18' 04.5''$ .<sup>1</sup>

<sup>1</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.



## LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION.

The oyster laws of Maryland authorizing the survey to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of location and character of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking a landmark has only an indefinite idea of its location. They gradually proceed from description of the general locality of a landmark to the descriptions of its immediate surroundings. This is followed by specific details of the character of the center and reference marks and a "round" of reference angles and distances which in themselves frequently contain enough information to furnish an independent and reliable location of the triangulation station.

### METHOD OF DESCRIBING TRIANGULATION STATIONS.

*The separate descriptions of triangulation stations should not be used without reading the following explanation of the method of describing the triangulation stations, as it contains certain details that are common to all the landmarks described in this publication and which are omitted in the separate descriptions as being needless repetitions:*

*Name.*—The title at the top of each separate description is the name by which the landmark or triangulation station is known and designated in all work and published oyster records or oyster charts of both the Government and State. The selection of the name is usually left to the triangulator establishing the station, and it may or may not have geographic or other significance in reference to the locality.

*General locality.*—Under this heading is given the general locality of the landmark in reference to well-known and prominent natural or artificial features, such as the

nearest body of water, town, river, steamer wharf, well-defined point of land, church, or any other feature that is likely to remain both permanent and prominent.

This heading also covers a reference to the published chart or map which shows the location of the station most clearly. Nearly all the triangulation stations described in this publication are plainly indicated by name and a triangulation symbol on the published charts of oyster bars of Maryland. In this case they are referred to by serial number only, the words "charts of oyster bars of Maryland" being omitted to avoid needless repetition. These published oyster charts are on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{6}$  inches to a statute mile) and show the location of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

*Immediate locality.*—Under this heading is given the description of the "observed station" in reference to its immediate surroundings. This is supposed to include a statement of the station's estimated elevation above high water or some other well-defined level of the locality, such as a road or house; the character of the ground on which it is located, such as marsh land, sand beach, cultivated field, or meadow; estimated bearings in points of the compass and estimated distances in yards *from* (*not to*) easily recognized features, such as extreme end of point, edge of bluff, bank of creek, line of telephone poles, shore line, barn, house, fence, ditch, trees, or any other definite detail, such as being on range with the tangent of an island and a church; and so forth.

When a standard monument has been established near the station as a "reference station," this heading also covers a statement of the true bearing of the monument in degrees and minutes and its measured distance in meters, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached and might be mistaken for the center mark of the "observed station" unless special attention is called to it.

The distinction between the "observed station" and "reference station" should be carefully noted by anyone making use of the description of stations for any future surveying operations.

The "observed station" is located at the particular triangulation point covered by the description of stations and is the one whose geographic position is first computed, as it is the point which was "occupied" and "observed on" for horizontal angles. However, in spite of the primary importance of the location of the "observed station," it will be noted from the description of stations that frequently it is not marked as well as the "reference station," and in many instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate "observed stations" on edges of banks and ends of points of land, which in the tidewater section of Maryland generally means they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the great need of "reference stations," if the frequent reestablishment of a new framework of triangulation is to be avoided.

The chief reason and need for the establishment of the "reference station," or secondary station, as it might be well named, is explained in the preceding paragraph, but in several instances other reasons, such as the location of the "observed station" on an unstable sand dune, in a cultivated field, in front of a residence, or other places objectionable to the landowner, have led to establishment of "reference stations."

The location of the "reference station" in relation to the "observed station" is fixed for plotting on charts or for computation of its geographic position by checked measurements of its distances and azimuth from the "observed station."<sup>1</sup>

*Marks.*—Under this heading is given a description of the character of the permanent monuments or other marks of the location of the "observed station," and of the "reference station" where one has been established.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground, unless otherwise stated.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

*References.*—Under this heading are given the "rounds" of directions and distances to all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described, this, if possible, being a lighthouse, church spire, or other permanent and prominent point. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>2</sup> of the initial object is always given in parentheses alongside its name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by horizontal angles or for the relocation of corner buoys of oyster-bar boundaries by the method of compass directions described in this publication under the heading of "Boundaries of oyster bars."

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters,"

<sup>1</sup> Geographic coordinates (latitude, longitude, distance, and azimuth) relating to any of the "observed stations" or of the "reference stations" described in this publication can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> The mean magnetic variation for Queen Annes County was  $6^{\circ} 25'$  west of north in 1911 and increasing at the rate of  $5'$  yearly.

however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner the accuracy of the directions are indicated by the refinement of angular measure with which they are recorded.

## DESCRIPTIONS OF TRIANGULATION STATIONS.

## SWAN POINT 3.

*General locality.*—Eastern shore of Chesapeake Bay on Swan Point about  $5\frac{1}{2}$  miles south-southwest of Tolchester Beach Wharf and 7 miles north of Love Point. (See Chart No. 29.)

*Immediate locality.*—Observed station is on sand and marsh point about 2 feet above high water, 5 feet east of shore, 60 yards south southwest of a fisherman's cabin, and 250 yards from the extreme end of Swan Point. Cement monument marking old reference station is in marsh 21.43 meters N  $89^{\circ} 13'$  E of observed station. Standard cement monument marking new reference station is on line to old reference station 13.26 meters N  $89^{\circ} 13'$  E of observed station.

*Marks.*—Observed station is  $\frac{1}{4}$ -inch copper rod set in an 8-inch square cement monument with top about 5 inches below surface of ground. Subsurface mark is the neck of a flask set in cement about 4 feet below the surface. New reference station is center point of triangle on standard cement monument. Old reference station is eastern one of two  $\frac{1}{4}$ -inch copper rods in an 8-inch cement monument.

*References.*—

	0	'	"	
"Love Point Light" (S $2^{\circ} 11'$ W).....	0	00	00	..... $5\frac{3}{4}$ miles.
"Baltimore Light".....	46	07	00	..... $8\frac{1}{2}$ miles.
Stack on garbage plant at Bodkin Point.....	82	21	..	..... $8\frac{1}{4}$ miles.
"Seven Foot Knoll Light".....	95	04	50	..... 7 miles.
Left stack at Sparrow Point.....	111	12	..	..... $12\frac{1}{4}$ miles.
"Fort Howard Taller Water Tank".....	112	28	20	..... $9\frac{7}{8}$ miles.
"Craighill Channel Light (Front Range)".....	114	59	50	..... 7 miles.
"Craighill Channel Light (Rear Range)".....	131	46	20	..... $8\frac{3}{4}$ miles.
Chimney of cabin.....	203	54	..	..... 58 yards.
Gable of Rockhall Wharf house.....	264	07	..	..... 1 mile.
OLD REFERENCE STATION.....	267	02	20	..... 21.43 meters.
NEW REFERENCE STATION (STANDARD CE- MENT MONUMENT).....	267	02	20	..... 13.26 meters.
Chimney of house to right of Windmill Point.....	292	12	..	..... 2 miles.
Gable of barn.....	303	49	..	..... $2\frac{1}{2}$ miles.
Gable of barn near Wickes Beach.....	340	52	..	..... $7\frac{5}{8}$ miles.

## BANK.

*General locality.*—Eastern shore of Chesapeake Bay on western side of entrance to Tavern Creek about  $\frac{5}{8}$  mile northeast of Swan Point. (See Chart No. 29.)

*Immediate locality.*—Observed station is in a cultivated field about 7 feet above high water, 12 yards inshore, and 2 yards from edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	0	'	"	
"Love Point Light" (S $7^{\circ} 27'$ W).....	0	00	00	..... $6\frac{1}{8}$ miles.
"Baltimore Light".....	42	32	50	..... 9 miles.
Nail in blaze in locust tree (3 inches diameter).....	56	04	00	..... 10.39 meters.
Chimney of fishing shack on Swan Point.....	71	17	..	..... $\frac{1}{2}$ mile.
"Seven Foot Knoll Light".....	88	14	40	..... $7\frac{1}{2}$ miles.
West gable of Strong barn.....	153	39	..	..... $\frac{3}{8}$ mile.
Southwest corner of Strong house.....	174	09	..	..... $\frac{3}{8}$ mile.

## References—Continued.

	°	'	"	
Chimney of tenant house.....	212	55	..	¾ mile.
North gable of barn.....	250	47	..	1¾ miles.
Thompson windmill.....	271	47	..	½ mile.
West gable of Rockhall Wharf house.....	274	08	..	¾ mile.
North gable of Downey house.....	278	49	..	½ mile.
Nail in blaze in locust tree (4 inches diameter)	292	56	20	10.32 meters.
South one of twin trees on Little Neck Island.	352	59	..	½ mile.

## GRATITUDE.

*General locality.*—Eastern shore of Chesapeake Bay at eastern side of entrance to Swan Creek opposite middle of Little Neck Island and near old Rockhall Wharf. (See Chart No. 29.)

*Immediate locality.*—Observed station is on a marsh meadow about 1 foot above high water, 12 yards east of shore, 150 yards southwest of a house, and 400 yards south-southwest of Rockhall Landing.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Love Point Light" (S 11° 46' W).....	0	00	00	5¾ miles.
"Sandy Point Light".....	26	05	10	10¾ miles.
"Baltimore Light".....	41	21	20	9¾ miles.
Chimney of fishing shack on Swan Point.....	90	47	..	1 mile.
Left tangent of piles of old Rockhall Wharf..	124	15	..	200 yards.
West gable of Strong barn.....	130	49	..	¾ mile.
Chimney of tallest wharf house at Rockhall Landing.....	162	15	..	¼ mile.
Chimney of house.....	166	19	..	1 mile.
Post on northwest corner of Downey porch...	196	57	..	150 yards.
Nail in blaze in cedar tree (10 inches diameter)	273	02	40	107 yards.
North gable of old barn.....	276	36	..	200 yards.
North gable of barn.....	309	21	..	1¾ miles.

## WINDMILL POINT.

*General locality.*—Eastern shore of Chesapeake Bay on Windmill Point at northern side of entrance to Rockhall Harbor. (See Chart No. 29.)

*Immediate locality.*—Observed station is on low marsh land about level with high water, about 30 yards back from end of point, and 20 yards south of a group of large pine trees. Cement monument marking reference station is 24.13 meters N 20° 14' E of observed station.

*Marks.*—Observed station is center point of 2-inch tile pipe filled with sand with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
"Love Point Light" (S 17° 47' W).....	0	00	00	5½ miles.
Nail in blaze in pine tree (18 inches diameter).....	146	39	30	17.38 meters.
Nail in blaze in pine tree (24 inches diameter).....	178	03	00	23.57 meters.
REFERENCE STATION.....	182	27	00	24.13 meters.
Nail in blaze in pine tree (20 inches diameter).....	216	10	20	16.52 meters.
Rockhall Methodist Episcopal Church spire..	238	05	40	1 mile.
Highest gable on Sharps Wharf.....	246	42	..	¾ mile.
East chimney of house.....	271	27	..	½ mile.
Chimney of small house.....	287	55	..	½ mile.
West chimney of small house.....	311	04	..	1 mile.

## STEVENS.

*General locality.*—Eastern shore of Chesapeake Bay about  $\frac{1}{4}$  mile south of Huntingfield Point at entrance to Huntingfield Creek. (See Chart No. 29.)

*Immediate locality.*—Observed station is in a cultivated field about 15 feet above high water, 55 yards back from edge of vertical bank 3 feet higher than station, and 450 yards south of the extreme end of Huntingfield Point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Love Point Light" (S 25° 03' W).....	0	00	00	..... 4 $\frac{5}{8}$ miles.
Right tangent of Love Point.....	12	13	..	..... 6 $\frac{1}{2}$ miles.
Southeast corner of fishing shack on Swan Point.....	111	24	..	..... 2 $\frac{1}{2}$ miles.
East gable of Strong barn.....	125	42	..	..... 2 $\frac{1}{2}$ miles.
Thompson windmill.....	135	01	20	..... 2 miles.
Chimney of house.....	150	32	..	..... 1 $\frac{1}{4}$ miles.
Nail in blaze in cedar tree (10 inches diameter).....	155	24	20	..... 200 yards.
Wicks windmill.....	223	16	20	..... 1 mile.
Nail in blaze in locust tree (18 inches diameter).....	227	23	00	..... 110 yards.
Chimney of small house.....	239	58	..	..... 1 mile.
Nail in blaze in persimmon tree (10 inches diameter).....	275	26	20	..... 130 yards.
Chimney of Stevens tenant house.....	320	39	..	..... $\frac{1}{2}$ mile.

## BALTIMORE LIGHT.

*General locality.*—Western side of Chesapeake Bay off shore about  $1\frac{1}{2}$  miles east of mouth of Magothy River and  $\frac{1}{8}$  mile west of entrance to dredged channel leading to Baltimore. (See Progress Map.)

*Immediate locality.*—Observed station is on brick octagonal dwelling on cylindrical foundation known as Baltimore Lighthouse.

*Marks.*—Observed station is center point of lantern on Baltimore Lighthouse.

*References.*—None necessary.

## SANDY POINT LIGHT.

*General locality.*—Western side of Chesapeake Bay off shore about  $\frac{1}{2}$  mile east of Sandy Point. (See Chart No. 29.)

*Immediate locality.*—Observed station is on brick dwelling on cylindrical foundation known as Sandy Point Lighthouse.

*Marks.*—Observed station is center point of lantern on Sandy Point Lighthouse.

*References.*—

	°	'	"	
"Bodkin Point (Old Tower)" (N 14° 35' W) ..	0	00	00	..... 8 $\frac{1}{2}$ miles.

## RING.

*General locality.*—Eastern shore of Chesapeake Bay on western side of Kent Island about  $2\frac{1}{4}$  miles south-southwest of Love Point and  $3\frac{3}{8}$  miles east of Sandy Point. (See Chart No. 29.)

*Immediate locality.*—Observed station is in a cultivated field about 20 feet above high water, 12 yards inshore, and 2 yards from edge of bank. Cement monument marking reference station is 9.36 meters N 79° 21' E of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe with top 3 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	''	
"Sandy Point Light" (N 84° 56' W).....	0	00	00	3¾ miles.
Cupola on barn.....	117	51	..	1 mile.
South chimney of house.....	141	00	..	¼ mile.
REFERENCE STATION.....	164	17	10	9.36 meters.
Lone tree (2 inches diameter).....	224	10	..	300 yards.
South chimney of house.....	238	56	..	300 yards.

LOVE POINT LIGHT.

*General locality.*—Eastern side of Chesapeake Bay at entrance to Chester River offshore about 1½ miles northeast of Love Point. (See Chart No. 29.)

*Immediate locality.*—Observed station is on hexagonal screw pile structure known as Love Point Lighthouse.

*Marks.*—Observed station is center point of lantern on Love Point Lighthouse.

*References.*—

	°	'	''	
"Wickes Beach" (S 47° 55' E).....	0	00	00	3½ miles.

AMOUR.

*General locality.*—Northern end of Kent Island at western side of entrance to Chester River about ¼ mile southeast of Love Point and ¾ mile north of Love Point Landing. (See Chart No. 29.)

*Immediate locality.*—Observed station is on sand and marsh point about 2 feet above high water, 25 yards inshore, and 55 yards north of fishing shack.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Love Point Light" (N 33° 42' E).....	0	00	00	1½ miles.
Left chimney of house.....	28	28	..	4¾ miles.
West gable of house on East Neck.....	48	00	..	3¾ miles.
North gable of barn.....	54	30	..	3¼ miles.
North gable of house on Cedar Point.....	76	30	..	5 miles.
Gable of barn.....	128	18	..	4½ miles.
Left tangent of Kent Island Landing.....	132	59	..	1¾ miles.
Northeast corner of fishing shack.....	140	38	..	57 yards.
Nail in blaze in cedar tree (3 inches diameter).....	174	43	..	12.46 meters.
"Railway Water Tank".....	199	53	50	¾ mile.
Nail in blaze in cedar tree (4 inches diameter).....	206	10	00	11.30 meters.
Nail in blaze in cedar tree (6 inches diameter).....	295	02	00	38.88 meters.

RAILWAY WATER TANK.

*General locality.*—Northern end of Kent Island about halfway between Chesapeake Bay and Chester River and ¾ mile south by west of Love Point. (See Chart No. 29.)

*Immediate locality.*—Observed station is on the only large elevated water tank located just north of the center of the bend of the railway that leaves Love Point Landing.

*Marks.*—Observed station is center point of top of water tank.

*References.*—None necessary.

## Survey of Oyster Bars, Queen Annes County, Md.

## WICKES BEACH.

*General locality.*—Eastern shore of mouth of Chester River on western side of East Neck Island near Wickes Beach. (See Chart No. 29.)

*Immediate locality.*—Observed station is on a narrow sand beach about on level with high water, 10 yards back from low water, and 2 yards west of swamp which extends back to woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Love Point Light" (N 47° 54' W) . . . . .	0	00	00	3 miles.
Nail in blaze in oak tree (15 inches diameter). . . . .	60	45	40	300 yards.
Nail in blaze in gum tree (12 inches diameter). . . . .	70	59	00	250 yards.
Nail in blaze in oak tree (15 inches diameter). . . . .	114	05	50	200 yards.
North cupola of barn. . . . .	155	15	..	5/8 mile.
Lone tree on Cedar Point. . . . .	178	23	..	1 1/8 miles.
East gable of barn. . . . .	200	21	..	4 miles.
North gable of Jackson wharf house. . . . .	214	26	..	4 1/8 miles.
North gable of barn. . . . .	276	32	..	3 3/8 miles.
Cupola on farmhouse. . . . .	299	16	..	3 1/8 miles.
"Railway Water Tank". . . . .	321	45	00	3 3/8 miles.
North flagstaff on Love Point Hotel. . . . .	323	27	..	3 3/8 miles.

## NARROWS POINT.

*General locality.*—Northern shore of Chester River on southwest end of East Neck Island, about 1/8 mile north of Cockeyes Island and 3/8 mile west-northwest of Cedar Point. (See Charts Nos. 29 and 30.)

*Immediate locality.*—Observed station is on a low marshy point about level with high water, about 7 yards from low water, and 325 yards west of a fishing shack. Cement monument marking reference station is 12.28 meters N 7° 58' E of observed station.

*Marks.*—Observed station is center of 3-inch tile pipe filled with cement with top 4 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Wickes Beach" (N 46° 58' W) . . . . .	0	00	00	1 1/8 miles.
REFERENCE STATION. . . . .	64	56	10	12.28 meters.
Chimney of fishing shack. . . . .	133	08	..	325 yards.
West gable of Queenstown elevator. . . . .	153	44	..	3 1/4 miles.
Cupola on barn. . . . .	164	05	..	2 5/8 miles.
North gable of house. . . . .	189	51	..	2 1/2 miles.
North gable of barn. . . . .	194	53	..	2 1/2 miles.
Cupola on barn. . . . .	216	26	..	2 1/2 miles.
North gable of house. . . . .	228	16	..	2 3/4 miles.
North gable of house on Jackson Creek. . . . .	231	47	..	2 7/8 miles.
East gable of Jackson wharf house. . . . .	233	52	..	2 3/4 miles.
North gable of barn. . . . .	254	28	..	3 miles.
West chimney of house. . . . .	285	16	..	3 3/8 miles.
Chimney of house near Macum Creek. . . . .	293	36	..	4 1/4 miles.
East chimney of house. . . . .	318	01	..	4 1/4 miles.
"Railway Water Tank". . . . .	334	11	40	5 1/4 miles.
South flagstaff on Love Point Hotel. . . . .	335	26	..	5 1/2 miles.
Flagstaff on Love Point Wharf. . . . .	335	42	..	4 3/4 miles.
Right tangent of Love Point. . . . .	341	30	..	5 miles.



MACUM.

*General locality.*—Southern shore of Chester River on Kent Island, about 4½ miles south of Love Point Light, 3 miles south-southeast of Love Point Landing and ½ mile north-northwest of Macum Creek. (See Chart No. 29.)

*Immediate locality.*—Observed station is in cultivated field about 7 feet above high water, 25 yards inshore, and 16 yards south of two cedar trees at edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Love Point Light" (N 0° 19' E).....	0	00	00	4½ miles.
North cupola of barn on East Neck Island...	50	41	..	3¾ miles.
Chimney of house on East Neck Island.....	52	13	..	3¾ miles.
Nail in blaze in persimmon tree (6 inches diameter).....	57	02	50	22.24 meters.
South corner of fishing shack on Cedar Point..	72	08	..	4 miles.
West gable of large barn.....	89	48	..	5 miles.
Cupola on small house.....	97	00	..	5 miles.
West gable of house.....	102	15	..	4½ miles.
Cupola on barn.....	108	29	..	3 miles.
Gable of house near Jackson Creek.....	119	26	..	3¾ miles.
East chimney of brick house.....	195	59	..	¼ mile.
East chimney of house.....	212	31	..	1 mile.
Cupola on house.....	221	52	..	1¾ miles.
East chimney of house.....	225	18	..	¾ mile.
North chimney of house.....	257	16	..	400 yards.
Lone cedar tree.....	266	08	..	500 yards.
Nail in blaze in cedar tree (4 inches diameter)	314	14	30	30.98 meters.
"Railway Water Tank".....	333	17	20	3¾ miles.
East gable of wharf house on Kent Island Landing.....	339	28	..	1½ miles.
Flagstaff on wharf house on Love Point Landing.....	342	03	..	3¼ miles.
Chimney of fishing shack.....	343	11	..	3¼ miles.

THIN.

*General locality.*—Southern shore of Chester River on western side of entrance to Kent Narrows, about ¾ mile north of Narrows railway station. (See Chart No. 29.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 55 yards north of shore, and 55 yards west of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Muddy" (N 37° 55' E).....	0	00	00	¾ mile.
Smoke pipe on shanty.....	75	13	..	1 mile.
Large low telegraph pole.....	99	27	..	¾ mile.
Smoke pipe on slant-roofed shanty.....	107	58	..	¾ mile.
Near corner of fishing shanty.....	196	21	..	¼ mile.
Tangent of Long Point.....	356	41	..	¾ mile.

## MUDDY.

*General locality.*—Southern shore of Chester River on Long Point between Muddy Creek and Jackson Creek about  $2\frac{1}{4}$  miles southwest of Cedar Point and  $3\frac{1}{2}$  miles west of Queenstown. (See Charts Nos. 29 and 30.)

*Immediate locality.*—Observed station is on marsh land covered with myrtle bushes, about 2 feet above high water, 7 yards inshore, 25 yards southwest of extreme end of point, and 70 yards north of group of pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	//	
"Love Point Light" (N 28° 41' W).....	o	oo	oo	6 miles.
East chimney of house.....	34	54	..	$2\frac{3}{4}$ miles.
Lone pine tree on Cedar Point.....	53	36	..	$2\frac{3}{4}$ miles.
South gable of barn.....	79	35	..	$4\frac{1}{2}$ miles.
Cupola on barn.....	103	11	..	3 miles.
Cupola on barn.....	114	53	..	$2\frac{3}{4}$ miles.
West gable of barn.....	134	33	..	$1\frac{3}{4}$ miles.
Chimney of house.....	146	39	..	$1\frac{1}{4}$ miles.
North gable of wharf house on Jackson Creek				
Landing.....	179	21	..	1 mile.
North gable of house.....	182	10	..	$1\frac{1}{4}$ miles.
Chimney of small house.....	202	56	..	$\frac{3}{4}$ mile.
Nail in blaze in pine tree (8 inches diameter).....	221	12	50	63 yards.
Nail in blaze in pine tree (12 inches diameter).....	243	25	oo	67 yards.
South flagstaff of Love Point Hotel.....	339	43	30	$5\frac{1}{8}$ miles.
North gable of wharf house on Love Point				
Landing.....	341	46	..	$5\frac{1}{4}$ miles.
Right tangent of Love Point.....	345	12	..	$5\frac{1}{8}$ miles.

## BRIDGE.

*General locality.*—Southern side of Chester River on western shore of Kent Narrows about  $\frac{1}{8}$  mile west of Narrows railway station. (See Charts Nos. 29 and 32.)

*Immediate locality.*—Observed station is on a telegraph pole at a point about 25 feet above high water, 4 yards south of near rail of railroad, 8 yards west of end of railroad bridge, and 7 yards from tie line of bridge.

*Marks.*—Observed station is a small staff nailed to telegraph pole.

*References.*—None necessary.

## RAILROAD.

*General locality.*—Southern side of Chester River on eastern shore of Kent Narrows about  $\frac{3}{8}$  mile east-southeast of Narrows railway station and  $\frac{1}{8}$  mile south of railroad. (See Charts Nos. 29 and 32.)

*Immediate locality.*—Observed station is on cultivated land about 8 feet above high water, 35 yards south by west of telephone line on north side of county road, 75 yards east of shanty, and 80 yards north-east of shore of small cove.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Marshy" (S 2° 38' E).....	0	00	00	..... ¾ mile.
Cupola on barn.....	29	36	..	..... 2¼ miles.
Chimney on ell of large house.....	38	04	..	..... 2¾ miles.
Right tangent of shanty.....	96	32	..	..... 75 yards.
South peak of Fisherman Inn.....	118	01	..	..... ¾ mile.
Nail in blaze in tree (8 inches diameter).....	139	44	10	..... 38.07 meters.
Nail in blaze in cherry tree (14 inches diameter).....	163	29	40	..... 27.09 meters.
Nail in blaze in telephone pole No. 2848....	197	15	20	..... 30.33 meters.
Smoke pipe of shanty.....	209	50	..	..... 100 yards.
Near peak of ell-shaped house.....	269	00	..	..... 1¾ miles.
Near peak of house.....	292	19	..	..... 1¾ miles.
Left peak of barn.....	345	37	..	..... 1½ miles.
House in trees.....	354	10	..	..... 1½ miles.

## BLUEBEARD.

*General locality.*—Eastern shore of Chester River on point at entrance to a small creek about ½ mile northeast of Blunt Creek and 1 mile southwest of entrance to Queenstown Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a low sand beach about 1 foot above high water, 5 yards inshore, 2 yards east of small persimmon tree, 55 yards northeast of a small stream, and 200 yards north-northeast of a pond.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Love Point Light" (N 47° 53' W).....	0	00	00	..... 7 miles.
South gable of house.....	12	03	..	..... 2¾ miles.
Right tangent of piles of Bogle wharf.....	29	48	..	..... 3¾ miles.
Largest of four pine trees on Piney Point....	48	58	..	..... 4 miles.
East chimney of house.....	70	23	..	..... 2¾ miles.
Black beacon at entrance to Queenstown Creek.....	90	23	40	..... 1 mile.
Nail in blaze in swamp-oak tree (4 inches diameter).....	122	01	10	..... 10.60 meters.
Nail in blaze in chestnut tree (18 inches diameter).....	197	34	10	..... 150 yards.
Nail in blaze in oak tree (6 inches diameter). 270	04	20	..... 125 yards.	
Cupola of barn.....	278	50	..	..... 1½ miles.
East chimney of house.....	279	24	..	..... 1½ miles.
North gable of Jackson Creek landing house. 290	11	..	..... 2¾ miles.	
East gable of house.....	329	17	..	..... 5¼ miles.
Gable of Love Point wharf house.....	344	08	..	..... 6¾ miles.
Right tangent of Love Point.....	347	46	..	..... 7 miles.

## BLAKEFORD.

*General locality.*—Eastern shore of Chester River about ¾ mile north of Blakeford Point at entrance to Queenstown Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 15 feet above high water, 8 yards inshore, 2 yards back from top of bank with uniform slope to beach, 25 yards north of gully, and 25 yards south of large sycamore tree at foot of slope.

## Survey of Oyster Bars, Queen Annes County, Md.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Rain" (N 74° 56' W).....	0	00	00	1 7/8 miles.
Right tangent of piles of Bogle wharf.....	27	33	..	3 miles.
Nail in blaze in cedar tree (4 inches diameter).....	83	12	10	13.31 meters.
Northwest corner of house in woods.....	155	39	..	300 yards.
West gable of small house.....	174	19	..	3/8 mile.
West gable of large barn.....	215	41	..	5/8 mile.
West gable of house.....	235	20	..	3/4 mile.
Northeast corner of elevator at Queenstown.....	239	21	..	5/8 mile.
Nail in blaze in ash tree (15 inches diameter).....	247	00	20	21.30 meters.
First black beacon at entrance to Queenstown Creek.....	294	49	..	1/2 mile.
Chimney of fishing shack on Cedar Point.....	352	26	..	2 5/8 miles.

## RAIN.

*General locality.*—Western shore of Chester River on Hail Point about 1 1/4 miles south-southeast of Bogle Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 5 feet above high water, 3 yards north of shore, and 20 yards northwest of extreme end of point. Cement monument marking reference station is 29.84 meters N 65° 20' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark of reference station is center of 2-inch tile pipe with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Bluebeard" (S 21° 17' E).....	0	00	00	1 7/8 miles.
Chimney of house.....	11	07	..	2 3/4 miles.
Cupola on barn.....	33	55	..	2 1/2 miles.
Chimney of house on Jackson Creek.....	45	07	..	3 3/8 miles.
Chimney of small house.....	48	32	..	3 1/2 miles.
Chimney of fishing shack.....	101	34	..	7/8 mile.
Nail in blaze in pine tree (10 inches diameter).....	119	46	30	15.45 meters.
REFERENCE STATION.....	135	56	20	29.84 meters.
Nail in blaze in pine tree (10 inches diameter).....	147	05	50	18.09 meters.
South gable of house.....	173	28	..	1 1/2 miles.
Right tangent of piles of Bogle Wharf.....	186	59	..	1 5/8 miles.
Williams water tank.....	255	59	..	2 miles.
Black Beacon at entrance to Queenstown Creek.....	318	01	..	1 1/2 miles.
Cupola on barn.....	338	50	..	1 3/4 miles.

## BREAK.

*General locality.*—Eastern shore of Chester River on Break Point about 1/8 mile north of north side of entrance to Tilghmans Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 5 feet above high water, 13 yards inshore, 4 yards from edge of bank, 200 yards north of extreme end of point, and 300 yards west of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Blakeford" (S 23° 21' E).....	0	00	00	1½ miles.
North chimney of house at Queenstown.....	6	55	..	2½ miles.
Chimney of house.....	37	48	..	3¾ miles.
Cupola on barn near Jackson Creek Landing..	49	05	..	4½ miles.
Chimney of small house.....	55	05	..	4½ miles.
Chimney of small house.....	58	35	..	5½ miles.
Chimney of Greens fishing shack.....	84	38	..	1½ miles.
South chimney of house.....	103	42	..	2½ miles.
East gable of house.....	131	23	..	2½ miles.
Right tangent of piles of Bogle Wharf.....	133	30	..	1½ miles.
East chimney of house.....	151	35	..	2½ miles.
East chimney of house.....	176	46	..	3¾ miles.
Williams water tank.....	200	58	..	¼ mile.
Knob on door of fishing shack.....	349	58	..	¼ mile.

## OVERTON.

*General locality.*—Western shore of Chester River on north side of entrance to Durdin Creek and about 100 yards south of Bogle Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 4 yards inshore, 100 yards south of Bogle Wharf, 250 yards southeast of Bogle store, and 300 yards west of Bogle Wharf house. Cement monument marking reference station is 11.26 meters S 73° 06' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	'	"	
"Bay Bush Point" (N 3° 13' W).....	0	00	00	1¾ miles.
South gable of barn.....	4	12	..	2¾ miles.
South gable of barn.....	17	21	..	3 miles.
West gable of barn.....	39	13	..	5 miles.
Left tangent of piles of Bogle Wharf.....	73	17	..	300 yards.
Chimney of house.....	119	25	..	2½ miles.
Lower west gable of Queenstown elevator....	138	21	..	3½ miles.
North gable of house.....	140	27	..	3¾ miles.
Right tangent of woods on Hail Point.....	168	59	..	1¾ miles.
REFERENCE STATION.....	256	19	40	11.26 meters.
Chimney of Bogles store.....	289	17	..	250 yards.

## FIR.

*General locality.*—Eastern shore of Chester River on Piney Point about 1½ miles north-northwest of Break Point and ½ mile west of Piney Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land at the extreme end of Piney Point, about on level with high water, and about 4 yards east of shore. Cement monument marking reference station is 10.45 meters S 70° 43' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## Survey of Oyster Bars, Queen Annes County, Md.

References.—	°	'	"	
"Break" (S 21° 04' E).....	0	00	00	1½ miles.
East chimney of house at Queenstown.....	2	36	..	4 miles.
Chimney of house.....	24	17	..	4½ miles.
Gable of barn near Jackson Creek Landing..	34	49	..	5½ miles.
North gable of house.....	35	17	..	5½ miles.
Chimney of fishing shack.....	51	41	..	2¾ miles.
Right tangent of piles of Bogle Wharf.....	71	41	..	1¼ miles.
Chimney of house.....	77	08	..	1½ miles.
South chimney of house.....	135	34	..	1½ miles.
North chimney of house.....	170	54	..	2¼ miles.
West chimney of house.....	178	00	..	3 miles.
West gable of barn.....	199	30	..	3¾ miles.
Left tangent of woods.....	226	37	..	¾ mile.
REFERENCE STATION.....	310	21	10	10.45 meters.
Williams water tank.....	339	41	..	1¼ miles.

## BAY BUSH POINT.

*General locality.*—Western shore of Chester River on a point about ¼ mile north of entrance to Fryingpan Cove and Churn Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 15 yards inshore, and in front of several persimmon trees. Cement monument marking reference station is 10.16 meters N 80° 13' W of observed station.

*Marks.*—Observed station is nail in 3-inch cement-filled tile pipe with top 6 inches below surface of ground incased in cement cake bearing the legend "U. S. C. S.—1896." Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—	°	'	"	
"Fir" (S 57° 56' E).....	0	00	00	1½ miles.
Williams water tank.....	8	22	..	2½ miles.
Chimney of house at Queenstown.....	27	17	..	5½ miles.
West gable of barn.....	35	42	..	4¾ miles.
Left tangent of woods on Hail Point.....	45	58	..	3¾ miles.
Chimney of Bogle store.....	58	00	..	1½ miles.
Nail in blaze in persimmon tree (6 inches diameter).....	69	04	00	6.25 meters.
REFERENCE STATION.....	157	43	00	10.16 meters.
Nail in blaze in persimmon tree (8 inches diameter).....	220	45	00	6.20 meters.
West chimney of house.....	244	04	..	1¼ miles.
East gable of barn.....	262	10	..	3 miles.
West gable of barn.....	297	51	..	4½ miles.
West gable of barn.....	316	19	..	3 miles.

## GORDON.

*General locality.*—Eastern side of Chester River about 55 yards offshore, ¾ mile southwest of entrance to Reeds Creek and ⅞ mile north-northeast of Piney Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in about 3 feet of water at high tide, 55 yards offshore, and 300 yards southwest of end of woods and cultivated field. Cement monument marking reference station is 57.49 meters S 71° 15' E of observed station.

*Marks.*—Observed station is nail in 2-inch by 4-inch pine stub driven with top to high water. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—	°	'	''	
"Fir" (S 25° 18' W).....	0	00	00	7/8 mile.
Left tangent of piles of Bogle Wharf.....	15	23	..	2 1/8 miles.
East gable of barn.....	42	41	..	2 miles.
South chimney of house.....	103	30	..	2 miles.
West chimney of Harris house.....	118	39	..	2 3/4 miles.
South gable of Strong tenant house.....	129	39	..	3 miles.
South chimney of house.....	145	25	..	3 miles.
Spindle on Brown house.....	167	02	..	3 1/2 miles.
South gable of cornerib.....	197	36	..	3 miles.
Nail in blaze in pine tree (10 inches diameter)	252	39	30	57.93 meters.
REFERENCE STATION.....	263	26	40	57.49 meters.
Nail in blaze in pine tree (18 inches diameter)	286	55	40	57.02 meters.

BIRD.

*General locality.*—Eastern shore of Chester River on Gordon Point at southwest side of entrance to Reeds Creek about 1 1/2 miles southwest of Holton Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a marsh meadow about 2 feet above high water and 75 yards west of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Crow" (S 14° 23' W).....	0	00	00	3/8 mile.
Lone pine tree (12 inches diameter).....	69	59	..	300 yards.
North chimney of house.....	85	13	..	3 1/4 miles.
South gable of barn.....	115	56	..	2 7/8 miles.
Northwest corner of house.....	230	16	..	5/8 mile.
North chimney of house.....	300	01	..	1 mile.
North gable of house.....	343	41	..	1 1/2 miles.
Windmill.....	358	43	..	1/2 mile.
Chimney of house.....	359	09	..	3/8 mile.

CROW.

*General locality.*—Eastern side of Chester River on western shore of Reeds Creek about 1/2 mile south of extreme end of Gordon Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in yard of tenant house about 4 feet above high water, 12 yards west of shore, 5 yards south of a pear orchard, and 7 yards north of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Bird" (N 14° 23' E).....	0	00	00	3/8 mile.
South gable of house near Cliffs Landing.....	3	03	..	3 3/4 miles.
South gable of barn.....	36	18	..	1 1/4 miles.
Cupola of barn.....	73	23	..	1 1/2 miles.
Northeast corner of Carnell tenant house.....	99	01	30	8.71 meters.
Northwest corner of Carnell tenant house.....	128	43	10	6.65 meters.
Northeast corner of barn.....	198	25	20	14.06 meters.
Northwest corner of barn.....	221	37	10	12.68 meters.

## GROVE.

*General locality.*—Eastern side of Chester River on a point between Reeds Creek and Grove Creek about  $\frac{1}{2}$  mile southeast of Gordon Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a meadow about 2 feet above high water, 26 yards south of shore, 8 yards west of three persimmon trees, and 35 yards west of a pond.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Reeds" (N 20° 32' E).....	0	00	00	..... $\frac{1}{2}$ mile.
East chimney of house.....	13	06		..... $\frac{3}{4}$ mile.
South gable of barn.....	19	41		..... $\frac{3}{4}$ mile.
Nail in blaze in persimmon tree (6 inches diameter).....	53	05	50	..... 10.98 meters.
Cupola on barn.....	75	58		..... $\frac{5}{8}$ mile.
Cupola on Wright barn.....	108	16		..... $\frac{3}{4}$ mile.
North gable of barn.....	168	50		..... $\frac{5}{8}$ mile.
East gable of house.....	181	32		..... $\frac{3}{4}$ mile.
South gable of house.....	230	54		..... $\frac{1}{2}$ mile.
Lone pine tree on Gordon Point.....	282	13		..... $\frac{1}{2}$ mile.
Cupola on barn.....	316	04		..... 4 miles.
South chimney of house.....	326	13		..... 4 miles.
Nail in blaze in sassafras tree (5 inches diameter).....	338	48	40	..... 10.34 meters.

## REEDS.

*General locality.*—Eastern shore of Chester River at northeast side of entrance to Reeds Creek and about  $\frac{5}{8}$  mile south of Robins Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 2 feet above high water, 34 yards east of shore, 9 yards north of ditch draining swamp, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Bird" (S 62° 26' W).....	0	00	00	..... $\frac{1}{2}$ mile.
East chimney of Harris house.....	60	07		..... $3\frac{1}{8}$ miles.
Chimney of house.....	101	57		..... $3\frac{1}{4}$ miles.
East chimney of Brown house.....	112	01		..... 3 miles.
Chimney of cabin.....	186	55		..... 300 yards.
Cupola on barn.....	276	35		..... $1\frac{1}{4}$ miles.
North gable of house.....	316	12		..... $1\frac{3}{8}$ miles.
Chimney of house.....	337	46		..... $\frac{7}{8}$ mile.

## LITTLE GUM.

*General locality.*—Western shore of Chester River on Little Gum Point at southwest side of entrance to Grays Inn Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 2 yards south of shore, and 12 yards southeast of a 4-foot ditch. Cement monument marking reference station is 40.97 meters N 33° 31' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe with top flush with surface of ground. Subsurface mark is 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.



References.—

	°	'	"	
"Weeks" (N 29° 53' W).....	0	00	00	3/8 mile.
East gable of old house on opposite shore....	29	45		1 mile.
South chimney of house.....	81	38		1 mile.
South gable of house near Cliffs Landing.....	93	34		3/4 miles.
North gable of barn.....	115	23		3/4 miles.
North gable of barn.....	130	38		3/4 miles.
South gable of barn.....	170	12		2 3/8 miles.
Left tangent of Gum Point.....	212	10		5/8 mile.
North gable of barn.....	220	28		3/4 mile.
South chimney of Harris house.....	347	39		3/8 mile.
REFERENCE STATION.....	356	22	00	40.97 meters.

INN.

*General locality.*—Eastern shore of Grays Inn Creek about 1/8 mile northwest of Chester River and 1/2 mile southeast of Island Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a peach orchard about 4 feet above high water and 25 yards northeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 3 inches below base of monument.

References.—

	°	'	"	
"Holton Point" (S 72° 50' E).....	0	00	00	2 5/8 miles.
Nail in blaze in sycamore tree (30 inches diameter).....	13	24	30	4.53 meters.
North cupola on barn.....	38	57		2 1/2 miles.
Left tangent of woods on Hail Point.....	74	54		4 1/2 miles.
East gable of Swatska barn.....	101	19		1 1/4 miles.
East chimney of house.....	119	02		1/2 mile.
East gable of Harris house.....	150	53		5/8 mile.
East gable of small house.....	175	15		5/8 mile.
Nail in blaze in peach tree (8 inches diameter).....	252	41	50	11.71 meters.
Southwest corner of Earle bathhouse.....	359	28		3 miles.

HOLTON POINT.

*General locality.*—Eastern shore of Chester River on Holton Point at south side of entrance to Corsica River. (See Chart No. 30.)

*Immediate locality.*—Observed station is on low sand beach about on level with high water and 1/4 mile west of small bathhouse. Cement monument marking reference station is 5.40 meters S 48° 06' E of observed station.

*Marks.*—Observed station is nail in 3-inch cement-filled tile pipe with top about 6 inches below surface of ground, incased in cement bearing the legend "U. S. C. S.—1896." Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

References.—

	°	'	"	
"Bay Bush Point" (S 64° 15' W).....	0	00	00	2 1/8 miles.
East chimney of house.....	19	49		3 miles.
Chimney of small house.....	27	23		3 miles.
East gable of barn.....	38	39		3 1/8 miles.
East gable of small house.....	57	08		2 1/4 miles.
South gable of barn.....	67	37		2 1/2 miles.
South gable of house.....	80	09		2 7/8 miles.

## Survey of Oyster Bars, Queen Annes County, Md.

References—Continued.	o	/	''	
East chimney of house.....	94	17	..	1¾ miles.
West chimney of house.....	130	52	..	2 miles.
South gable of cornerib.....	157	14	..	5/8 mile.
West gable of barn.....	184	04	..	1 mile.
REFERENCE STATION.....	247	38	20	5.40 meters.
Nail in blaze in persimmon tree (4 inches diameter).....	321	38	00	28.35 meters.
North gable of barn.....	329	38	..	2½ miles.
North gable of barn.....	343	06	..	4¾ miles.
East gable of barn.....	357	02	..	4¼ miles.

## EARLE.

*General locality.*—Southern shore of Corsica River on Town Bar Point about ½ mile east of Chester River and 100 yards north of Earle Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 5 yards south of shore, 19 yards north of a pond, and 100 yards north of Earle Wharf.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	o	/	''	
"Hydrographic" (S 64° 38' E).....	0	00	00	½ mile.
Lone sycamore tree.....	10	43	..	½ mile.
East chimney of house.....	18	56	..	½ mile.
Southeast pile at end of Earle Wharf.....	48	59	..	100 yards.
Nail in blaze in locust tree (5 inches diameter).....	63	18	00	12.92 meters.
Nail in blaze in locust tree (3 inches diameter).....	87	58	50	11.07 meters.
Earle windmill.....	118	07	..	300 yards.
East gable of barn.....	165	21	..	3¾ miles.
East gable of small house.....	179	26	..	2¾ miles.
Church steeple at Crosby.....	196	20	..	3¾ miles.
South gable of Brown house.....	209	09	..	2¼ miles.
West chimney of house.....	244	53	..	5/8 mile.
South gable of Emory barn.....	298	08	..	¾ mile.
West chimney of house.....	338	10	..	1½ miles.

## HYDROGRAPHIC.

*General locality.*—Southern shore of Corsica River about 1½ miles east of Chester River and ½ mile east of Earle Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is near edge of cultivated field about 3 feet above high water, 20 yards south of shore, 4 yards south of edge of bank 3 feet high, and 400 yards north of lone sycamore tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	o	/	''	
"Earle" (N 64° 37' W).....	0	00	00	5/8 mile.
Church steeple at Crosby.....	14	03	..	4¼ miles.
East gable of barn.....	19	13	..	3½ miles.
South gable of barn.....	33	12	..	¾ mile.
South gable of Emory barn.....	73	18	..	5/8 mile.

References—Continued.

	°	'	''	
Southwest corner of Emory Wharf house.....	75	44	..	1/2 mile.
West gable of barn.....	114	51	..	3/4 mile.
West gable of barn.....	135	37	..	1 1/8 miles.
West chimney of house.....	148	56	..	1 1/4 miles.
East chimney of house.....	231	23	..	3/4 mile.
Nail in blaze in apple tree (12 inches diameter).....	327	14	30	16.00 meters.
Southeast corner of Earle Wharf house.....	354	51	..	1/2 mile.

RUTH.

*General locality.*—Southern shore of Corsica River about 1 1/2 miles east of Chester River and 1/8 mile northwest of entrance to Tilghmans Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is in cultivated field about 15 feet above high water, 10 yards south of shore, 2 yards west of edge of slope, and 6 yards south of edge of slope.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Hydrographic" (N 82° 13' W).....	0	00	00	3/8 mile.
East chimney of Earle tenant house.....	0	11	..	1 mile.
South gable of Sissel barn.....	36	30	..	1 mile.
Southeast corner of Emory Wharf house.....	54	13	..	5/8 mile.
South gable of Emory barn.....	60	05	..	3/4 mile.
Chimney of Emory house.....	64	17	..	3/4 mile.
East post of front porch of house.....	109	34	..	3/4 mile.
Nail in blaze in oak tree (24 inches diameter). ..	119	49	10	9.98 meters.
Nail in blaze in cedar tree (6 inches diameter).....	223	53	20	14.30 meters.
East gable of small barn.....	308	56	..	3/8 mile.
Lone sycamore tree.....	319	36	..	3/4 mile.

MELFIELD.

*General locality.*—Southern shore of Corsica River about 1 1/8 miles east of Chester River, 1 mile southeast of Emory Wharf, and 1/8 mile east of entrance to Tilghmans Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is in cultivated field about 18 feet above high water, 10 yards south of shore, 5 yards south of edge of bluff, and 10 yards west of a ravine.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Ruth" (N 71° 32' W).....	0	00	00	3/8 mile.
East gable of barn.....	11	02	..	5 miles.
Left tangent of Emory Wharf.....	29	50	..	7/8 mile.
East chimney of Emory house.....	38	10	..	1 mile.
Southwest corner of house.....	74	26	..	3/4 mile.
Cupola on Emory Wharf house.....	96	53	..	1 1/8 miles.
Nail in blaze in walnut tree (8 inches diameter).....	119	34	10	3.81 meters.
Nail in blaze in gum tree (7 inches diameter). ..	179	56	10	16.18 meters.
West gable of barn.....	195	19	..	3/8 mile.
Nail in blaze in locust tree (6 inches diameter).....	336	32	10	13.85 meters.
South chimney of Earle house.....	350	42	..	1 3/8 miles.

## BATH.

*General locality.*—Southern shore of Corsica River on Wash Point about 2 miles east of Chester River,  $\frac{1}{2}$  mile west of Rocky Point, and  $\frac{1}{4}$  mile southeast of Ship Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 15 yards east of shore, 13 yards west of a pond, and surrounded by dense growth of bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 8 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Melfield" (S 30° 54' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Left tangent of peak of barn.....	24	38	..	..... 1 mile.
Earle windmill.....	53	43	..	..... $1\frac{3}{4}$ miles.
Left edge of Earle Wharf house.....	56	38	..	..... $1\frac{1}{2}$ miles.
East chimney of house.....	86	14	..	..... 1 mile.
South chimney of house.....	120	55	..	..... $\frac{3}{8}$ mile.
West chimney of house.....	217	12	..	..... $\frac{3}{4}$ mile.
North one of two cedar trees on hill.....	267	01	..	..... $\frac{1}{4}$ mile.
Nail in blaze in hackberry tree (12 inches diameter).....	326	23	50	..... 3.06 meters.
Nail in blaze in pear tree (15 inches diameter).....	345	11	50	..... 6.79 meters.

## SHIP.

*General locality.*—Northern shore of Corsica River on Ship Point at west side of entrance to Emorys Creek, about  $1\frac{1}{2}$  miles east of Chester River, and  $\frac{3}{8}$  mile east of Emory Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point covered with bushes about 1 foot above high water, 6 yards west of shore, and 75 yards south of a cedar tree covered with grape vines.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Ruth" (S 39° 11' W).....	0	00	00	..... $\frac{5}{8}$ mile.
North gable of barn.....	3	22	..	..... $\frac{3}{4}$ mile.
Earle windmill.....	40	59	..	..... $1\frac{1}{2}$ miles.
Left edge of Earle Wharf house.....	43	35	..	..... $1\frac{1}{4}$ miles.
East gable of barn.....	128	34	..	..... $\frac{1}{4}$ mile.
Nail in blaze in cedar tree (7 inches diameter).....	144	33	30	..... 12.52 meters.
West gable of barn.....	217	05	..	..... $1\frac{1}{4}$ miles.
West chimney of house.....	220	00	..	..... $1\frac{1}{4}$ miles.
North chimney of house.....	229	59	..	..... $1\frac{1}{4}$ miles.
West chimney of house.....	251	20	..	..... $\frac{3}{4}$ mile.

## ENGINEER.

*General locality.*—Northern shore of Corsica River about 1 mile east of Chester River,  $\frac{5}{8}$  mile north-east of Earle Wharf, and 50 yards west of Emory Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 12 yards north of shore, 50 yards west of Emory Wharf, and 50 yards southeast of a pond.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Ruth" (S 29° 36' E).....	0	00	00	5/8 mile.
East chimney of house.....	29	31	..	3/8 mile.
Nail in blaze in pear tree (6 inches diameter).....	70	38	40	99.95 feet.
Earle windmill.....	90	13	..	3/8 mile.
Lone cedar tree.....	165	42	..	125 yards.
South gable of Emory barn.....	219	59	..	300 yards.
East chimney of Emory house.....	257	47	..	250 yards.
West chimney of house.....	317	59	..	1 3/8 miles.
Northeast corner of Emory Wharf house.....	321	35	..	156.94 feet.

SWEPSON.

*General locality.*—Northern shore of Corsica River opposite Town Bar Point about 1/2 mile east of Chester River, 3/4 mile north of Earle Wharf, and 3/8 mile west of Emory Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 12 yards north of shore, 10 yards south of lone cedar tree, and 12 yards east of small ditch draining swamp.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Hydrographic" (S 32° 06' E).....	0	00	00	5/8 mile.
East chimney of house.....	6	32	..	3/4 mile.
Chimney of house.....	44	28	..	3/8 mile.
Earle Windmill.....	71	46	..	1/2 mile.
Nail in blaze in cedar tree (15 inches diameter).....	230	15	30	9.50 meters.
South gable of Emory barn.....	282	58	..	1/2 mile.
West gable of barn.....	332	36	..	1 3/4 miles.
North chimney of small house.....	355	19	..	1 1/2 miles.
Chimney of small house.....	357	28	..	2 1/2 miles.

CORSICA.

*General locality.*—Eastern shore of Chester River at north side of entrance to Corsica River about 3/4 mile south of Lower Spaniard Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 7 feet above high water, 16 yards east of shore, 11 yards east of edge of bank, and 5 yards south of young peach orchard.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Swepson" (S 54° 31' E).....	0	00	00	1/2 mile.
North chimney of house.....	19	17	..	1 1/2 miles.
Earle windmill.....	52	39	..	3/4 mile.
Northeast corner of Earle bathhouse.....	54	01	..	3/4 mile.
Left tangent of woods on Gordon Point.....	93	59	..	2 3/4 miles.
Chimney of small house.....	145	49	..	3 3/8 mile.
South gable of barn.....	187	43	..	2 1/4 miles.
West gable of cornerib.....	318	25	..	1/2 mile.
Locust tree (24 inches diameter).....	359	07	..	150 yards.

DEEP COVE.

*General locality.*—Western shore of Chester River on point at west side of entrance to Langford Creek and south side of entrance to Deep Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 10 yards inshore, 50 yards east of a dead tree 2 feet in diameter, 80 yards southeast of a tall poplar tree, and 300 yards east of a house.

## Survey of Oyster Bars, Queen Annes County, Md.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Gordon" (S 6° 44' E).....	0	00	00	2¾ miles.
East pine tree of group on Piney Point.....	5	25	..	3½ miles.
Spindle on gable of barn.....	47	08	..	1¾ miles.
Lone poplar tree.....	59	20	..	¼ mile.
Northeast corner of Ashley house.....	87	57	..	300 yards.
Southeast corner of fishing shack.....	124	34	..	200 yards.
Lone pine tree.....	136	01	..	¼ mile.
South gable of house.....	193	59	..	1½ miles.
West chimney of house.....	200	47	..	1½ miles.
West gable of barn.....	243	30	..	1 mile.
North chimney of house at Cliffs Landing....	256	16	..	2 miles.
North gable of barn.....	288	41	..	2¾ miles.
Southwest corner of Earle bathhouse.....	307	09	..	2¾ miles.
North gable of barn.....	355	07	..	2¾ miles.

## LANGFORD.

*General locality.*—Western shore of Chester River on Nichols Point at east side of entrance to Langford Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a sandy point among persimmon trees about 2 feet above high water, 12 yards inshore, and 200 yards south of a marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Gordon" (S 10° 42' W).....	0	00	00	2¾ miles.
East one of group of four pine trees.....	2	21	..	3½ miles.
East chimney of house.....	45	45	..	2½ miles.
Chimney of small house.....	56	27	..	2¼ miles.
Nail in blaze in persimmon tree (6 inches diameter).....	72	02	30	4.59 meters.
East chimney of house.....	87	27	..	1 mile.
South gable of barn.....	115	53	..	1¾ miles.
South chimney of house.....	141	02	..	1½ miles.
Chimney of house.....	152	40	..	1½ miles.
Nail in blaze in persimmon tree (6 inches diameter).....	218	39	20	2.23 meters.
Nail in blaze in persimmon tree (4 inches diameter).....	287	15	30	7.63 meters.
Northwest corner of Earle bathhouse.....	299	00	..	1¾ miles.
Cupola on barn.....	332	26	..	2 miles.
North gable of house.....	346	57	..	2¼ miles.

## SPANIARD POINT 2 UPPER.

*General locality.*—Southeastern shore of Chester River on Lower Spaniard Point about 1¼ miles east of Nichols Point, ⅓ mile south of Cliffs Landing, and ½ mile southwest of Spaniard Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a sand beach about 1 foot above high water, 8 yards southeast of shore, and 300 yards northwest of woods. Cement monument marking reference station is 11.72 meters S 70° 51' E of observed station.

*Marks.*—Observed station is nail in 3-inch cement-filled tile pipe bearing the legend "U. S. C. S.—1896," with top 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

References.—

	°	'	''	
"Langford" (N 87° 27' W).....	0	00	00	1¼ miles.
South gable of barn.....	2	44	..	2¾ miles.
East gable of barn.....	16	10	..	2¾ miles.
Church steeple.....	29	25	..	3 miles.
West chimney of Brown house.....	37	38	..	1¾ miles.
West chimney of house.....	76	08	..	1 mile.
Right tangent of piles of Cliffs Landing.....	100	40	..	¾ mile.
South gable of house.....	101	05	..	1¾ miles.
"Westcotts Windmill".....	117	31	..	2¼ miles.
REFERENCE STATION.....	196	36	50	11.72 meters.
North gable of barn.....	295	57	..	3 miles.
Right tangent of woods on Gordon Point.....	302	00	..	3 miles.
East chimney of house on Grays Inn Creek.....	352	39	..	3¾ miles.

QUAKER.

*General locality.*—Western shore of Chester River in Cliff Bight about ¾ mile north of Nichols Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 3 feet above high water, 8 yards northwest of shore, 8 yards southeast of a wire fence and a row of pear trees, and 6 yards south of a group of persimmon trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Brown" (N 80° 42' E).....	0	00	00	¾ mile.
West gable of barn.....	15	05	..	2¼ miles.
Left tangent of Spaniard Wharf.....	24	17	..	1¼ miles.
Northeast corner of Earle house.....	70	08	..	2 miles.
North gable of house near Reeds Creek.....	102	24	..	3¼ miles.
Right tangent of woods on Gordon Point.....	114	37	..	3½ miles.
Lone oak tree.....	147	43	..	½ mile.
Nail in blaze in hackberry tree (6 inches diameter).....	203	08	30	4.81 meters.
Nail in blaze in persimmon tree (8 inches diameter).....	319	19	00	3.43 meters.
West chimney of house.....	351	40	..	¾ mile.

EVANS.

*General locality.*—Southeastern shore of Chester River on Upper Spaniard Point about ⅝ mile south of Cliffs Landing and ⅜ mile northeast of Spaniard Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 10 yards north of shore, and 200 yards east of end of Spaniard Wharf.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Chester" (S 80° 13' E).....	0	00	00	¾ mile.
Lone walnut tree (6 inches diameter).....	106	17	..	200 yards.
South gable of fishing shack near shore.....	136	00	..	¾ mile.
"Spaniard Wharf 1896" (old triangulation station).....	124	49	30	2.49 meters.
Right tangent of piles at end of Spaniard Wharf.....	167	23	..	250 yards.

## References—Continued.

	°	'	"	
North chimney of house.....	189	26	..	1½ miles.
West chimney of house.....	212	13	..	1½ miles.
Chimney of Martin cabin.....	219	20	..	¾ mile.
North gable of Cliffs Landing house.....	234	31	..	¾ mile.
East chimney of house.....	247	28	..	¾ mile.
North gable of barn.....	276	23	..	1¾ miles.
"Westcott Windmill".....	282	55	10	1¾ miles.
East gable of barn.....	308	31	..	1½ miles.
North gable of barn.....	318	03	..	2¼ miles.
East gable of barn.....	348	39	..	1¾ miles.

## BROWN.

*General locality.*—Northwestern shore of Chester River on Cliffs Point between Cliffs Bight and Commegys Bight about ¼ mile west of Cliffs Landing. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 12 feet above high water, 25 yards north of shore, 7 yards north of edge of bank, and 45 yards southeast of a large cherry tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Deep Point 2" (N 80° 15' E).....	0	00	00	1¾ miles.
West gable of barn.....	4	49	..	2½ miles.
West chimney of house.....	22	55	..	1¾ miles.
North gable of small fishing shack.....	82	04	..	¾ mile.
North gable of barn.....	115	26	..	3½ miles.
Nail in blaze in locust tree (5 inches diameter).....	157	07	10	13.55 meters.
Nail in blaze in walnut tree (15 inches diameter).....	209	09	50	14.13 meters.
East gable of house.....	220	55	..	300 yards.
East gable of barn.....	334	04	..	300 yards.
West chimney of house.....	338	33	..	1½ miles.
Northwest corner of Martin shack.....	343	03	..	77 yards.
West gable of wharf house.....	355	27	..	¼ mile.

## STRATTON.

*General locality.*—Northwestern shore of Chester River at west side of entrance to Commegys Bight near Cliffs Landing and about ¼ mile northeast of Cliffs Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on marsh land about on level with high water, 5 feet north of shore, and 21 yards southwest of entrance to a small creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Deep Point 2" (N 83° 53' E).....	0	00	00	1¾ miles.
Cupola on barn.....	7	50	..	2 miles.
West gable of corn crib.....	23	27	..	1½ miles.
Southwest corner of wharf house.....	82	04	..	100 yards.
North gable of house.....	114	03	..	3 miles.
Right tangent of woods on Gordon Point.....	125	14	..	3¾ miles.
Pine tree on line with bulkhead of wharf.....	154	29	..	100 yards.
North chimney of house.....	266	37	..	400 yards.
West gable of Westcott barn.....	319	58	..	1¾ miles.
West gable of barn.....	340	32	..	1¾ miles.



## CHESTER.

*General locality.*—Southeastern shore of Chester River about  $\frac{3}{4}$  mile east of Upper Spaniard Point and  $\frac{7}{8}$  mile south of Deep Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a low meadow about 2 feet above high water, 10 yards south of shore, 2 yards south of board and wire fence, 2 yards east of rail fence, and 35 yards northwest of gate to front yard of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Evans" (N 80° 12' W).....	0	00	00	..... $\frac{3}{4}$ mile.
South chimney of house.....	6	21	.....	..... $2\frac{1}{4}$ miles.
East gable of Cliffs Landing house.....	23	38	.....	..... $1\frac{1}{8}$ miles.
East gable of house.....	35	11	.....	..... $1\frac{1}{2}$ miles.
Chimney of house.....	51	47	.....	..... $1\frac{1}{2}$ miles.
South chimney of Westcott house.....	76	43	.....	..... $1\frac{5}{8}$ miles.
West gable of barn.....	85	17	.....	..... 1 mile.
Left tangent of piles of Indiantown Wharf... ..	116	41	.....	..... $1\frac{1}{2}$ miles.
South cupola of barn.....	139	37	.....	..... $1\frac{1}{4}$ miles.
West chimney of Emory house.....	158	45	.....	..... $\frac{1}{2}$ mile.
West chimney of Emory tenant house.....	218	16	.....	..... 100 yards.
Nail in blaze in persimmon tree (6 inches diameter).....	247	33	10	..... 11.67 meters.
Nail in blaze in locust tree (12 inches diameter).....	328	54	50	..... 24.18 meters.

## WESTCOTTS WINDMILL.

*General locality.*—Northwestern side of Chester River about  $\frac{1}{8}$  mile inshore from northern end of Commegys Bight and  $1\frac{3}{8}$  miles northeast of Cliffs Landing. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 35 feet in height on a barn and near a water tank back of barn.

*Marks.*—Observed station is center point of windmill.

*References.*—None necessary.

## CORPSE.

*General locality.*—Southeastern shore of Chester River about  $\frac{3}{8}$  mile southeast of Deep Point,  $1\frac{1}{2}$  miles east-northeast of Spaniard Wharf and  $\frac{5}{8}$  mile southwest of Indiantown Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a sanded marsh strip about 1 foot above high water, 3 yards east of shore, 18 yards south-southeast of a point, 43 yards north by east of another point, and  $\frac{1}{8}$  mile west of a large house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Chester" (S 39° 24' W).....	0	00	00	..... $\frac{7}{8}$ mile.
Right tangent of Spaniard Wharf.....	30	29	.....	..... $1\frac{1}{2}$ miles.
Chimney of house near Cliffs Landing.....	61	43	.....	..... $1\frac{3}{4}$ miles.
Right peak of house on Deep Point.....	83	48	.....	..... $\frac{1}{2}$ mile.
Left one of two chimneys on south end of brick house.....	147	03	.....	..... 1 mile.
Left tangent of Indiantown Wharf.....	173	17	.....	..... $\frac{5}{8}$ mile.
Chimney of ell of house near Indiantown Wharf.....	181	53	.....	..... $\frac{5}{8}$ mile.
Left tangent of large house.....	228	11	.....	..... $\frac{1}{4}$ mile.
Right chimney of house.....	297	55	.....	..... $\frac{1}{8}$ mile.
Chimney outside of old house.....	359	07	.....	..... $\frac{1}{8}$ mile.

## DEEP POINT 2.

*General locality.*—Northwestern shore of Chester River on Deep Point about  $1\frac{1}{4}$  miles east of Cliffs Landing,  $1\frac{1}{4}$  miles northeast of Spaniard Wharf, and  $\frac{3}{4}$  mile west of Indiantown Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 1 foot above high water, among several cedar and poplar trees on a point, 13 yards northeast of shore, 21 yards southwest by west of shore, 40 yards north west of extreme end of point, and 120 yards southeast of a  $1\frac{1}{2}$ -story house. Cement monument marking reference station is on line with west end of house  $17.14$  meters N  $53^{\circ} 52'$  W of observed station.

*Marks.*—Observed station is nail in center of 2-inch tile pipe set in cement with top 2 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	/	"	
"Thorn" (N $40^{\circ} 10'$ E).....	0	00	00	$\frac{3}{4}$ mile.
Left chimney of house.....	11	43	..	$3\frac{3}{4}$ miles.
Left tangent of Ashland Wharf.....	13	04	..	$1\frac{3}{8}$ miles.
Near chimney on west peak of house.....	22	58	..	$2\frac{1}{2}$ miles.
Southwest peak of house near Indiantown Wharf.....	31	23	..	$\frac{7}{8}$ mile.
Nail in blaze in branch of cedar tree (15 inches diameter).....	45	27	00	11.48 meters.
Cupola on barn.....	61	43	..	1 mile.
Nail in blaze in poplar tree (11 inches diameter).....	93	54	00	15.02 meters.
Largest one of three chimneys of house.....	102	07	..	$1\frac{1}{4}$ miles.
Chimney of brick house.....	153	25	..	1 mile.
Chimney on near peak of house.....	233	39	..	$1\frac{1}{4}$ miles.
REFERENCE STATION.....	265	58	20	17.14 meters.
Nail in blaze in poplar tree (10 inches diameter).....	266	00	20	17.78 meters.
Right tangent of back of Westcott house.....	279	56	..	120 yards.
Nail in blaze in branch of double tree (8 inches diameter).....	340	43	00	19.74 meters.

## INDIAN.

*General locality.*—Southeastern shore of Chester River near Indiantown Wharf about  $\frac{3}{4}$  mile east-northeast of Deep Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 2 feet above high water, 10 yards east of shore end of Indiantown Wharf, 10 yards southeast of shore, 21 yards north of curved fence of yard of a small house, and 40 yards north by west of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	"	
"Corpse" (S $38^{\circ} 10'$ W).....	0	00	00	$\frac{5}{8}$ mile.
Right tangent of Spaniard Wharf.....	22	40	..	2 miles.
Right chimney of Westcott bungalow.....	34	55	..	$\frac{3}{4}$ mile.
Near corner of wharf house.....	72	50	..	100 yards.
Left tangent of Massey brick house.....	96	48	..	$\frac{1}{2}$ mile.
Large chimney of house beyond trees.....	146	08	..	1 mile.
Chimney of small house near Quaker Neck Wharf.....	161	24	..	$1\frac{1}{4}$ miles.
Left tangent of Ashland Wharf.....	176	19	..	$\frac{5}{8}$ mile.
Lone cedar tree.....	182	24	..	120 yards.
Nail in blaze in cedar tree (12 inches diameter).....	287	43	30	31.24 meters.

References—Continued.	°	'	''	
Near corner of house.....	288	24	..	..... 5/8 mile.
Nail in blaze in cedar tree (10 inches diameter).....	395	59	10	..... 18.68 meters.
Nail in blaze in cedar tree (20 inches diameter).....	319	41	10	..... 30.92 meters.
Right tangent of curved fence.....	324	40	..	..... 40 yards.
Chimney of large house.....	334	58	..	..... 1/2 mile.

## THORN.

*General locality.*—Northwestern shore of upper Chester River opposite White Cove near Westcott Wharf and about 3/4 mile northeast of Deep Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 6 feet above high water, 15 yards northwest of shore, 5 yards southwest of corner of board fence, 60 yards south-southeast of a brick house, and 42 yards southwest of piles of old wharf at shore line.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Shippen" (N 43° 17' E).....	0	00	00	..... 1/2 mile.
Near peak of large house.....	18	40	..	..... 4 1/2 miles.
Left tangent of Ashland Wharf.....	23	21	..	..... 5/8 mile.
Corner post of fence (4 inches diameter).....	33	23	10	..... 4.33 meters.
Cupola of barn.....	104	13	..	..... 7/8 mile.
Chimney of small house.....	159	09	..	..... 1 3/4 miles.
Near corner of Massey house.....	208	40	..	..... 1/8 mile.
Nail in blaze in peach tree (6 inches diameter).....	283	57	22	..... 13.74 meters.
Nail in blaze in fence post (3 inches diameter).....	338	27	20	..... 5.35 meters.

## ASHLAND.

*General locality.*—Southeastern shore of upper Chester River near Ashland Wharf and about 1/4 mile northeast of White Cove. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 1 foot above high water, 5 yards southeast of shore, 32 yards southwest of a fence, and 20 yards west-northwest of persimmon trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Indian" (S 43° 29' W).....	0	00	00	..... 1/2 mile.
Right tangent of Indiantown Wharf.....	5	44	..	..... 1/2 mile.
Chimney on ell of Massey house.....	37	46	..	..... 5/8 mile.
Chimney of small house.....	116	46	..	..... 3/4 mile.
Peak of Quaker Neck Wharf house.....	145	43	..	..... 3/4 mile.
Nail in blaze in fence post (4 inches diameter).....	171	12	50	..... 28.80 meters.
Nail in blaze in persimmon tree (3 inches diameter).....	247	22	50	..... 22.81 meters.
Nail in blaze in persimmon tree (3 inches diameter).....	289	34	10	..... 17.29 meters.
Chimney of summer house.....	356	04	..	..... 1/2 mile.

## SHIPPEN.

*General locality.*—Northwestern shore of Upper Chester River on point at southern side of entrance to Shippen Creek and nearly opposite Ashland Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a sand and marsh point about 1 foot above high water, 6 yards southwest of shore, 12 yards northeast of shore, 15 yards north of extreme end of sand point, and 25 yards southeast of trees along edge of cultivated field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Oyster" (N 38° 22' E).....	0	00	00	..... ¾ mile.
Chimney on left end of house.....	18	37	..	..... 2¼ miles.
Peak of barn.....	26	49	..	..... 2¼ miles.
Chimney on end of house.....	27	59	..	..... 2¼ miles.
Chimney on right end of house.....	54	23	..	..... 1 mile.
Left tangent of piles of Ashland Wharf.....	69	40	..	..... ¼ mile.
Chimney on near end of house.....	79	08	..	..... 1 mile.
Spindle on barn cupola.....	135	58	..	..... 1 mile.
Tangent of piles at Indiantown Wharf.....	154	35	..	..... ⅝ mile.
Tangent of Deep Point.....	182	24	..	..... 1¼ miles.
Near chimney of house.....	189	40	..	..... ½ mile.
Nail in blaze in pear tree (12 inches diameter).	263	35	40	..... 22.59 meters.
Nail in blaze in cedar tree (10 inches diameter).	292	46	10	..... 20.70 meters.
Near peak of barn.....	341	44	..	..... ⅝ mile.
Smoke pipe on Quaker Neck Wharf house...	359	56	..	..... ⅝ mile.

## BURNS.

*General locality.*—Southeastern shore of upper Chester River opposite Quaker Neck Wharf, about ½ mile northeast of Ashland Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in meadow land about 1 foot above high water, 10 yards southeast of shore, 50 yards southwest by south of point, 145 yards northeast by east of a fence, and 200 yards northwest of another fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Ashland" (S 45° 22' W).....	0	00	00	..... ⅝ mile.
Chimney of house on Westcott Wharf.....	18	36	..	..... 1¼ miles.
South peak of large barn.....	78	48	..	..... ⅝ mile.
Near chimney of Quaker Neck Wharf house..	89	20	..	..... ½ mile.
Left chimney of old house.....	108	41	..	.....
Left tangent of hook-shaped point of marsh..	183	22	..	..... ½ mile.
Near peak of house.....	196	25	..	..... 1½ miles.
Windmill.....	234	22	30	..... ¾ mile.
Chimney of house.....	280	56	..	..... 1 mile.
Left chimney of house on Ashland Road...	323	57	..	..... 1 mile.

## OYSTER.

*General locality.*—Northwestern shore of upper Chester River about ¼ mile northeast of Quaker Neck Wharf and ½ mile southwest of entrance to Jarretts Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a cultivated field about 20 feet above high water, 8 yards west-northwest of edge of bank, 9 yards north-northwest of edge of bank, 25 yards northeast by north of a cedar tree, 100 yards southwest of lowland, and 115 yards east of fence near a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Jarrett" (N 67° 48' E).....	0	00	00	..... 3/8 mile.
Left peak of Bookers Wharf house.....	21	00	..	..... 1 1/8 miles.
Cupola.....	50	14	..	..... 1 mile.
Windmill.....	50	55	..	..... 7/8 mile.
Left chimney of house.....	107	14	..	..... 1 3/8 miles.
Cupola on barn.....	123	50	..	..... 1 3/4 miles.
Nail in blaze in cedar tree (7 inches diam- eter).....	143	13	30	..... 24.90 meters.
Smoke pipe of wharf house.....	151	03	..	..... 1/8 mile.
Left chimney of house.....	180	43	..	..... 130 yards.
Left chimney of old house on near side of Jarretts Creek.....	277	29	..	..... 3/8 mile.
Chimney of house among trees.....	309	06	..	..... 1 1/4 miles.

## STARKLEY.

*General locality.*—Southeastern shore of upper Chester River about 3/4 mile east of Quaker Neck Wharf, and 1/2 mile southwest of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in meadow land about 1 foot above high water, 10 yards east by south of shore, 33 yards south of first cut in shore, 140 yards north by west of a fence, 145 yards southwest of point where another fence meets shore, and 275 yards south of large cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Burns" (S 61° 34' W).....	0	00	00	..... 1/2 mile.
Left chimney of Quaker Neck Wharf house..	39	02	..	..... 3/8 mile.
Right peak of barn.....	66	43	..	..... 1 mile.
Peak of middle dormer window of large house.	114	30	..	..... 3/4 mile.
Left peak of large house.....	163	49	..	..... 1 1/4 miles.
Left peak of Bookers Wharf house.....	187	48	..	..... 1/2 mile.
Large cedar tree.....	191	11	..	..... 275 yards.
Spindle on left cupola of barn.....	262	00	20	..... 1/2 mile.
Weathervane on barn.....	320	01	50	..... 1/2 mile.

## JARRETT.

*General locality.*—Northwestern shore of upper Chester River about 5/8 mile southwest of Melton Point, 1/4 mile east of entrance to Jarretts Creek, and 5/8 mile west of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 1 foot above high water, 14 yards north of shore, 50 yards from a short fence at shore, 65 yards west of entrance to slough, and 175 yards from another fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Melton" (N 61° 34' E).....	0	00	00	..... 5/8 mile.
Left peak of house on ridge.....	1	35	..	..... 1 1/2 miles.
Right peak of small house.....	47	58	..	..... 3/4 mile.
West peak of Bookers Wharf house.....	48	50	..	..... 3/8 mile.
Spindle on left cupola on barn.....	96	01	..	..... 3/4 mile.
Weathervane on cupola on barn.....	125	48	..	..... 1 mile.
Chimney of house near Indiantown Wharf...	155	29	..	..... 1 1/8 miles.
Large chimney of Massey brick house.....	169	16	..	..... 1 7/8 miles.
Smokepipe of Quaker Neck Wharf house....	182	50	..	..... 3/4 mile.
Peak of middle dormer window of large house.	299	07	..	..... 1/2 mile.

## BOOKER.

*General locality.*—Southeastern shore of upper Chester River about 175 yards northeast of Bookers Wharf and  $\frac{1}{2}$  mile south of Melton Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on sanded marsh land about 1 foot above high water, 6 yards southeast of shore, 13 yards east by south of a small point, 30 yards southwest by south of locust trees, 125 yards northwest by north of a house on 20-foot bank, and 140 yards northwest of a creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Starkley" (S $67^{\circ} 55' W$ ).....	0	00	00	$\frac{5}{8}$ mile.
Left chimney of Quaker Neck Wharf house..	17	46	..	$1\frac{1}{2}$ miles.
Near peak of house in woods.....	53	23	..	$\frac{3}{4}$ mile.
Peak of middle dormer window on left side of house among trees.....	68	05	..	$\frac{7}{8}$ mile.
Chimney of house.....	113	38	..	1 mile.
Nail in blaze in locust tree (4 inches diameter).....	182	23	40	29.46 meters.
Near peak of house on bank.....	293	48	..	125 yards.
Right peak of Bookers Wharf house.....	350	47	..	175 yards.

## JOURNEY.

*General locality.*—Eastern shore of upper Chester River opposite Melton Point about  $\frac{1}{2}$  mile northeast of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in cultivated land about 20 feet above high water, 3 yards southeast by east of edge of bank, south of large elm tree, and northeast of several sycamore and locust trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Booker" (S $28^{\circ} 15' W$ ).....	0	00	00	$\frac{1}{2}$ mile.
Right peak of Bookers Wharf house.....	4	24	..	$\frac{1}{2}$ mile.
Smokepipe of Quaker Neck Wharf house....	41	21	..	$1\frac{3}{4}$ miles.
Near peak of house with three dormer windows.....	77	01	..	$\frac{7}{8}$ mile.
Right chimney of $2\frac{1}{2}$ -story house.....	107	02	..	$1\frac{1}{2}$ miles.
Nail in blaze in elm tree (10 inches diameter).	134	27	40	22.70 meters.
Large cedar tree in yard near fence.....	187	30	..	400 yards.
Near peak of old house.....	318	16	..	200 yards.
Nail in blaze in sycamore tree (8 inches diameter).....	355	05	00	21.00 meters.

## MELTON.

*General locality.*—Western shore of upper Chester River on Melton Point about  $\frac{1}{2}$  mile north of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is about 2 feet above high water, 4 yards south of shore, 40 yards north of shore, 32 yards northwest of extreme end of point, 2 yards northeast of marsh, and 125 yards east-southeast of clump of cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	/	"	
"Pomona" (N 53° 38' W).....	0	00	00	5/8 mile.
Right chimney of house on knoll.....	17	17		1 1/2 miles.
Right peak of roof of building.....	68	07		5/8 mile.
Left chimney of house.....	118	37		3/8 mile.
Northwest chimney of house on bank near Bookers Wharf.....	219	20		1/2 mile.
Northwest peak of Bookers Wharf house.....	226	38		1/2 mile.
Smoke pipe of Quaker Neck Wharf house.....	296	46		1 1/4 miles.
Near chimney of house with dormer windows.....	346	50		5/8 mile.

## CAKE.

*General locality.*—Eastern shore of upper Chester River about 3/8 mile north of Melton Point and 7/8 mile north of Bookers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is in a marsh about 1 foot above high water, 13 yards east-southeast of shore, 35 yards northeast by north of shore, 35 yards northeast of rounded point, 150 yards north-northwest of entrance to a creek, 200 yards south-southwest of buildings, and 300 yards south of a house among trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	/	"	
"Journey" (S 36° 29' E).....	0	00	00	1/2 mile.
Chimney on ell of house to left of trees.....	3	40		5/8 mile.
Northwest peak of Bookers Wharf house.....	38	53		7/8 mile.
South chimney of near one of twin houses.....	142	49		3/4 mile.
East chimney of brick house among trees on ridge.....	169	16		1 1/2 miles.
South peak of building.....	229	41		1/4 mile.
Large lone tree on ridge.....	299	10		1/4 mile.
Left chimney of large house.....	324	39		1/4 mile.

## POMONA.

*General locality.*—Western shore of upper Chester River about 5/8 mile northwest of Melton Point and 1/2 mile south of entrance to Browns Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is among small trees near edge of cultivated field, about 12 feet above high water, 6 yards west of edge of bank, and 8 yards from top of slope to marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	/	"	
"Taste" (N 5° 30' W).....	0	00	00	1/2 mile.
Nail in blaze in locust tree (3 inches diam- eter).....	14	28	20	5.23 meters.
Windmill.....	52	29	30	2 miles.
Right corner of house.....	71	49		1 1/4 miles.
Large lone tree in field.....	93	20		1 1/4 miles.
Left chimney of large house.....	103	47		1 1/2 miles.
Ell of house to left of trees.....	126	48		1 1/2 miles.
Nail in blaze in locust tree (4 inches diam- eter).....	167	10	50	7.74 meters.
Nail in blaze in cedar tree (8 inches diam- eter).....	196	39	40	12.18 meters.
Large cherry tree.....	277	32		300 yards.

## BILL.

*General locality.*—Eastern shore of upper Chester River about  $\frac{3}{4}$  mile north of Melton Point and nearly opposite Browns Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in grove of elm, ash, and oak trees on north side of a point about 20 feet above high water, 7 yards south-southeast of edge of bank, 30 yards east-northeast of a small house, and 40 yards west-southwest of a fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Cake" (S 15° 41' E).....	0	00	00	..... $\frac{3}{8}$ mile.
Right peak of Bookers Wharf house.....	12	04	..	..... $1\frac{1}{4}$ miles.
Nail in blaze in elm tree (10 inches diameter).....	20	43	40	..... 12.37 meters.
Nail in blaze in elm tree (9 inches diameter).....	69	23	10	..... 9.92 meters.
Nail in blaze in oak tree (24 inches diameter).....	129	28	40	..... 2.95 meters.
East chimney of brick house.....	137	29	..	..... $\frac{3}{4}$ mile.
Peak of sharp roof.....	155	53	..	..... $\frac{1}{2}$ mile.
"Robertson Windmill".....	243	52	40	..... $2\frac{1}{4}$ miles.
Spindle on peak of house on Rolphs Wharf.....	247	37	40	..... $2\frac{3}{4}$ miles.
Nail in blaze in tree (8 inches diameter).....	280	24	50	..... 7.60 meters.
Left chimney of house on ridge.....	322	17	..	..... $\frac{3}{4}$ mile.
Nail in blaze in tree (15 inches diameter).....	343	25	10	..... 12.30 meters.
Chimney on ell of house.....	349	32	..	..... 1 mile.

## TASTE.

*General locality.*—Western shore of upper Chester River on point at east side of entrance to Browns Creek, about 1 mile northwest of Melton Point. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a marsh point between Chester River and Browns Creek, about 5 yards north of shore of Chester River, 30 yards south of shore of Browns Creek, 50 yards south-west of point of shore of Browns Creek, and 55 yards west-southwest of cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Make" (N 52° 14' E).....	0	00	00	..... $\frac{3}{8}$ mile.
Windmill.....	7	11	30	..... $1\frac{1}{4}$ miles.
Chimney of house.....	25	20	..	..... $1\frac{1}{4}$ miles.
Left chimney of house on ridge.....	68	58	..	..... $1\frac{1}{4}$ miles.
Chimney on ell of house.....	84	20	..	..... $1\frac{1}{4}$ miles.
West chimney of left one of twin houses.....	142	19	..	..... $\frac{3}{8}$ mile.
Right chimney of brick house.....	266	13	..	..... $\frac{3}{4}$ mile.
Largest cedar tree in clump (15 inches diameter).....	350	28	00	..... 54 yards.

## MAKE.

*General locality.*—Western shore of upper Chester River about  $1\frac{1}{8}$  miles north of Melton Point and  $\frac{3}{8}$  mile northeast of entrance to Browns Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is in pasture land about 2 feet above high water, 10 yards north of shore, 110 yards west of tangent of point of curve of shore, and 325 yards southeast of farm buildings behind trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.



References.—

	°	'	"	
"Broad" (N 61° 13' E).....	0	00	00	1/2 mile.
Windmill.....	0	22	30	1 1/2 miles.
Near peak of canning house at Wilmers Wharf.....	18	26		1 3/8 miles.
Chimney on ell of house on ridge.....	45	45		1 1/4 miles.
Left chimney of house on ridge.....	80	05		1 1/2 miles.
Spindle on cupola on barn.....	118	55		2 1/4 miles.
Left chimney of left one of twin houses.....	155	18		3/4 mile.
West chimney of house.....	227	30		1 mile.
South peak of building in woods.....	307	04		1 mile.

DOWN.

*General locality.*—Southeastern shore of upper Chester River about 2 miles southwest of entrance to Southeast Creek and 1 mile east of entrance to Browns Creek. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a small rounded point of sanded marsh about 1 foot above high water, 5 yards south of shore, 40 yards east by south of an inlet, and 95 yards west of a fence beyond trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Bill" (S 73° 52' W).....	0	00	00	1/2 mile.
East peak of large barn.....	33	37		1 mile.
Chimney of house.....	75	53		1 1/2 miles.
"Robertson Windmill".....	138	57	20	1 mile.
Right peak of small house near Rolphs Wharf.....	153	54		2 1/4 miles.
Left peak of taller of two barns.....	197	17		1/2 mile.
Nail in blaze in cedar tree (5 inches diameter).....	232	06	10	52.50 meters.
Nail in blaze in cedar tree (5 inches diameter).....	253	25	40	47.18 meters.
Nail in blaze in pear tree (3 inches diameter).....	348	29	50	14.34 meters.

JULIUS.

*General locality.*—Southeastern shore of upper Chester River about 1/2 mile southwest of Wilmers Wharf. (See Chart No. 30.)

*Immediate locality.*—Observed station is on a sanded grass point fringed by cedar trees and about 2 yards south of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Down" (S 56° 12' W).....	0	00	00	1/2 mile.
Chimney of left one of twin houses.....	10	37		1 1/2 miles.
Near peak of large barn.....	37	29		1 mile.
Middle one of three large trees.....	39	50		7/8 mile.
"Robertson Windmill".....	130	23	30	1 1/2 miles.
South chimney of house at Rolphs Wharf.....	165	38		1 5/8 miles.
Weather vane on large barn.....	176	18		1 1/4 miles.
Northwest peak of Wilmers Wharf cannery.....	187	53		3/8 mile.
Nail in blaze in cedar tree (8 inches diameter).....	198	52	00	4.77 meters.
Nail in blaze in cedar tree (8 inches diameter).....	318	06	20	4.30 meters.
Nail in blaze in cedar tree (9 inches diameter).....	345	21	00	13.11 meters.

## BROAD.

*General locality.*—Northwestern side of upper Chester River on an island at entrance to Broad Creek about 1 mile northeast of entrance to Browns Creek. (See Progress map.)

*Immediate locality.*—Observed station is on western end of a marsh island about 9 yards north of shore, 43 yards south of shore, and 52 yards east-southeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Nils" (N 80° 24' E).....	0	00	00	..... ½ mile.
Near peak of cannery.....	7	17	..	..... 1⅛ miles.
Chimney on ell of house on ridge.....	51	09	..	..... 2¾ miles.
Right peak of barn.....	98	26	..	..... 1 mile.
Peak of middle dormer window of large house.	132	08	..	..... 1½ miles.
East peak of large barn to left of large tree....	190	34	..	..... 1 mile.
"Robertson Windmill".....	341	25	30	..... 1½ miles.

## NILS.

*General locality.*—Northwestern shore of upper Chester River about ¾ mile west of entrance to Southeast Creek and ½ mile east of an island at entrance to Broad Creek. (See Progress map.)

*Immediate locality.*—Observed station is in edge of cultivated field about 5 feet above high water, 4 yards north of shore, 110 yards east by south of tangent of point of curve of shore, and 450 yards southwest of a house and windmill.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Robertson" (N 59° 04' E).....	0	00	00	..... ½ mile.
Weather vane on southwest peak of largest barn on ridge.....	10	46	..	..... 1½ miles.
North peak of Wilmers Wharf cannery.....	37	03	..	..... ½ mile.
Chimney of house near Wilmers Wharf.....	41	52	..	..... ¼ mile.
West chimney of large house on ridge.....	133	32	..	..... 1 mile.
Near peak of roof of house on hill.....	158	22	..	..... 1 mile.
"Robertson Windmill".....	336	55	..	..... ¼ mile.

## WILMERS.

*General locality.*—Southeastern shore of upper Chester River on southwest side of entrance to Southeast Creek about 175 yards northeast of Wilmers Wharf. (See Progress map.)

*Immediate locality.*—Observed station is on a sanded grass point between river and marsh about 3 feet above high water, 7 yards east of shore, 5 yards southwest of shore, and 6 yards southeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Julius" (S 60° 34' W).....	0	00	00	..... 1½ mile.
Chimney on near one of twin houses.....	4	58	..	..... 2¼ miles.
East peak of large barn.....	27	14	..	..... 1½ miles.
"Robertson Windmill".....	74	09	30	..... ⅝ mile.
Cupola on Robertson barn.....	83	23	..	..... ¼ mile.
Flagpole on Rolphs Wharf.....	154	06	20	..... 1¼ miles.
Weather vane on large barn.....	169	23	..	..... 1½ miles.
Cupola on barn.....	212	59	..	..... 300 yards.
Cupola on barn.....	284	57	..	..... ⅝ mile.
Right peak of Wilmers Wharf cannery.....	348	26	..	..... 175 yards.

ROBERTSON WINDMILL.

*General locality.*—Northwestern side of upper Chester River opposite entrance to Southeast Creek about  $1\frac{1}{4}$  miles southeast of Rolphs Wharf. (See Progress map.)

*Immediate locality.*—Observed station is windmill on high tower in rear of house.

*Marks.*—Observed station is center point of windmill.

*References.*—None necessary.

ROBERTSON.

*General locality.*—Northwestern shore of upper Chester River near Riverside Wharf opposite entrance to Southeast Creek. (See Progress map.)

*Immediate locality.*—Observed station is about 2 feet above high water, 5 yards northwest of shore, 45 yards northeast of shore end of a wharf, and 100 yards southwest of a point of land.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Thorsten" (N 52° 00' E).....	0	00	00	..... $\frac{5}{8}$ mile.
Weather vane on large barn .....	9	30	..	..... $1\frac{3}{4}$ miles.
Cupola on old barn.....	50	31	..	..... $1\frac{1}{2}$ miles.
Chimney of house near Wilmers Wharf.....	97	11	..	..... $\frac{3}{8}$ mile.
Pinnacle on cupola on barn.....	105	15	..	..... $\frac{1}{2}$ mile.
Northwest peak of cannery.....	117	41	..	..... $\frac{1}{4}$ mile.
Weather vane on cupola on barn.....	256	15	20	..... $\frac{1}{4}$ mile.
Spindle on cupola on another barn.....	260	56	..	..... $\frac{1}{4}$ mile.
Spindle on peak of Rolphs lower wharf house.	359	29	..	..... $1\frac{1}{4}$ miles.

SOUTHEAST.

*General locality.*—Southeastern shore of upper Chester River on Deep Point at northeastern side of entrance to Southeast Creek about  $\frac{3}{4}$  mile south-southwest of Rolphs Wharf and  $\frac{1}{2}$  mile northeast of Wilmers Wharf. (See Progress map.)

*Immediate locality.*—Observed station is on cultivated land about 15 feet above high water, 19 yards south of edge of bank, 21 yards east by north of edge of bank, and 27 yards east by south of extreme point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Wilmers" (S 57° 46' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Right tangent of Wilmers Wharf.....	2	57	..	..... $\frac{1}{2}$ mile.
"Robertson Windmill".....	34	41	20	..... $\frac{3}{4}$ mile.
Spindle on cupola on barn.....	38	02	..	..... $\frac{3}{4}$ mile.
Weather vane on cupola on barn .....	38	32	..	..... $\frac{3}{4}$ mile.
Near peak of long small shanty.....	118	31	..	..... 2 miles.
Left peak of large barn.....	134	39	..	..... $1\frac{1}{4}$ miles.
Flagstaff on Rolphs Wharf house.....	140	54	10	..... $\frac{7}{8}$ mile.
Right peak of long barn.....	191	46	..	..... $\frac{3}{4}$ mile.
Lightning rod between two chimneys on house.....	248	51	..	..... $\frac{7}{8}$ mile.
Right peak of Wilmers Wharf cannery.....	358	34	..	..... $\frac{5}{8}$ mile.

## THORSTEN.

*General locality.*—Northwestern shore of upper Chester River about  $\frac{3}{4}$  mile northeast of Wilmers Wharf and  $\frac{1}{2}$  mile north of entrance to Southeast Creek. (See Progress map.)

*Immediate locality.*—Observed station is about 3 feet above high water, 12 yards northwest of shore, 10 yards northeast of short fence, and 4 yards southeast of lone cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Blank" (N 19° 37' E).....	0	00	00	..... $\frac{3}{8}$ mile.
Northwest peak of large barn.....	4	34	..	..... $1\frac{1}{4}$ miles.
Northwest peak of large barn.....	21	09	..	..... 1 mile.
Flagstaff on Rolphs Wharf.....	23	33	..	..... $\frac{3}{8}$ mile.
Weather vane on very large barn.....	48	01	..	..... $1\frac{1}{4}$ miles.
West peak of barn behind wharf.....	81	03	..	..... 1 mile.
Lightning rod to right of two chimneys of house.....	111	15	..	..... $1\frac{3}{4}$ miles.
Nail in blaze in fence post.....	115	15	30	..... 8.85 meters.
Top point of roof of large brick house on ridge.....	135	05	40	..... $2\frac{1}{4}$ miles.
Spindle on cupola on left one of two barns at Wilmers Wharf.....	177	08	40	..... $\frac{3}{4}$ mile.
Northwest peak of Wilmers Wharf cannery.....	190	15	..	..... $\frac{3}{4}$ mile.
Nail in blaze in cedar tree (10 inches diameter).....	279	43	30	..... 3.40 meters.

## BLANK.

*General locality.*—Northwestern shore of upper Chester River about  $\frac{1}{4}$  mile west of Rolphs Wharf and  $\frac{3}{4}$  mile north of entrance to Southeast Creek. (See Progress map.)

*Immediate locality.*—Observed station is on a grassy point about 2 feet above high water, 7 yards west of shore, 9 yards north of shore, 8 yards northwest of extreme end of point, and 40 yards from a dense clump of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Rolphs" (N 82° 37' E).....	0	00	00	..... $\frac{1}{4}$ mile.
Weather vane on wharf house.....	10	19	..	..... $\frac{1}{4}$ mile.
Left peak of wharf house.....	71	30	..	..... $\frac{1}{2}$ mile.
Left peak of small house among trees.....	104	28	30	..... $1\frac{3}{4}$ miles.
Spindle on barn cupola.....	115	06	..	..... $1\frac{3}{4}$ miles.
Peak of middle dormer window of house.....	271	38	..	..... $1\frac{1}{4}$ miles.
Peak of large barn.....	333	25	..	..... $\frac{3}{8}$ mile.
Flagstaff on Rolphs Wharf house.....	356	27	..	..... $\frac{1}{4}$ mile.

## ROLPHS.

*General locality.*—Eastern shore of upper Chester River about 100 yards southeast of Rolphs Wharf and  $\frac{3}{4}$  mile north of entrance to Southeast Creek. (See Progress map.)

*Immediate locality.*—Observed station is on a grass bank between two large willow trees about 6 feet above high water, 5 yards northeast of shore, 19 yards south-southwest of side gate to yard, and 7 yards southwest of a road 3 feet higher than observed station.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Southeast" (S 22° 53' W).....	0	00	00	..... ¾ mile.
Peak of Wilmers Wharf cannery.....	15	06	..	..... 1¼ miles.
Flagstaff on Rolphs Wharf.....	76	59	..	..... 100 yards.
Nail in blaze in willow tree (24 inches diameter).....	88	06	20	..... 7.76 meters.
Chimney on ell of Story house.....	151	36	..	..... 53 yards.
Nail in blaze in willow tree (27 inches diameter).....	220	31	10	..... 13.96 meters.
Chimney on ell of Story house.....	261	56	..	..... 120 yards.
Nail in blaze in willow tree (25 inches diameter).....	309	26	40	..... 8.51 meters.
Weather vane on middle of lower wharf house.	347	42	..	..... 100 yards.

CRANEY.

*General locality.*—Eastern shore of Chesapeake Bay on western shore of Kent Island about ½ mile north of Crane Creek and 4½ miles east of Tolly Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is about 3 feet above and 30 feet back from high water on a low, sandy, cultivated field. A group of farm buildings stand about ¼ mile away. Cement monument marking reference station is 4.88 meters N 85° 36' E of observed station.

*Marks.*—Observed station is a nail in a wooden stub projecting 3 inches above surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	/	''	
"Thomas Point Light" (S 56° 45' W).....	0	00	00	..... 4¾ miles.
"Greenbury Point Shoal Light".....	57	27	30	..... 5¼ miles.
"Sandy Point Light".....	111	26	30	..... 5¾ miles.
REFERENCE STATION.....	208	51	10	..... 4.88 meters.
Cupola on barn.....	258	11	..	..... ¼ mile.
Extreme south tangent of Kent Island.....	310	52	..	..... 6 miles.

THOMAS POINT SHOAL LIGHT.

*General locality.*—Western side of Chesapeake Bay offshore about 1¼ miles southeast of Thomas Point and 3 miles south of entrance to channel to Annapolis. (See Chart No. 31.)

*Immediate locality.*—Observed station is on a hexagonal screw-pile structure known as Thomas Point Shoal Lighthouse.

*Marks.*—Observed station is center point of lantern on Thomas Point Shoal Lighthouse.

*Reference.*—

	o	/	''	
"Thomas 3" (N 56° 07' W).....	0	00	00	..... 1¼ miles.

BLOODY POINT BAR LIGHT.

*General locality.*—Offshore of southwestern end of Kent Island on northern side of entrance to Eastern Bay about 1½ miles southwest of Bloody Point and 1¼ miles west of Kent Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is on tower on caisson structure known as Bloody Point Bar Lighthouse.

*Marks.*—Observed station is center point of lantern on Bloody Point Bar Lighthouse.

*Reference.*—

	o	/	''	
"Valliant" (S 4° 59' E).....	0	00	00	..... 4½ miles.

## TENK.

*General locality.*—Northern side of entrance to Eastern Bay on Kent Point about  $1\frac{1}{2}$  miles east of Bloody Point Bar Light. (See Chart No. 31.)

*Immediate locality.*—Observed station is in about 2 feet of water, 18 yards off shore of Kent Point, 50 yards southwest of point of land, and 65 yards south-southeast of another point of land. Cement monument marking reference station is 35.94 meters N  $36^{\circ} 15' W$  of observed station.

*Marks.*—Observed station is nail in center of 3-inch square stub in water with top about on level with high water. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

	o	/	''	
"Bloody Point Bar Light" (S $86^{\circ} 34' W$ )....	o	oo	oo	..... $1\frac{1}{4}$ miles.
REFERENCE STATION.....	57	11	30	..... 35.94 meters.
Chimney of house on Tilghmans Point Farm..	169	26	..	..... $5\frac{1}{8}$ miles.
"Rich Neck Water Tank".....	175	48	10	..... $5\frac{1}{4}$ miles.
Flagpole on Claiborne train shed.....	181	14	..	..... $4\frac{1}{2}$ miles.
Right chimney of house.....	188	34	..	..... $4\frac{1}{2}$ miles.
"Kemp Tower".....	190	21	30	..... $3\frac{3}{8}$ miles.
Right chimney of brick house.....	206	17	..	..... $3\frac{3}{4}$ miles.
Right chimney of house.....	240	12	..	..... $4\frac{1}{2}$ miles.
Chimney left of house among trees on Poplar Island.....	278	26	..	..... $3\frac{3}{4}$ miles.

## STRAIGHT.

*General locality.*—Northern shore of Eastern Bay on Long Point about  $2\frac{1}{4}$  miles northeast of Kent Point,  $2\frac{1}{8}$  miles northwest of Wades Point, and  $\frac{1}{8}$  mile northeast of entrance to Long Point Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a cultivated field about 8 feet above high water, 35 yards west of edge of bank, 45 yards northwest of edge of bank near a tree, 80 yards south-southwest of fence corner, 245 yards south-southeast of fence corner at gate, and 175 yards east-southeast of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Needle" (N $48^{\circ} 15' E$ ).....	o	oo	oo	..... $4\frac{1}{8}$ miles.
Left tangent of Tilghmans Point.....	35	07	..	..... $4\frac{1}{8}$ miles.
Chimney of house on Tilghmans Point Farm..	42	27	..	..... $4\frac{1}{8}$ miles.
"Kemp Tower".....	83	46	oo	..... $2\frac{1}{8}$ miles.
Nail in blaze in red oak tree (22 inches diam- eter).....	113	59	oo	..... 31.06 meters.
Right tangent of woods on Poplar Island.....	155	30	..	..... $5\frac{3}{4}$ miles.
Left tangent of woods on Kent Point.....	179	48	..	..... 2 miles.
South peak of building.....	264	18	..	..... $\frac{1}{2}$ mile.
East peak of barn.....	317	48	..	..... $\frac{3}{4}$ mile.
South chimney of house.....	330	10	..	..... $\frac{1}{4}$ mile.

## MOUTH.

*General locality.*—Northern shore of Eastern Bay on eastern shore of Kent Island about  $1\frac{1}{4}$  miles north of Long Point,  $3\frac{3}{8}$  miles northwest of Claiborne Wharf, and  $3\frac{1}{4}$  miles southwest of Bodkin Island. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a cultivated field about 8 feet above high water, 10 yards west of top of a bank with uniform slope to shore, 50 yards south of a small cove, and 20 yards south of a group of cedar trees near shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Matta" (N 5° 49' W).....	0	00	00	2¼ miles.
South gable of barn.....	26	41	..	4¼ miles.
West gable of house.....	33	35	..	2¼ miles.
Right tangent of woods on Turkey Point.....	50	25	..	3 miles.
"Parsons Island Water Tank".....	66	43	00	5½ miles.
North gable of barn.....	74	49	..	6¼ miles.
Left tangent of woods on Tilghmans Point.....	103	05	..	4¼ miles.
South chimney of house on Tilghmans Point				
Farm.....	112	19	..	4 miles.
"Rich Neck Water Tank".....	124	48	40	3¾ miles.
South gable of Claiborne Wharf house.....	137	41	..	3½ miles.
"Kemp Tower".....	154	09	00	3½ miles.
East chimney of Legg house.....	224	59	..	¾ mile.
Chimney of small house.....	286	35	..	1½ miles.
South gable of barn.....	342	46	..	1¾ miles.

## MATTA.

*General locality.*—Northern shore of Eastern Bay on eastern shore of Kent Island at western side of entrance to Shipping Creek about 2 miles west of Turkey Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is in cultivated field about 15 feet above high water, 125 yards southwest of extreme end of point, 25 yards northwest of dry ditch, and 200 yards northwest of lone cedar tree near shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Batts" (N 67° 45' E).....	0	00	00	1 mile.
North chimney of house.....	17	54	..	2 miles.
Left tangent of woods on Tilghmans Point.....	54	30	..	5¾ miles.
North chimney of house on Tilghmans Point				
Farm.....	62	34	..	5¼ miles.
"Rich Neck Water Tank".....	71	31	00	5½ miles.
Left tangent of woods on Long Point.....	105	49	..	2½ miles.
Chimney of Greeve house.....	124	53	..	¼ mile.
South chimney of house.....	231	14	..	¾ mile.
South cupola on barn.....	247	39	..	⅞ mile.
East chimney of house.....	273	58	..	1½ miles.
Chimney of small house.....	296	12	..	1¼ miles.
West chimney of house.....	305	45	..	1½ miles.

## THEN.

*General locality.*—Western shore of small bay at entrance to Shipping Creek about ¾ mile northwest of Eastern Bay, ¾ mile northeast of entrance to narrow part of Shipping Creek, and at western side of entrance to a smaller creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 33 yards west of shore, 40 yards south of shore, 50 yards north of shore at line between hard land and marsh, 8 yards east of pasture land, and ¼ mile east of 2½-story house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Some" (N 68° 51' E).....	0	00	00	1/2 mile.
Near peak of brick house.....	16	50	..	5/8 mile.
Large lone tree on point.....	46	08	30	3/4 mile.
"Rich Neck Water Tank".....	74	53	30	6 miles.
Weather vane on barn cupola.....	110	34	30	3 miles.
Right corner of large house.....	115	32	..	1 mile.
Large lone tree in field.....	178	12	..	250 yards.
Near peak of house.....	200	43	..	1/4 mile.
Near peak of house.....	247	04	..	3/8 mile.
Left peak of house.....	300	50	..	1/2 mile.
Left peak of large house.....	323	36	..	1/2 mile.

## SOME.

*General locality.*—Northern shore of small bay at entrance to Shipping Creek on a point between two small creeks about 3/4 mile north of Eastern Bay and 2 miles northwest of Turkey Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a cultivated field about 5 feet above high water, 20 yards northeast of marsh, 30 yards northwest of edge of bank, 28 yards east of edge of bank, 50 yards northeast of shore of Shipping Creek, and 53 yards southwest of shore of small creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Batts" (S 49° 01' E).....	0	00	00	3/4 mile.
Large lone tree.....	18	55	..	1/2 mile.
Peak between two chimneys of large house..	72	18	..	1 1/8 miles.
Right peak of barn.....	105	01	..	1 1/8 miles.
Near peak of house.....	125	20	..	3/4 mile.
Near peak of large barn.....	171	45	..	3/8 mile.
Left chimney of old house.....	194	07	..	1/4 mile.
Spindle on cupola on barn.....	221	37	..	1/2 mile.
Large pine tree.....	307	21	..	3/8 mile.
Left corner of large house.....	339	25	..	3/4 mile.

## BATTS.

*General locality.*—Northern shore of Eastern Bay on southern end of Batts Neck between Shipping and Cox Creeks about 1 1/4 miles northwest of Turkey Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is in cultivated field about 2 feet above high water, 21 yards north of shore, and 100 yards west of a wire fence extending 100 yards into bay.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument. Station "COXES CREEK," 1899, is 87.70 meters N 72° 20' E of observed station and is marked by the center of a cross in the top of a granite post about 12 inches square in the rough and about 27 inches long projecting 5 inches above surface of ground. The top of the granite post is dressed to a 6-inch cube marked with a square cross and the letters "U. S." Subsurface mark is center of neck of a bottle buried with top 3 inches below base of granite post.

## References.—

	°	'	''	
"Turkey" (S 58° 24' E).....	0	00	00	1 1/4 miles.
North chimney of house on Tilghmans Point Farm.....	19	25	..	5 miles.
"Rich Neck Water Tank".....	28	26	00	5 1/4 miles.
Nail in blaze in one of twin persimmon trees (4 inches diameter).....	37	36	40	3.94 meters.
Left tangent of woods on Long Point.....	69	48	..	3 1/4 miles.



References—Continued.

	°	'	''	
East gable of house.....	76	30	..	2½ miles.
Nail in blaze in persimmon tree (6 inches diameter).....	91	13	50	9.76 meters.
South chimney of house.....	202	08	..	¾ mile.
South chimney of house.....	242	32	..	¾ mile.
South gable of barn.....	271	54	..	1½ miles.
North chimney of house.....	293	22	..	1¾ miles.
"Coxes Creek" 1899 (granite post).....	310	44	20	87.70 meters.
North chimney of house.....	341	07	..	1½ miles.

TOP.

*General locality.*—Western shore of Cox Creek about 1 mile north of Eastern Bay and 1 mile south of Warehouse Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on cupola of a barn about 150 yards east of shore.

*Marks.*—Observed station is center point of top of cupola on barn.

*References.*—None necessary.

WARE.

*General locality.*—Western shore of Cox Creek about 2 miles north of Eastern Bay and ¼ mile south of entrance to Warehouse Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a cultivated field about 15 feet above high water, 300 yards northwest of end of point, and 90 yards south of wire fence extending east and west.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Tuxon" (N 13° 45' E).....	0	00	00	¾ mile.
South gable of house.....	1	11	..	1½ miles.
South chimney of house.....	19	05	..	1¼ miles.
North chimney of house.....	34	50	..	1 mile.
Cupola on barn.....	99	46	..	¾ mile.
North chimney of house.....	171	48	..	1¼ miles.
South chimney of house.....	257	55	..	350 yards.
South chimney of house.....	307	54	..	½ mile.

COFFEE.

*General locality.*—Southwestern shore of Warehouse Creek on a point about ½ mile northwest of Cox Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 9 yards south of point of shore, 13 yards southwest of shore, 17 yards west-northwest of shore at fence, 12 yards north of fence, 29 yards east-northeast of corner of fence, and 250 yards north by east of house with two chimneys.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Here" (N 53° 46' W).....	0	00	00	¾ mile.
Left peak of barn.....	22	49	..	1¼ miles.
Left chimney of brick house.....	51	40	..	1¼ miles.
West chimney of house.....	100	41	..	1¼ miles.
Near peak of house.....	113	46	..	1¼ miles.
Left peak of house.....	136	11	..	1½ miles.
Cupola on barn.....	160	33	..	1½ miles.
Nail in blaze in fence post.....	173	15	30	16.57 meters.
Nail in blaze in fence post.....	220	34	40	12.29 meters.
Near corner of house.....	226	02	..	250 yards.
Nail in blaze in fence post.....	245	59	30	14.14 meters.

## HERE.

*General locality.*—Southwestern shore of Warehouse Creek on a point at northwestern side of entrance to a small cove about  $\frac{3}{4}$  mile northwest of Cox Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 17 yards west of shore, 20 yards southwest of shore, 25 yards northwest of shore, 60 yards north of shore, 3 yards southeast of one-strand barbed-wire fence, and  $\frac{1}{4}$  mile east to southeast of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Samuel" (N 31° 22' E).....	0	00	00	..... $\frac{1}{4}$ mile.
Chimney outside northwest end of large house	29	34	..	..... 1 $\frac{1}{8}$ miles.
Near peak of house.....	43	01	..	..... 1 $\frac{3}{8}$ miles.
Cupola on barn.....	79	17	..	..... 1 $\frac{3}{4}$ miles.
Cupola on barn.....	96	45	..	..... 1 $\frac{3}{4}$ miles.
Middle north chimney of large old brick house	115	39	..	..... $\frac{3}{4}$ mile.
Peak of side gable of house.....	185	54	..	..... 1 $\frac{1}{2}$ miles.
Left end of large house.....	314	40	..	..... $\frac{3}{4}$ mile.

## SAMUEL.

*General locality.*—Northeastern shore of Warehouse Creek on a point at northwestern side of entrance to a small cove about  $\frac{3}{4}$  mile northwest of Cox Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on long marsh point about 1 foot above high water, 9 yards east of shore of Warehouse Creek, 23 yards west-southwest of shore of small cove, 18 yards north of point, and 27 yards west of another point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Liver" (S 56° 31' E).....	0	00	00	..... $\frac{3}{8}$ mile.
Spindle on barn cupola.....	12	19	..	..... 1 $\frac{3}{4}$ miles.
Near peak of small house.....	34	56	..	..... $\frac{5}{8}$ mile.
Left chimney of large house.....	92	52	..	..... 1 $\frac{1}{2}$ miles.
Chimney of house showing through trees....	208	43	..	..... $\frac{3}{4}$ mile.
Left corner of large brick house.....	247	45	..	..... 1 $\frac{1}{4}$ miles.
Chimney outside of near end of house.....	304	12	..	..... 1 $\frac{1}{4}$ miles.
Left peak of house.....	339	08	..	..... 1 $\frac{1}{4}$ miles.
Cupola on barn.....	353	59	10	..... 1 $\frac{1}{2}$ miles.

## LIVER.

*General locality.*—Northeastern shore of Warehouse Creek on a point at western side of entrance to a small cove about  $\frac{1}{4}$  mile northwest of Cox Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 15 yards northwest of shore, 17 yards southeast of shore, 30 yards north of point of shore, 30 yards northeast of extreme end of point, and 250 yards southwest by south of three large trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Tuxon" (N 83° 37' E).....	0	00	00	..... $\frac{3}{8}$ mile.
Left peak of house.....	10	23	..	..... 1 mile.
Cupola on barn.....	32	16	..	..... 1 $\frac{1}{4}$ miles.
Left tangent of left chimney of large house...	94	18	..	..... 1 $\frac{3}{4}$ miles.
Right peak of small house.....	118	20	..	..... $\frac{3}{8}$ mile.
Left peak of house with three dormer win-				
dows.....	237	10	..	..... 1 mile.
Left peak of very large barn.....	281	55	..	..... 1 $\frac{1}{8}$ miles.
Clump of pine trees.....	299	34	..	..... 250 yards.
West chimney of house.....	326	31	..	..... 1 $\frac{1}{8}$ miles.

## TUXON.

*General locality.*—Western shore of Cox Creek on a point about 3 miles north of Eastern Bay,  $\frac{1}{2}$  mile south of entrance to Thompsons Creek, and  $\frac{1}{4}$  mile northeast of entrance to Warehouse Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on marsh about 2 feet above high water and 50 yards west of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 8 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Greek" (S 51° 51' E).....	0	00	00	..... $\frac{1}{2}$ mile.
East chimney of house.....	41	10	..	..... $\frac{3}{8}$ mile.
"Top" (cupola on barn).....	61	37	..	..... $1\frac{1}{8}$ miles.
North chimney of house.....	77	45	..	..... $\frac{3}{4}$ mile.
North chimney of house.....	107	28	..	..... $\frac{5}{8}$ mile.
South gable of barn.....	198	06	..	..... 1 mile.
North chimney of house.....	265	55	..	..... $\frac{3}{4}$ mile.
North chimney of house.....	288	06	..	..... $\frac{5}{8}$ mile.
North chimney of house.....	333	02	..	..... $\frac{1}{2}$ mile.
Cupola on barn.....	357	44	..	..... $1\frac{1}{8}$ miles.

## STEVE.

*General locality.*—Western shore of Cox Creek on a point about  $3\frac{1}{4}$  miles north of Eastern Bay at southwestern side of entrance to Thompsons Creek and  $\frac{1}{2}$  mile north of entrance to Warehouse Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 27 yards south of shore, 35 yards north of shore, 20 yards west of a point of shore, and 35 yards east of a point of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Thompson" (N 37° 13' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Chimney of small house.....	1	03	..	..... $\frac{3}{4}$ mile.
Right peak of very large house.....	30	08	..	..... 1 mile.
Near corner of large house.....	65	50	..	..... $\frac{3}{4}$ mile.
Near corner of large house.....	92	28	..	..... $\frac{5}{8}$ mile.
Near peak of house.....	124	07	..	..... $\frac{1}{2}$ mile.
Near peak of house.....	164	38	..	..... $\frac{3}{4}$ mile.
Weather vane on house with two chimneys..	209	03	..	..... $1\frac{1}{4}$ miles.
Left chimney of small house.....	234	45	..	..... $1\frac{1}{8}$ miles.
Right peak of small house.....	253	12	..	..... $1\frac{1}{4}$ miles.
Near peak of house.....	329	44	..	..... 1 mile.
Left corner of brick house.....	355	18	..	..... $\frac{3}{4}$ mile.

## THOMPSON.

*General locality.*—Western shore of Thompsons Creek about  $\frac{3}{8}$  mile west of point of land between Thompsons Creek and Cox Creek and  $\frac{1}{8}$  mile northwest of a small cove. (See Chart No. 31.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 30 yards south of shore, 45 yards northwest of shore, 20 yards southwest of point of shore, and 120 yards south-southeast of rail fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Hope" (N 11° 27' E).....	0	00	00	..... 3/8 mile.
Near peak of large house showing through trees.....	5	32	..	..... 1 mile.
Near corner of large house.....	50	56	..	..... 1/2 mile.
Near peak of large house.....	72	51	..	..... 5/8 mile.
Right peak of house.....	95	29	..	..... 3/4 mile.
Left corner of house.....	120	38	..	..... 1 mile.
Right chimney of house.....	186	03	..	..... 1 mile.
Left corner of brick house.....	303	33	..	..... 1/2 mile.
Near peak of house.....	330	41	..	..... 1 1/8 miles.
Right corner of very large house.....	353	36	..	..... 3/4 mile.

## HOPE.

*General locality.*—Western shore of Thompsons Creek on a point between Thompsons Creek and a smaller creek about 1/2 mile northwest of Cox Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high water, 40 yards west of shore, 90 yards northwest of shore, and 200 yards east-southeast of end of fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Knock" (S 74° 42' E).....	0	00	00	..... 1/2 mile.
Right corner of near chimney of house.....	4	07	..	..... 3/8 mile.
Right corner of near chimney of house.....	13	34	..	..... 5/8 mile.
Near peak of house.....	42	13	..	..... 1 1/2 miles.
Weather vane on house with two chimneys..	65	46	30	..... 1 1/8 miles.
Right tangent of near chimney of large house..	150	10	..	..... 3/8 mile.
Near peak of large brick house.....	159	59	..	..... 3/8 mile.
Near peak of house.....	224	12	..	..... 3/8 mile.
Right peak of large house.....	253	12	..	..... 3/8 mile.

## KNOCK.

*General locality.*—Eastern shore of Thompsons Creek about 1/2 mile north of Cox Creek and opposite a point of land between Thompsons Creek and a cove. (See Chart No. 31.)

*Immediate locality.*—Observed station is in southwest end of point of woods about 1 foot above high water, 6 yards east of shore, and 60 yards south-southwest of a point of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Landing" (S 3° 06' E).....	0	00	00	..... 1/4 mile.
"Top" (barn cupola).....	10	08	30	..... 2 1/2 miles.
Near peak of large house.....	83	14	..	..... 1 1/2 miles.
Near peak of large brick house.....	94	16	..	..... 5/8 mile.
Left peak of very large barn.....	151	32	..	..... 1/2 mile.
Nail in blaze in pine tree (6 inches diameter). 184	10	00	.....	5.50 meters.
Nail in blaze in pine tree (8 inches diameter). 226	58	30	.....	23.81 meters.
Nail in blaze in oak tree (10 inches diameter). 276	49	00	.....	7.15 meters.
Right corner of near chimney of large house.. 295	35	..	.....	3/8 mile.

## LANDING.

*General locality.*—Eastern shore of Thompsons Creek about  $\frac{1}{2}$  mile northwest of Cox Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 16 yards northwest of cut in shore, 20 yards north-northwest of point of shore, 14 yards east of point, 12 yards southeast of shore, 100 yards west of cultivated land, and 250 yards south of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Timber" (S 38° 33' E).....	0	00	00	..... $\frac{3}{8}$ mile.
Left peak of barn.....	1	07	..	..... 1 mile.
Weather vane on middle of house with two chimneys.....	34	38	..	..... $1\frac{1}{8}$ miles.
Right chimney of house.....	66	41	..	..... $1\frac{1}{8}$ miles.
Left corner of large brick house.....	150	12	..	..... $\frac{3}{8}$ mile.
Right peak of very large house.....	202	18	..	..... $\frac{3}{4}$ mile.
Right corner of large house.....	275	49	..	..... $\frac{3}{8}$ mile.
Large house.....	314	03	..	..... $\frac{7}{8}$ mile.
Right peak of barn.....	347	53	..	..... $1\frac{1}{4}$ miles.

## TIMBER.

*General locality.*—Eastern shore of Cox Creek about  $3\frac{1}{4}$  miles north of Eastern Bay,  $\frac{3}{4}$  mile northeast of entrance to Warehouse Creek, and opposite entrance to Thompsons Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a pasture between large cherry tree at the edge of the water and four cedar trees at the edge of the bank about 5 feet above high water, 4 yards east of edge of bank, 17 yards east of point, 6 yards southeast of edge of bank, and 12 yards northeast of edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Ville" (S 9° 32' E).....	0	00	00	..... $\frac{1}{4}$ mile.
Nail in blaze in cherry tree (30 inches diameter).....	26	26	10	..... 13.45 meters.
Right peak of house.....	41	00	..	..... $1\frac{1}{4}$ miles.
Nail in blaze in stump (8 inches diameter)...	42	45	10	..... 6.12 meters.
Right peak of house.....	58	50	..	..... $1\frac{1}{8}$ miles.
Left corner of large brick house.....	133	49	..	..... 1 mile.
Nail in blaze in cedar tree (5 inches diameter).....	170	05	10	..... 6.80 meters.
Left corner of left chimney of house.....	213	56	..	..... $\frac{3}{8}$ mile.
Left corner of house.....	278	56	..	..... 400 yards.
Right corner of building.....	342	41	..	..... $\frac{1}{2}$ mile.

## VILLE.

*General locality.*—Eastern shore of Cox Creek about 3 miles north of Eastern Bay,  $\frac{5}{8}$  mile northeast of entrance to Warehouse Creek, and  $\frac{1}{2}$  mile southeast of entrance to Thompsons Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a pasture about 5 feet above high water, 8 yards east of edge of bank, 33 yards south of tangent of cliff, 60 yards north of small ditch, and 115 yards north of wire fence.

## Survey of Oyster Bars, Queen Annes County, Md.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Greek" (S 3° 57' E).....	0	00	00	..... ¾ mile.
Left corner of house.....	45	52	..	..... 1 mile.
Right peak of house.....	69	24	..	..... 1 mile.
Left peak of brick house.....	127	44	..	..... 1 mile.
Left corner of large brick house.....	137	32	..	..... 1¼ miles.
Right peak of very long barn.....	160	05	..	..... 1¼ miles.
Left corner of house.....	172	52	..	..... ¼ mile.
Near peak of house.....	276	09	..	..... ¾ mile.
Left corner of house.....	314	12	..	..... ¾ mile.
Right corner of modern house.....	340	03	..	..... 1¼ miles.

## GREEK.

*General locality.*—Eastern shore of Cox Creek on a point about 2¾ miles north of Eastern Bay and ½ mile east of entrance to Warehouse Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 60 yards southwest of extreme end of point, and 125 yards east of a small marsh island.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Tuxon" (N 51° 50' W).....	0	00	00	..... ½ mile.
East chimney of house.....	14	37	..	..... 1½ miles.
South gable of barn.....	26	19	..	..... 2¼ miles.
East chimney of house.....	45	37	..	..... 1¼ miles.
East chimney of house.....	64	14	..	..... ¾ mile.
North chimney of house.....	91	26	..	..... ¼ mile.
Chimney of house.....	139	57	..	..... ¼ mile.
Cupola on barn.....	176	08	..	..... ¾ mile.
Chimney of small house.....	252	04	..	..... ¾ mile.
South chimney of house.....	290	55	..	..... 1 mile.
South chimney of house.....	318	32	..	..... ¾ mile.

## TOM.

*General locality.*—Eastern shore of Cox Creek about 2 miles north of Eastern Bay and ½ mile southeast of entrance to Warehouse Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a cultivated field about 12 feet above high water, 300 yards east of shore, 135 yards north of a graveyard, 100 yards southwest of a house, and 40 yards south of driveway beyond wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Ware" (N 67° 55' W).....	0	00	00	..... ¾ mile.
Southwest corner of east house on road.....	28	01	..	..... 100 yards.
South gable of small barn.....	61	09	..	..... 2¼ miles.
East chimney of house.....	70	29	..	..... 1¾ miles.
Chimney of house.....	92	43	..	..... 7⁄8 mile.
North chimney of house.....	176	20	..	..... ¾ mile.
North gable of barn.....	272	59	..	..... 1¼ miles.
North chimney of house.....	281	59	..	..... ¾ mile.
Chimney of small house.....	336	15	..	..... ¾ mile.

## DELL.

*General locality.*—Eastern shore of Cox Creek about  $1\frac{1}{2}$  miles north of Eastern Bay and 1 mile south of entrance to Warehouse Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 43 yards from shore, 28 yards northeast of top of bank, and 30 yards northeast of a lone cedar tree at edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Turkey" (S 17° 22' E).....	0	00	00	..... 1 $\frac{5}{8}$ miles.
"Rich Neck Water Tank".....	16	31	00	..... 5 $\frac{1}{8}$ miles.
Left tangent of woods on Long Point.....	33	36	..	..... 4 $\frac{1}{4}$ miles.
North chimney of house.....	44	07	..	..... 3 $\frac{1}{4}$ miles.
Left tangent of house.....	72	56	..	..... 1 mile.
North chimney of house.....	88	09	..	..... $\frac{1}{2}$ mile.
Chimney of small house.....	136	19	..	..... 1 $\frac{1}{4}$ miles.
South chimney of house.....	154	52	..	..... 1 $\frac{1}{4}$ miles.
West chimney of house.....	188	19	..	..... $\frac{1}{2}$ mile.
Cupola on barn.....	230	45	..	..... $\frac{1}{4}$ mile.
West gable of barn.....	303	02	..	..... $\frac{1}{2}$ mile.
Left tangent of small fishing shack.....	343	03	..	..... $\frac{3}{8}$ mile.
Right tangent of barn.....	354	31	..	..... 1 $\frac{1}{4}$ miles.

## TURKEY.

*General locality.*—Northern shore of Eastern Bay on southern end of Cox Neck on Turkey Point about 1 mile west of the north end of Bodkin Island. (See Chart No. 31.)

*Immediate locality.*—Observed station is in marsh meadow about 2 feet above high water, 40 yards northeast of shore, 200 yards south of a group of three pine trees near shore, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Mouth" (S 40° 32' W).....	0	00	00	..... 2 $\frac{3}{4}$ miles.
Chimney of house.....	23	19	..	..... 2 $\frac{3}{4}$ miles.
Chimney of Greeve house.....	49	14	..	..... 2 $\frac{1}{2}$ miles.
South cupola on barn.....	68	20	..	..... 2 $\frac{3}{4}$ miles.
North chimney of house.....	72	30	..	..... 2 $\frac{1}{2}$ miles.
South chimney of house.....	103	39	..	..... 1 $\frac{3}{4}$ miles.
South chimney of house.....	113	22	..	..... 2 $\frac{1}{2}$ miles.
West pine tree of group.....	132	12	..	..... 200 yards.
Right tangent of Bodkin Island.....	254	46	..	..... 1 mile.
Left tangent of Tilghmans Point.....	275	23	..	..... 3 $\frac{1}{2}$ miles.
North chimney of house on Tilghmans Point Farm.....	286	38	..	..... 3 $\frac{3}{4}$ miles.
"Rich Neck Water Tank".....	297	25	..	..... 4 $\frac{1}{4}$ miles.
Left tangent of woods on Long Point.....	352	26	..	..... 3 miles.

## COX.

*General locality.*—Western shore of Crab Alley Bay on Cox Neck about  $\frac{3}{8}$  mile north of Eastern Bay and 1 mile northwest of Bodkin Island. (See Chart No. 31.)

*Immediate locality.*—Observed station is at edge of a cultivated field on narrow neck of land about 3 feet above high water, 16 yards west of shore, 18 yards east of shore, and 80 yards northwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Tull" (N 12° 34' E).....	0	00	00	1 $\frac{5}{8}$ miles.
Chimney of small house.....	12	54	..	2 $\frac{1}{2}$ miles.
Chimney of house.....	21	19	..	2 $\frac{1}{2}$ miles.
Cupola on barn.....	30	09	..	2 $\frac{3}{4}$ miles.
Right corner of old barn.....	49	27	..	2 $\frac{1}{8}$ miles.
East chimney of large brick house.....	54	32	..	2 $\frac{1}{8}$ miles.
Right tangent of Normans Point.....	61	40	..	2 miles.
North gable of barn on Parsons Island.....	79	50	..	2 $\frac{1}{2}$ miles.
Left tangent of Bodkin Island.....	123	47	..	$\frac{7}{8}$ mile.
East gable of barn.....	227	02	..	$\frac{3}{8}$ mile.
Chimney of house.....	232	44	..	3 miles.
Chimney of house.....	255	50	..	2 $\frac{7}{8}$ miles.

## TULL.

*General locality.*—Eastern side of Kent Island and western side of Crab Alley Bay on northern end of Johnson Island at entrance to Crab Alley Creek about 2 $\frac{1}{4}$  miles north of Bodkin Island and 1 $\frac{1}{2}$  miles northwest of Normans Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a marsh meadow about 2 feet above high water, 18 yards south of shore, 53 yards west of extreme northeast end of Johnson Island, and 40 yards north of a group of pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Cox" (S 12° 35' W).....	0	00	00	1 $\frac{5}{8}$ miles.
Chimney of house.....	4	54	..	$\frac{1}{4}$ mile.
East gable of house.....	89	08	..	$\frac{3}{8}$ mile.
South chimney of house.....	121	14	..	$\frac{1}{4}$ mile.
Chimney on small tenant house.....	145	12	..	$\frac{3}{4}$ mile.
Cupola on barn.....	147	30	..	1 mile.
Right tangent of fishing shack.....	203	27	..	$\frac{1}{2}$ mile.
Cupola on barn.....	258	23	..	1 $\frac{1}{4}$ miles.
Left tangent to small island.....	329	35	..	$\frac{3}{8}$ mile.
Left tangent to pine woods on Turkey Point.....	355	24	..	2 miles.

## NEEDLE.

*General locality.*—Northern part of Eastern Bay on Bodkin Island at entrance to Crab Alley Bay about 1 $\frac{1}{2}$  miles west of the south end of Parsons Island and 1 mile east-southeast of Turkey Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is near south end of Bodkin Island about 12 feet above high water, 50 yards north by west of shore, 90 yards northeast by east of shore, 115 yards west-southwest of shore, and in center of radial lines of sight cut in bushes.



*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Straight" (S 48° 17' W).....	0	00	00	..... 4½ miles.
Nail in blaze in pine tree (6 inches diameter).....	5	51	30	..... 22.78 meters.
Nail in blaze in pine tree (8 inches diameter).....	27	56	10	..... 17.17 meters.
Right chimney of large house.....	64	29	..	..... 3½ miles.
Nail in blaze in pine tree (6 inches diameter).....	82	06	50	..... 11.54 meters.
Chimney of house on Parsons Island.....	194	43	..	..... 2½ miles.
Near chimney of Starr, large brick house.....	262	54	..	..... 6½ miles.
Cupola on left barn of Tilghmans Point Farm.....	289	40	..	..... 3 miles.
Chimney of bungalow.....	324	57	..	..... 5½ miles.
Nail in blaze in pine tree (7 inches diameter).....	345	25	00	..... 18.20 meters.

## KEMP TOWER.

*General locality.*—Southern shore of Eastern Bay on Wades Point about 1 mile southwest of Claiborne Wharf and 5½ miles east of Bloody Point Bar Light. (See Chart No. 31.)

*Immediate locality.*—Observed station is on tower or cupola of Wades Point Hotel, which is a large square frame structure adjoining a brick house.

*Marks.*—Observed station is center of top of roof of cupola.

*References.*—None necessary.

## KEMP.

*General locality.*—Southern shore of Eastern Bay on Wades Point about 1½ miles southwest of Claiborne Wharf and 4¾ miles east by south of Bloody Point Bar Light. (See Chart No. 31.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 30 yards east by north of a wire fence and several trees, 55 yards south-southeast of edge of bank, 90 yards east-northeast of a bungalow, 130 yards north by west of a wire and wood fence corner, 130 yards north-northwest of wooden fence, and 400 yards west by south of Wades Point Hotel.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Bloody Point Bar Light" (N 83° 37' W)....	0	00	00	..... 4¾ miles.
Nail in blaze in locust tree (14 inches diameter).....	1	41	30	..... 35.07 meters.
Left tangent of Kent Point.....	3	11	..	..... 3¾ miles.
Chimney on middle of house.....	17	12	..	..... 3¾ miles.
Left peak of barn.....	25	21	..	..... 4¼ miles.
Chimney of house.....	31	04	..	..... 3½ miles.
Left chimney of house.....	45	27	..	..... 3 miles.
Peak of main part of house.....	63	15	..	..... 5½ miles.
Left tangent of Tilghmans Point.....	128	06	..	..... 3½ miles.
"Dixon" (center of house).....	130	07	50	..... 2¾ miles.
"Kemp Tower".....	139	06	40	..... ¼ mile.
Fence corner (wood and wire).....	244	43	..	..... 132 yards.
Near corner of cook house.....	288	40	..	..... 110 yards.
Nail in blaze in locust tree (7 inches diameter).....	300	20	20	..... 27.23 meters.
Right corner post of piazza.....	306	24	..	..... 90 yards.
Nail in blaze in cedar tree (6 inches diameter).....	310	43	30	..... 26.97 meters.

## RICH NECK WATER TANK.

*General locality.*—On neck of land about halfway between Eastern Bay and Miles River, about 1¾ miles south-southwest of Tilghmans Point. (See Charts Nos. 31 and 32.)

*Immediate locality.*—Observed station is on large water tank on steel tower on Rich Neck Farm.

*Marks.*—Observed station is spindle on center of water tank.

*References.*—None necessary.

## OVER.

*General locality.*—Eastern shore of Crab Alley Bay on a point about 1¼ miles north-northwest of Normans Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on edge of a cultivated field near a number of locust and wild cherry trees, about 3 feet above high water, 11 yards northeast of shore, 50 yards southeast of end of a marsh point, and 4 yards north of corner of a rail fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Norman" (S 21° 28' E).....	0	00	00	..... 1½ miles.
Left tangent of woods on Tilghmans Point....	10	37	..	..... 5¾ miles.
Right tangent of Bodkin Island.....	38	42	..	..... 2½ miles.
Left tangent of pine woods on Turkey Point..	51	46	..	..... 2½ miles.
Chimney of house.....	99	13	..	..... 1¾ miles.
Chimney of small house.....	108	29	..	..... 1 mile.
Chimney of house.....	121	14	..	..... 1¾ miles.
Chimney of house.....	176	19	..	..... ¾ mile.
Nail in blaze in wild cherry tree (8 inches diameter).....	181	52	40	..... 8.98 meters.
South gable of house.....	193	00	..	..... ½ mile.
Nail in blaze in locust tree (8 inches diameter).....	276	55	40	..... 7.13 meters.
West chimney of house.....	299	11	..	..... 200 yards.

## NORMAN.

*General locality.*—Eastern shore of Crab Alley Bay on southwestern extremity of Crab Alley Neck about ¼ mile west of Normans Point, 2 miles northeast of Turkey Point, and ¾ mile northwest of Parsons Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field on a rapidly washing, narrow neck of land, about 6 feet above high water, 20 yards north of vertical bank at shore, 30 yards south of vertical bank at shore, and 40 yards northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Parsons" (S 38° 40' E).....	00	00	00	..... 1½ miles.
Right tangent of Parsons Island.....	16	46	..	..... 1¾ miles.
Left tangent of woods on Tilghmans Point....	30	30	..	..... 4 miles.
Left tangent of woods on Bodkin Island....	68	28	..	..... 2 miles.
Right tangent of Bodkin Island.....	78	39	..	..... 2 miles.
Right tangent of woods on Turkey Point....	93	17	..	..... 2 miles.
Nail in blaze of hackberry tree (6 inches diameter).....	112	42	30	..... 22.49 meters.

References—Continued.	°	'	"	
Chimney of small house.....	154	22	..	1¾ miles.
East chimney of house.....	167	41	..	2¼ miles.
South gable of house.....	205	38	..	1 mile.
West chimney of large brick house.....	271	53	..	¼ mile.
Chimney of small house.....	292	22	..	3 miles.
"Parsons Island Water Tank".....	353	41	40	1 mile.

PARSONS.

*General locality.*—In northern side of Eastern Bay on western side of Parsons Island about 3 miles north of Tilghmans Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land on highest part of island about 15 feet above high water, 110 yards southeast of shore, 270 yards south-southwest of Parsons Island Water Tank, 350 yards southwest of a house, 380 yards west-southwest of a large barn, 145 yards northeast of a wire fence, 155 yards northwest of wire fence at farm road, 195 yards southeast of a fence, and on the range of the west edge of the south chimney on the lower gable of the house with the west side of a window in the center of the south side of the house. Cement monument marking reference station is 26.10 meters N 21° 43' E of observed station.

*Marks.*—Observed station is center of cross cut on rough granite stone about 35 inches long and 12 inches square with top cut to 6-inch cube and marked "U S" in lower half of cross. Subsurface mark is the mouth of a bottle 3 inches below base of monument. Reference station is center point of triangle on standard cement monument with top 5 inches above the surface of the ground.

References.—	°	'	"	
"Alley" (N 2° 12' W).....	0	00	00	1¼ miles.
REFERENCE STATION.....	23	55	30	26.10 meters.
"Parsons Island Water Tank".....	24	04	20	268 yards.
Near peak of house.....	35	13	..	400 yards.
Right corner of barn.....	61	27	..	382 yards.
Walnut tree.....	148	17	..	300 yards.
Cupola of left barn of Tilghmans Point Farm.....	192	07	..	3½ miles.
Right tangent of Claiborne train shed.....	202	57	..	5 miles.
Right end of woods on Poplar Island.....	220	27	..	12 miles.
Left tangent of Kent Point.....	234	23	..	8¼ miles.
Left chimney of house.....	297	57	..	3 miles.
Side peak of 2½-story house.....	314	35	..	3¾ miles.
Middle chimney of large brick house.....	336	44	..	1¼ miles.
"New Barn Cupola".....	349	10	00	2¼ miles.

PARSONS ISLAND WATER TANK.

*General locality.*—Northern part of Eastern Bay between Crab Alley and Prospect Bays on Parsons Island, about halfway between the north and south end of the island. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a water tank on wooden structure near a house.

*Marks.*—Observed station is center of spindle on center of water tank.

*References.*—None necessary.

ALLEY.

*General locality.*—Western shore of Prospect Bay on Crab Alley Neck about ¾ mile north of Parsons Island and ⅜ mile north of Narrows Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on hard ground in a marsh at northeast end of clump of 12 persimmon trees about 1 foot above high water and 75 yards southwest of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Dull" (N 2° 35' W).....	0	00	00	..... ¾ mile.
Near peak of "Fishermans Inn".....	6	48	..	..... 3 miles.
Nail in blaze in persimmon tree (4 inches diameter).....	30	41	20	..... 3.99 meters.
Left chimney of old house with two dormer windows.....	48	29	..	..... 2¾ miles.
Left peak of barn.....	79	42	..	..... 2¾ miles.
Left chimney of large house.....	113	34	..	..... 2¾ miles.
"Parsons Island Water Tank".....	177	35	30	..... 1¾ miles.
Nail in blaze in persimmon tree (3 inches diameter).....	194	56	00	..... 4.88 meters.
Nail in blaze in persimmon tree (2½ inches diameter).....	238	25	00	..... 3.70 meters.
East chimney of brick house.....	246	02	..	..... ½ mile.
Nail in blaze in persimmon tree (3 inches diameter).....	298	21	30	..... 3.29 meters.
Chimney of house among trees.....	317	54	..	..... 1¾ miles.
"New Barn Cupola".....	335	41	40	..... 1 mile.

#### NEW BARN CUPOLA.

*General locality.*—Western shore of Prospect Bay on Crab Alley Neck about 1¼ miles north-north-west of Parsons Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is spindle with weather vane on cupola of barn about 100 yards east-southeast from house on farm belonging to H. C. Norman.

*Marks.*—Observed station is spindle on cupola.

*References.*—None necessary.

#### DULL.

*General locality.*—Western shore of Prospect Bay on a point at northern side of entrance to a cove about 2½ miles south of Kent Narrows railroad bridge, ⅔ mile west-southwest of Hoods Point and 1¼ miles north of Narrows Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in marsh land about 1 foot above high water, 30 yards west of shore, 40 yards northeast of shore, and 80 yards north-northwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Kirwan" (N 3° 00' W).....	0	00	00	..... 1¾ miles.
Near peak of "Fishermans Inn".....	10	01	..	..... 2¾ miles.
Chimney of house.....	37	53	..	..... 1½ miles.
Chimney of house in trees.....	56	09	..	..... 1¼ miles.
Chimney of house.....	104	49	..	..... 2¼ miles.
Chimney of old wharf house.....	138	46	..	..... 4 miles.
Between two chimneys of old house.....	152	08	..	..... 5¼ miles.
Left tangent of Parsons Island.....	169	41	..	..... 1¾ miles.
"New Barn Cupola".....	270	45	20	..... ¾ mile.
Chimney of ell of house.....	329	06	..	..... ¾ mile.

KIRWAN.

*General locality.*—Western shore of Prospect Bay on a point about  $1\frac{1}{4}$  miles south of Kent Narrows railroad bridge and  $\frac{1}{4}$  mile southeast of entrance to Kirwans Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 16 yards southeast of shore, 25 yards northwest of shore, 27 yards west of extreme end of point, and 30 yards south-southeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Bridge" (N 8° 41' E).....	0	00	00	..... 1 $\frac{1}{8}$ miles.
Near peak of "Fishermans Inn".....	9	51	..	..... 1 $\frac{1}{2}$ miles.
Chimney of house.....	46	45	..	..... 1 $\frac{1}{2}$ miles.
Chimney of house.....	53	28	..	..... 1 $\frac{1}{2}$ miles.
Right chimney of house.....	64	43	..	..... 1 $\frac{3}{4}$ miles.
Near peak of old house among trees.....	90	50	..	..... 1 mile.
Right peak of large barn.....	129	34	..	..... 4 $\frac{1}{2}$ miles.
"Parsons Island Water Tank".....	167	43	10	..... 3 $\frac{1}{2}$ miles.
"New Barn Cupola".....	188	29	..	..... 1 $\frac{1}{2}$ miles.
Right peak of new barn.....	207	22	..	..... $\frac{1}{2}$ mile.
Large chimney near end of old house.....	263	43	..	..... 1 mile.
Chimney of house.....	308	51	..	..... 1 mile.

MARSHY.

*General locality.*—Eastern shore of Prospect Bay about 1 mile south-southeast of Kent Narrows railroad bridge and  $\frac{1}{8}$  mile south of entrance to Marshy Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in marsh land about 1 foot above high water, 25 yards east of shore, 50 yards southeast of shore, 40 yards northeast of extreme end of point, and 4 yards north of a line of four small trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Bonnet" (S 11° 30' E).....	0	00	00	..... 1 mile.
Dormer window.....	35	26	..	..... 2 $\frac{1}{2}$ miles.
Cupola of barn.....	55	25	30	..... 1 $\frac{1}{2}$ miles.
Right peak of barn.....	71	14	..	..... 1 $\frac{1}{4}$ miles.
Cupola of barn.....	82	58	30	..... 1 $\frac{1}{2}$ miles.
Chimney on west peak of house.....	133	20	..	..... 1 $\frac{1}{4}$ miles.
South peak of "Fishermans Inn".....	169	06	..	..... 1 mile.
Nail in blaze in locust tree (7 inches diameter).....	184	47	10	..... 32.79 meters.
Chimney at east peak of house near railroad track.....	238	16	..	..... $\frac{1}{2}$ mile.
Right chimney of house.....	260	23	..	..... 1 mile.
East peak of house among trees.....	325	50	..	..... $\frac{3}{4}$ mile.

BONNET.

*General locality.*—Eastern shore of Prospect Bay on Hood Point about  $1\frac{1}{2}$  miles southeast of Hog Island and  $\frac{1}{2}$  mile west of Piney Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh ground about 1 foot above high water, 21 yards west of shore, 12 yards west of inlet, and 55 yards northeast of the extreme end of Hoods Point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"New Barn Cupola" (S 79° 29' W).....	0	00	00	1½ miles.
Chimney of house.....	24	11		1¼ miles.
East gable of barn.....	28	24		1¼ miles.
North chimney of house.....	64	04		2 miles.
South gable of barn.....	90	43		2¾ miles.
Chimney on small house.....	137	57		¾ mile.
West gable of house.....	199	06		1¾ miles.
Chimney of small house.....	239	13		2½ miles.
Chimney of small house.....	258	39		4¾ miles.
South chimney of house on Kent Island.....	323	24		1¾ miles.
Cupola on barn.....	353	09		1¾ miles.

## BRIAN REFERENCE STATION.

*General locality.*—Eastern shore of Prospect Bay on Brian Point about 1 mile southeast of Piney Point, 2 miles northeast of Parsons Island, and ¾ mile west of entrance to Hog Hole Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 13 yards east of edge of marsh, 14 yards northwest of edge of marsh, 18 yards north of extreme end of point, and 40 yards southwest of a cultivated field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	°	'	"	
"Green" (S 8° 55' E).....	0	00	00	2¾ miles.
Left tangent of woods on Bennett Point.....	4	55		4 miles.
Right tangent of woods on Parsons Island.....	65	33		2¾ miles.
Middle chimney of large brick house.....	84	37		2¾ miles.
Cupola of barn.....	102	34		2¾ miles.
"New Barn Cupola".....	109	56	20	2½ miles.
Left peak of large house.....	112	08		2¾ miles.
Near peak of house.....	282	47		½ mile.
Chimney of house.....	344	42		1¼ miles.

## GREEN.

*General locality.*—Eastern shore of Prospect Bay on point at northern side of entrance to Greenwood Creek about ¾ miles northeast of Tilghmans Point and 2¾ miles north of Bennett Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a sanded marsh point about 2 feet above high water, 5 yards northwest of shore, 26 yards northwest of shore, 53 yards east by north of a point of shore, 37 yards southeast by east of a point of shore, and 105 yards south-southwest of a point of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Benn" (S 0° 45' W).....	0	00	00	2¾ miles.
Cupola of barn.....	19	16	10	6 miles.
Right tangent of woods on Tilghmans Point.....	52	01		3¾ miles.
"Parsons Island Water Tank".....	115	03	50	2¾ miles.
East chimney of brick house.....	124	42		3½ miles.
Peak of small house.....	155	05		4 miles.
Chimney outside of house.....	165	43		4 miles.
Near peak of barn.....	178	20		3 miles.
Peak of house.....	235	45		1 mile.
Chimney of house behind barn.....	316	01		¾ mile.
Square chimney of house.....	345	41		1¼ miles.

BENN.

*General locality.*—Eastern shore of Miles River on Bennett Point at western side of entrance to Wye River. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 75 yards northeast of extreme end of point, 100 yards southwest from edge of wood, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 1 foot above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Hough" (N 57° 41' E).....	0	00	00	..... ¾ mile.
Cupola of barn.....	70	45	..	..... 1 mile.
"Rich Neck Water Tank".....	203	33	00	..... 3½ miles.
South chimney of house on Tilghmans Point Farm.....	215	59	..	..... 3 miles.
"Parsons Island Water Tank".....	271	55	00	..... 4½ miles.
Right tangent of house.....	288	21	..	..... 6½ miles.

HOUGH.

*General locality.*—Northwestern side of entrance to Wye River on a point about ¾ mile northeast of Miles River and ½ mile southwest of north end of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a grass point about 1 foot above high water, 16 yards north of shore, 22 yards south of shore, 15 yards west of extreme end of point, 11 yards east of small pool in marsh, and 200 yards east of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Won" (N 09° 29' E).....	0	00	00	..... ¾ mile.
Near peak of building.....	7	22	..	..... 2¾ miles.
Right side of chimney of house.....	17	20	..	..... 2¾ miles.
Near peak of long barn.....	28	43	..	..... 1¾ miles.
Piazza post of house in woods.....	62	14	..	..... ½ mile.
Windmill.....	128	24	..	..... ¾ mile.
Windmill.....	181	48	..	..... 4¼ miles.
Tall, slender tree in woods.....	271	57	..	..... 200 yards.
Black walnut tree.....	339	23	..	..... 200 yards.

WON.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west about ½ mile northwest of northern end of Bruffs Island and ¾ mile northeast of southern end of Bennett Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on small marsh point, about 1 foot above high water, 4 yards northwest of shore, 4 yards west of shore, 4 yards north of shore, and 40 yards southeast of large lone black-walnut tree. Cement monument marking reference station is 22.80 meters S 15° 31' W of observed station.

*Marks.*—Observed station is nail in center of 2-inch stub projecting 5 inches above 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	°	'	"	
"Nose" (N 28° 05' E).....	0	00	00	1/2 mile.
Near peak of large barn.....	23	20	..	3/8 mile.
Side peak of roof of house.....	25	18	..	3/8 mile.
Near peak of house.....	47	26	..	1 7/8 miles.
Left large chimney of house in woods.....	81	08	..	1/2 mile.
Right corner of building on Bruffs Island... ..	98	41	..	1/2 mile.
Windmill.....	126	52	40	1 1/4 miles.
Near peak of fisherman's shanty.....	161	03	..	100 yards.
REFERENCE STATION.....	167	25	50	22.80 meters.
Nail in blaze in cedar tree (2 inches diameter).....	210	23	00	12.54 meters.
Nail in blaze in walnut tree (3 inches diameter).....	262	30	10	10.81 meters.
Nail in blaze in walnut tree (30 inches diameter).....	290	06	10	38.12 meters.
Right corner of right chimney of house....	337	19	..	1/2 mile.

## NOSE.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west on a point about 5/8 mile north-northwest of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 4 yards southwest of shore, 6 yards north of shore, 14 yards west-northwest of extreme end of point, and 34 yards east of a row of locust trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Stop" (N 12° 09' E).....	0	00	00	3/8 mile.
Church cross.....	1	55	..	2 miles.
Chimney of cottage.....	3	03	..	1 3/8 miles.
Near peak of house.....	37	22	..	5/8 mile.
Left peak of house.....	67	25	..	1/2 mile.
Right corner of house on Bruffs Island.....	152	55	..	3/4 mile.
"St. Michaels P. E. Church Spire".....	183	28	10	5 7/8 miles.
"St. Michaels Water Tank".....	184	51	20	5 7/8 miles.
Nail in blaze in locust tree (8 inches diameter).....	237	58	50	34.45 meters.
Nail in blaze in locust tree (9 inches diameter).....	256	32	10	28.31 meters.
Near peak of large house, between two chimneys.....	266	09	..	1/4 mile.
Nail in blaze in locust tree (7 inches diameter).....	280	50	50	31.44 meters.
Tangent of point.....	316	16	..	100 yards.

## STOP.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west on a point about 1 mile north of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is on edge of pasture land about 3 feet above high water, 20 yards west of shore, 40 yards north by east of shore, and 50 yards south by west of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.



References.—	°	'	"	
"Orb" (N 21° 16' W).....	0	00	00	..... ¼ mile.
Near peak of barn.....	3	30	..	..... ¾ mile.
Nail in blaze of hackberry tree (5 inches diameter).....	46	52	20	..... 7.57 meters.
Side peak of house.....	94	01	..	..... ¾ mile.
Near peak of house.....	147	17	..	..... ½ mile.
Nail in blaze in branch of mulberry tree (5 inches diameter).....	198	20	00	..... 20.61 meters.
Peak between two chimneys of house.....	239	37	..	..... ¾ mile.
Left corner of corn house.....	252	58	..	..... ½ mile.

## ORB.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west on a point about 1¾ miles north of Bruffs Island and ¾ mile southwest of Cedar Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 6 yards southwest of shore, 7 yards northwest of shore, 6 yards north of shore, and southeast of a point of land 5 feet higher than station.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Piney" (N 6° 05' E).....	0	00	00	..... ½ mile.
Chimney of house on Drum Point.....	22	11	..	..... ¾ mile.
Left peak of house.....	38	32	..	..... 1¾ miles.
Left peak of house.....	87	51	..	..... ¾ mile.
Right peak of large barn.....	97	50	..	..... ¾ mile.
Near peak of house.....	130	37	..	..... ¾ mile.
Near peak of large barn.....	137	36	..	..... ¾ mile.
Nail in blaze in locust tree (3 inches diameter).....	251	18	20	..... 18.39 meters.
Nail in blaze in oak tree (3½ feet diameter).....	307	28	10	..... 23.34 meters.
Nail in blaze in gum tree (6 inches diameter).....	322	50	50	..... 20.17 meters.
Right corner of brick house.....	340	49	..	..... ½ mile.

## PINEY.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west about ¾ mile southwest of Drum Point and 1¾ miles north of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 6 feet above high water, 15 yards northwest of point, 8 yards north of top of bank, 9 yards west of trees at top of bank, and 55 yards north-east of another point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Ferry" (N 57° 08' E).....	0	00	00	..... ¾ mile.
Nail in blaze in locust tree (4 inches diameter).....	3	32	20	..... 8.85 meters.
Near peak of house.....	4	19	..	..... 1¾ miles.
Near peak of house.....	35	43	..	..... ¾ mile.
Nail in blaze in hackberry tree (5 inches diameter).....	51	12	00	..... 10.66 meters.
Near peak of house.....	97	31	..	..... 1¾ miles.

## References—Continued.

	°	'	''	
Near peak of hip-roof barn.....	102	33	..	1½ miles.
Left peak of boathouse.....	115	53	..	2½ miles.
Near corner of brick house.....	211	32	..	½ mile.
Nail in blaze in locust tree (7 inches diameter).....	318	54	30	18.07 meters.

## FERRY.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west on Drum Point, about ⅓ mile west of Cedar Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a pasture with paling fence on northwest and west-southwest sides about 4 feet above high water, 6 yards northwest of shore, 10 yards west of shore, 20 yards northeast by east of fence at county road, and 40 yards southeast of fence near small house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 8 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Owe" (N 66° 42' E).....	0	00	00	¾ mile.
Near peak of house.....	5	08	..	1¼ miles.
Near peak of house.....	19	25	..	1¾ miles.
Cupola of building.....	60	57	..	1 mile.
Near peak of house.....	105	29	..	¾ mile.
Peak between two chimneys of house.....	138	01	..	1½ miles.
Nail in blaze in locust tree (5 inches diameter).....	171	18	00	26.92 meters.
Nail in blaze in hackberry tree (7 inches diameter).....	202	47	10	35.04 meters.
Nail in blaze in hackberry tree (9 inches diameter).....	242	09	00	34.93 meters.
Left corner of large brick house.....	281	16	..	¼ mile.
Near peak of house.....	357	27	..	¾ mile.

## OWE.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west on a point about ¼ mile east-northeast of Drum Point and 1 mile south-southwest of entrance to Wye Narrows. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a grassy point about 2 feet above high water, 9 yards north of shore, 11 yards west-southwest of shore, 10 yards west of extreme end of point, and 75 yards east-southeast of a house 12 feet above high water.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Hook" (N 7° 36' W).....	0	00	00	¼ mile.
Peak of near gable of house.....	23	37	..	2½ miles.
Near corner of house.....	89	43	..	¾ mile.
Right peak of small house.....	144	13	..	¾ mile.
Baldwin windmill.....	167	05	40	1½ miles.
Left peak of house.....	204	38	..	1½ miles.
Near corner of chimney outside left end of house.....	236	39	..	¾ mile.
Left tangent of large brick house.....	253	44	..	1¼ miles.
Nail in blaze in black walnut tree (5 feet diameter).....	287	02	10	31.44 meters.
Nail in blaze in black walnut tree (3 feet 6 inches diameter).....	331	58	10	31.63 meters.

## HOOK.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west about  $\frac{3}{4}$  mile southwest of entrance to Wye Narrows and  $\frac{1}{4}$  mile south of entrance to a cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 10 feet above high water, 3 yards west of top of bank, 4 yards northeast of top of bank lined with cedars, 7 yards north-northwest of extreme end of point of bank at left of cedars, and north of a long, low peninsula that separates a small pond from river.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Knee" (N 15° 04' E).....	0	00	00	..... $\frac{1}{2}$ mile.
Near peak of large barn.....	5	01	..	..... $2\frac{1}{4}$ miles.
Spindle on cupola of barn.....	33	14	..	..... $1\frac{1}{8}$ miles.
Left corner of large chimney of small house... 109	52	..	.....	$\frac{7}{8}$ mile.
Left peak of house.....	129	38	..	..... $\frac{7}{8}$ mile.
Near peak of large barn.....	156	32	..	..... $1\frac{1}{8}$ miles.
Near peak of large barn.....	163	03	..	..... $\frac{7}{8}$ mile.
Nail in blaze in cedar tree (4 inches diameter).....	175	23	40	..... 6.99 meters.
Nail in blaze in cedar tree (3 inches diameter).....	231	37	00	..... 4.94 meters.
Nail in blaze in oak tree (8 inches diameter).. 271	06	10	.....	11.41 meters.

## KNEE.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west about  $\frac{1}{2}$  mile west-southwest of entrance to Wye Narrows. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a narrow strip of lowland about 1 foot above high water, 4 yards west of shore, 12 yards east of cut in bank, and 40 yards south of bank 8 feet high with few trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Bee" (N 59° 35' E).....	0	00	00	..... $\frac{5}{8}$ mile.
Large pine tree on point.....	26	46	..	..... $\frac{1}{2}$ mile.
Smoke pipe on small building.....	84	59	..	..... $\frac{1}{2}$ mile.
Baldwin windmill.....	108	08	10	..... $2\frac{1}{4}$ miles.
Peak of near gable of Baldwin house.....	108	29	..	..... $2\frac{1}{4}$ miles.
Large chimney of large house.....	120	43	..	..... 1 mile.
Lightning rod on Bryan house.....	129	59	..	..... $\frac{3}{4}$ mile.
Nail in blaze in oak tree (12 inches diameter). 165	06	20	.....	14.60 meters.
Nail in blaze in locust tree (7 inches diameter).....	208	48	10	..... 4.86 meters.
Nail in blaze in twisted cedar bush.....	289	36	10	..... 8.79 meters.
Chimney of house.....	320	11	..	..... $1\frac{1}{8}$ miles.

## NO.

*General locality.*—On the western shore of the continuation of the branch of Wye River bounding Wye Island on the west, about  $\frac{3}{8}$  mile west-northwest of entrance to Wye Narrows on point at south side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a point about 1 foot above high water, 4 yards southwest of shore, 4 yards north of shore, 5 yards west of extreme end of point, and east of trees on bank 5 feet high.

## Survey of Oyster Bars, Queen Annes County, Md.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Oysters" (N 64° 35' E).....	o	oo	oo	..... ¼ mile.
Near peak of house.....	59	59	..	..... ¾ mile.
Near end of corn house.....	94	or	..	..... 1 mile.
Cupola of barn.....	118	29	..	..... 2 miles.
Right corner of Bryan house.....	128	36	..	..... 1½ miles.
Nail in blaze in locust tree (4 inches diameter).....	160	05	30	..... 26.17 meters.
Nail in blaze in oak tree (4 inches diameter) ..	234	11	20	..... 5.42 meters.
Nail in blaze in oak tree (8 inches diameter) ..	290	08	20	..... 4.73 meters.
Spindle on barn cupola.....	294	51	..	..... ¾ mile.
Left corner of large house.....	300	00	..	..... ¾ mile.
Left peak of house.....	315	20	..	..... 1¾ miles.

## OYSTERS.

*General locality.*—Eastern shore of the continuation of the branch of Wye River bounding Wye Island on the west about ¼ mile north of entrance to Wye Narrows on point at south side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a clump of small trees on a point about 3 feet above high water, 6 yards south-southeast of edge of bank, 7 yards west of point of bank, and 8 yards east-northeast of edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"June" (S 6° 39' W).....	o	oo	oo	..... ⅝ mile.
Right corner of Bryan house.....	14	46	..	..... 1¼ miles.
Chimney of cabin.....	111	07	..	..... ½ mile.
Nail in blaze in oak tree (6 inches diameter).....	118	15	oo	..... 3.97 meters.
Chimney of large house.....	156	41	..	..... 1½ miles.
Nail in blaze in oak tree (8 inches diameter).....	291	22	50	..... 4.71 meters.
Nail in blaze in walnut tree (7 inches diameter).....	336	17	30	..... 11.31 meters.

## BEE.

*General locality.*—Northern shore of Wye Narrows at northern side of western entrance to Wye Narrows. (See Chart No. 32.)

*Immediate locality.*—Observed station is in woods about 4 feet above high water, 7 yards east of edge of bank, 11 yards northwest of edge of bank, and 13 yards north of point of bank near marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Close" (S 2° 44' W).....	o	oo	oo	..... ¼ mile.
Right corner of Bryan house.....	30	15	..	..... 1½ miles.
Near peak of house.....	68	or	..	..... ¾ mile.
Nail in blaze in oak tree (4 inches diameter).....	201	58	50	..... 2.10 meters.
Nail in blaze in oak tree (24 inches diameter).....	314	05	30	..... 8.64 meters.
Nail in blaze in oak tree (8 inches diameter).....	345	50	40	..... 1.86 meters.

## CLOSE.

*General locality.*—Northern shore of Wye Island at southern side of western entrance to Wye Narrows. (See Chart No. 32.)

*Immediate locality.*—Observed station is in edge of cultivated land about 12 feet above high water, 3 yards south of edge of bank, 5 yards west-southwest of top of bank, 18 yards west of lone pine tree, and 17 yards east of cut in bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"June" (S 56° 21' W).....	0	00	00	..... ¼ mile.
Nail in blaze in walnut tree (3 feet diameter).....	0	48	20	..... 56.49 meters.
Right corner of large brick house.....	4	03	..	..... 1¼ miles.
Near peak of house.....	30	47	..	..... ⅝ mile.
Windmill.....	34	39	..	..... ⅝ mile.
Spindle on barn cupola.....	102	21	..	..... 1½ miles.
Left corner of house.....	160	24	..	..... ¾ mile.
Nail in blaze in pine tree (2 feet diameter).....	203	47	40	..... 18.28 meters.
Nail in blaze in black walnut tree (10 inches diameter).....	226	19	40	..... 27.00 meters.
Left peak of large building.....	246	35	..	..... ¾ mile.
Right peak of corn house.....	306	57	..	..... ½ mile.

## JUNE.

*General locality.*—On Wye Island on eastern shore of the branch of Wye River bounding Wye Island on the west on a point at northern side of entrance to a cove about ¼ mile southwest of entrance to Wye Narrows. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 10 yards south-southeast of shore, 20 yards southwest of lines of trees and marsh, and 50 yards north of twin oak trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Chin" (S 24° 00' W).....	0	00	00	..... ⅜ mile.
Near peak of Bryan house.....	11	02	..	..... ⅝ mile.
Right corner of large house.....	37	22	..	..... 1 mile.
Left corner of near chimney of house.....	79	57	..	..... ¾ mile.
Near corner of house.....	150	56	..	..... 1½ miles.
Spindle on cupola of barn.....	154	20	..	..... 1¾ miles.
Nail in blaze in one of twin oak trees (30 inches diameter).....	201	55	10	..... 19.32 meters.
Nail in blaze in one of twin oak trees (30 inches diameter).....	286	10	30	..... 43.17 meters.
Nail in blaze in oak tree (15 inches diameter).....	325	12	00	..... 44.45 meters.

## CHIN.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River bounding Wye Island on the west on a point about 1 mile northeast of Cedar Point and ¾ mile south-southwest of entrance to Wye Narrows. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 6 yards northeast of shore, 20 and 40 yards south of shore, and 7 yards east of extreme end of point.

## Survey of Oyster Bars, Queen Annes County, Md.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Aller" (S 43° 03' E).....	0	00	00	..... 300 yards.
Near peak of large barn.....	46	47	..	..... 1½ miles.
Peak between chimneys of house.....	81	23	..	..... 1¼ miles.
Near peak of Bryan house.....	90	55	..	..... ¼ mile.
Right corner of house in woods.....	221	04	..	..... ¾ mile.
Nail in blaze in pine tree (10 inches diameter).....	239	05	00	..... 16.78 meters.
Nail in blaze in pine tree (5 inches diameter).....	252	13	40	..... 19.51 meters.
Nail in blaze in pine tree (6 inches diameter).....	319	42	50	..... 11.68 meters.

## ALLER.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River bounding Wye Island on the west about 1 mile east-northeast of Drum Point and at northern side of entrance to a cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh land between two large pine trees about 1 foot above high water, 17 yards northeast of a small point, 15 yards southeast of a short cut in shore, and 9 yards southwest of edge of cultivated land.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Twist" (S 0° 21' W).....	0	00	00	..... ¾ mile.
Cupola of building.....	12	08	..	..... 1 mile.
Left peak of house.....	29	06	..	..... 1¾ miles.
Peak between two chimneys of large house..	42	22	..	..... 2¼ miles.
Chimney outside left end of house.....	55	22	..	..... 1½ miles.
Right corner of house.....	76	24	..	..... ¾ mile.
Nail in blaze in pine tree (20 inches diameter).....	141	08	50	..... 20.90 meters.
Peak of side gable of house.....	255	06	..	..... ¼ mile.
Near corner of house.....	279	17	..	..... ⅝ mile.
Nail in blaze in pine tree (18 inches diameter).....	279	50	10	..... 28.52 meters.
Left tangent of large square chimney of house.	313	06	..	..... ¾ mile.

## TWIST.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River bounding Wye Island on the west at northern side of entrance to a small cove about 1 mile east of Cedar Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 11 yards southeast of point, 8 yards south of shore at point of higher and solid land with trees, 8 yards west of trees, 18 yards west-southwest of point, and 33 yards north of shore of cove.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Wide" (S 64° 00' W).....	0	00	00	..... ¼ mile.
Chimney outside southeast end of house.....	12	57	..	..... 1 mile.
Near corner of brick house.....	18	23	..	..... 1½ miles.
Left corner of brick house.....	42	57	..	..... 1½ miles.

References—Continued.

	o	'	''	
Left corner of house.....	67	54	..	1/4 mile.
Near peak of barn.....	112	53	..	2 miles.
Nail in blaze in oak tree (14 inches diameter). 151	12	20	..	7.55 meters.
Nail in blaze in oak tree (16 inches diameter). 174	30	30	..	7.90 meters.
Nail in blaze in hackberry tree (4 inches diameter).....	202	44	20	8.85 meters.
Gum tree.....	231	38	..	52 yards.
Right peak of corn house.....	254	49	..	1/4 mile.

WIDE.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River bounding Wye Island on the west on a point at western side of entrance to a small cove about 3/4 mile east of Cedar Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in marsh land surrounded by water bushes about 1 foot above high water, 12 yards south of shore, 16 yards southeast of shore, 20 yards east of shore, 20 yards northeast of trees, 11 yards northeast of a wire fence, 100 yards west of entrance to creek, and near point of higher land and trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	o	'	''	
"Darce" (S 81° 55' W).....	0	00	00	3/4 mile.
Near corner of brick house.....	3	40	..	1 1/4 miles.
Left corner of brick house.....	34	45	..	1 mile.
Left corner of house.....	77	22	..	1/2 mile.
Peak of near gable of house.....	134	03	..	3/4 mile.
Near peak of house.....	165	09	..	5/8 mile.
Nail in blaze in fence post.....	275	-38	20	13.21 meters.
Nail in blaze in oak tree (6 inches diameter). 315	29	20	..	18.48 meters.
Nail in blaze in oak tree (5 inches diameter). 340	38	40	..	18.14 meters.
Right corner of house.....	359	17	..	3/4 mile.

DARCE.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River bounding Wye Island on the west on Cedar Point at ferry landing about 1/4 mile south of Drum Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 10 feet above high water, 8 yards south of point of bank, 23 yards northwest of a house, and 55 yards east-northeast of ferry landing at foot of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	o	'	''	
"Twixt" (S 39° 52' W).....	0	00	00	1/8 mile.
Near corner of brick house.....	50	50	..	5/8 mile.
Left corner of brick house.....	130	53	..	1/2 mile.
Near peak of house.....	133	57	..	1 1/4 miles.
Cross on church.....	143	52	40	3/4 mile.
Left corner of house.....	187	14	..	3/4 mile.
Near peak of house.....	215	40	..	1 1/2 miles.
Left corner of shed.....	255	43	50	27.25 meters.
Right corner of house.....	280	48	50	21.98 meters.
Peak between two chimneys of house.....	350	24	..	1 1/4 miles.

## TWIXT.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River bounding Wye Island on the west about  $\frac{1}{8}$  mile southwest of Cedar Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a small marsh island about 1 foot above high water, 3 yards north of shore, 4 yards east of shore, 7 yards south of shore, 9 yards west of point of shore, and 20 yards west of mainland.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Star" (S 9° 37' W).....	0	00	00	..... $\frac{1}{8}$ mile.
Peak between two chimneys of house.....	19	26	..	..... $1\frac{1}{8}$ miles.
Left corner of brick house.....	94	37	..	..... $\frac{1}{2}$ mile.
Chimney in middle of large brick house.....	171	25	..	..... $\frac{1}{2}$ mile.
Left corner of barn.....	227	11	..	..... $\frac{1}{8}$ mile.

## STAR.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River bounding Wye Island on the west, about  $1\frac{1}{2}$  miles north of Bruffs Island and  $\frac{1}{4}$  mile south-southwest of Cedar Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a soft marsh point about 1 foot above high water, 8 yards north of shore, 9 yards south of shore, and 13 yards east of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Leaven" (S 15° 09' E).....	0	00	00	..... $\frac{1}{2}$ mile.
Near peak of hip roof of large barn.....	5	16	..	..... $\frac{3}{4}$ mile.
"St. Michaels Water Tank".....	32	26	30	..... $6\frac{7}{8}$ miles.
Peak between two chimneys of large house..	46	44	..	..... 1 mile.
Left corner of chimney outside brick house..	135	14	..	..... $\frac{1}{2}$ mile.
Left corner of large barn.....	136	39	..	..... $\frac{1}{2}$ mile.
Chimney in middle of large brick house.....	197	42	..	..... $\frac{3}{4}$ mile.
Nail in blaze in locust tree (4 inches diameter).....	215	09	10	..... 19.78 meters.
Nail in blaze in gum tree (3 inches diameter).	232	40	40	..... 18.75 meters.
Nail in blaze in locust tree (8 inches diameter).....	248	59	30	..... 22.21 meters.

## LEAVEN.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River bounding Wye Island on the west about  $1\frac{1}{2}$  miles north-northeast of Bruffs Island and  $\frac{5}{8}$  mile south of Cedar Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in northwest corner of cultivated field about 10 feet above high water, 4 yards southeast of edge of bank, 5 yards southwest of scant locust woods, and 8 yards east-northeast of point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Snout" (S 27° 53' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Large oak tree.....	9	21	..	..... $1\frac{1}{8}$ miles.
Peak between two chimneys of large house...	29	06	..	..... $\frac{3}{4}$ mile.
Left corner of large chimney outside near end of house.....	113	37	..	..... $\frac{7}{8}$ mile.



References—Continued.

	o	'	''	
Chimney outside of house.....	152	54	..	5/8 mile.
Nail in blaze in locust tree (12 inches diameter).....	167	02	50	5.63 meters.
Nail in blaze in locust tree (10 inches diameter).....	213	18	00	15.03 meters.
Nail in blaze in locust tree (16 inches diameter).....	240	36	40	12.01 meters.
Near peak of house.....	315	01	..	3/8 mile.

SNOUT.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River bounding Wye Island on the west about 3/4 mile north of Bruffs Island and 1/2 mile north of Bordley Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 12 feet above high water, 30 yards east by south of edge of bank, 65 yards south of large cherry tree in side of bank at fence, 65 yards southwest of rail fence, 70 yards northeast of a small clump of trees at edge of bank, and 400 yards west by north of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	o	'	''	
"South" (S 20° 34' E).....	0	00	00	1/2 mile.
Left peak of boathouse.....	19	10	..	3/8 mile.
"St. Michaels P. E. Church Spire".....	38	07	30	6 1/4 miles.
"St. Michaels Water Tank".....	39	30	10	6 1/2 miles.
Nail in blaze in locust tree (10 inches diameter).....	49	21	30	64.78 meters.
Peak of house between two chimneys.....	99	02	..	1/2 mile.
Near peak of small house.....	111	45	..	1/2 mile.
Nail in blaze in tree (8 inches diameter).....	179	42	10	34.39 meters.
Near peak of barn.....	186	34	..	1 1/4 miles.
Left corner of house.....	203	36	..	1 3/8 miles.
Nail in blaze in fence post.....	246	50	10	63.29 meters.
Near peak of house.....	249	00	..	3/4 mile.
Left peak of house.....	296	41	50	1/4 mile.

SOUTH.

*General locality.*—On southwestern end of Wye Island on Bordley Point on the northern shore of the junction of the two branches of Wye River bounding Wye Island, about 3/8 mile north-northeast of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a pasture on a rounded point about 10 feet above high water, 11 yards northeast of edge of field, 13 yards north of edge of field, 22 yards northwest of edge of field, 30 yards southeast of cut in cliff, and 50 yards southwest of point of water bushes at gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	o	'	''	
"Flat" (N 55° 27' E).....	0	00	00	1/2 mile.
Right chimney of house.....	19	30	..	1 1/4 miles.
Windmill.....	64	34	30	1 1/4 miles.
Spindle on barn cupola.....	134	55	20	1 1/4 miles.
Left chimney of house in woods.....	153	45	..	1/2 mile.
Left peak of building.....	173	45	..	4 1/2 miles.
Peak between two chimneys of house.....	244	27	..	3/4 mile.
Left chimney of house.....	317	37	..	3/8 mile.
Near peak of house.....	343	21	..	2 miles.

## FLAT.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on a point between two coves about 1 mile northeast of Bruffs Island and  $\frac{1}{2}$  mile northeast of Bordley Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 8 yards north of shore, 8 yards southwest of shore, 12 yards west of extreme end of point, 17 yards east of south end of line of several trees on edge of bank 3 feet high, and 45 yards east of a black gum tree 5 feet in diameter at ground.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Albert" (N 84° 31' E).....	0	00	00	..... $\frac{1}{2}$ mile.
Left corner of tower of house.....	30	33	..	..... $1\frac{1}{4}$ miles.
Windmill.....	62	55	40	..... $1\frac{1}{8}$ miles.
Spindle on barn cupola.....	119	34	..	..... $1\frac{3}{8}$ miles.
Front peak of boathouse.....	134	02	..	..... 1 mile.
Left tangent of black gum tree.....	158	06	40	..... 44 yards.
Near peak of house.....	249	34	..	..... $\frac{3}{4}$ mile.
Spindle on cupola.....	351	11	10	..... $\frac{3}{4}$ mile.
Windmill.....	352	15	30	..... $\frac{3}{4}$ mile.
Near peak of Baldwin house.....	354	50	..	..... $\frac{3}{4}$ mile.

## ALBERT.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south on a point about  $1\frac{1}{4}$  miles east-northeast of north end of Bruffs Island, and opposite entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 17 yards northwest of shore, 28 yards east of shore, 35 yards south of shore, and 75 yards north-northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Le Seur" (N 1° 03' E).....	0	00	00	..... 300 yards.
Baldwin windmill.....	65	11	40	..... $\frac{3}{8}$ mile.
Flagstaff on Baldwin boat house.....	67	59	..	..... 400 yards.
Windmill on wooden tower.....	125	16	30	..... 1 mile.
Peak of house with several chimneys.....	127	08	..	..... 1 mile.
Chimney outside near end of old house.....	170	05	..	..... 1 mile.
Front peak of boat house.....	231	10	..	..... $1\frac{1}{4}$ miles.
Peak between two chimneys of house.....	269	40	..	..... $1\frac{3}{4}$ miles.
Left peak of house.....	274	45	..	..... $\frac{3}{8}$ mile.
Peak of house.....	347	47	..	..... $\frac{3}{4}$ mile.

## LE SEUR.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{1}{8}$  mile north of a prominent point opposite entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a clump of small trees about 3 feet above high water, 11 yards east of shore, 12 yards southwest of shore on line to next point, and 12 yards north by east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Attila" (N 31° 07' E).....	0	00	00	..... ¼ mile.
Near peak of large barn.....	56	55	..	..... ⅝ mile.
Spindle on cupola.....	61	52	50	..... ¼ mile.
Right corner of chimney of Baldwin house..	72	24	..	..... ¼ mile.
Nail in blaze in walnut tree (4 inches diam- eter).....	140	45	50	..... 4.11 meters.
Nail in blaze in walnut tree (5 inches diam- eter).....	201	19	40	..... 7.60 meters.
Nail in blaze in walnut tree (3 inches diam- eter).....	255	56	30	..... 6.74 meters.
Nail in blaze in walnut tree (3 inches diam- eter).....	304	08	10	..... 7.27 meters.

## ATTILA.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south about ¾ mile north of entrance to Lloyd Creek at north side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on slope of a point about 3 feet above high water, 10 yards west of shore, 10 yards north-northeast of shore, and 11 yards northwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Tobine" (N 15° 18' E).....	0	00	00	..... ¼ mile.
Near peak of very large barn.....	97	30	..	..... ⅝ mile.
Near peak of house.....	104	53	..	..... ⅝ mile.
Spindle on cupola.....	128	31	50	..... ¼ mile.
Left corner of Baldwin house.....	132	48	..	..... ¼ mile.
Flagpole on wharf house.....	146	43	..	..... ¼ mile.
Windmill.....	163	31	..	..... 1¼ miles.
Nail in blaze in cedar stump (10 inches diam- eter).....	197	07	20	..... 8.36 meters.
Nail in blaze in cedar tree (8 inches diam- eter).....	347	34	10	..... 38.64 meters.

## TOBINE.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south about ¾ mile north of entrance to Lloyd Creek on point at north side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on point of a cultivated field about 6 feet above high water, 4 yards north of edge of field, 4 yards southwest of edge of field, 5 yards west-northwest of point of field, and ¼ mile east-southeast of a barn with cupola.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Sang" (N 6° 21' W).....	0	00	00	..... ¼ mile.
Right corner of house.....	16	19	..	..... ⅝ mile.
Near peak of large barn.....	143	19	..	..... ½ mile.
Cupola of Baldwin barn.....	173	35	10	..... ½ mile.
Right peak of Baldwin house.....	175	17	..	..... ½ mile.
Windmill.....	187	35	..	..... 1½ miles.
Near peak of house.....	249	12	..	..... 1½ miles.
Cupola of building.....	304	50	..	..... ¼ mile.

## SANG.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south about  $1\frac{1}{4}$  miles north of entrance to Lloyd Creek and  $\frac{5}{8}$  mile west of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on bank about 12 feet above high water between two cuts in bank, 2 yards west of edge of bank, 3 yards northwest of edge of bank, 4 yards southwest of edge of bank, 32 yards from bottom of northern cut in bank, 52 yards from bottom of southern cut in bank, and 95 yards south-southwest of tree-lined gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	o	/	//	
"Turn" (N 48° 08' E).....	0	00	00	..... $\frac{1}{4}$ mile.
Tangent of woods.....	41	45	..	..... 2 miles.
Tangent of point.....	56	52	..	..... $\frac{3}{8}$ mile.
Right peak of large barn.....	100	25	..	..... $\frac{3}{4}$ mile.
Baldwin windmill.....	121	06	..	..... $\frac{3}{4}$ mile.
Peak of near gable of Baldwin house.....	122	05	..	..... $\frac{3}{4}$ mile.
Near peak of ell of house.....	199	14	..	..... $\frac{3}{8}$ mile.
Left corner of house.....	256	56	..	..... $\frac{1}{4}$ mile.
Left peak of house.....	281	53	..	..... $\frac{1}{4}$ mile.

## TURN.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south, about  $\frac{1}{2}$  mile west of entrance to Dividing Creek on point at western side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on bank in a cultivated field, about 8 feet above high water, 5 yards northwest of edge of bank, 6 yards north of edge of bank, 7 yards west of edge of bank, 50 yards south-southwest of entrance to a small creek, and 55 yards east of a dead sycamore tree in field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	o	/	//	
"Go" (S 84° 55' E).....	0	00	00	..... $\frac{1}{8}$ mile.
Near peak of small house.....	32	18	..	..... $1\frac{1}{8}$ miles.
Right peak of large barn.....	67	07	..	..... $\frac{3}{4}$ mile.
Baldwin windmill.....	85	55	..	..... $\frac{7}{8}$ mile.
Near peak of gable of Baldwin house.....	86	21	..	..... $\frac{7}{8}$ mile.
Nail in blaze in wild cherry tree (3 inches diameter).....	128	20	10	..... 23.08 meters.
Chimney outside near end of house.....	179	44	..	..... $\frac{3}{8}$ mile.
Nail in blaze in locust tree (4 inches diameter).....	255	50	00	..... 18.85 meters.
Nail in blaze in chestnut stump with second growth (14 inches diameter).....	279	53	10	..... 12.93 meters.

## GO.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south, on a point between two coves about  $\frac{1}{4}$  mile west of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on grassy beach at high water, about 2 yards south of foot of bank 4 feet high covered with dense growth of young trees, and 37 yards from entrance to a small creek. Cement monument marking reference station is 19.06 meters N 22° 35' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch pine stub projecting 2 inches above 2-inch tile pipe with top 2 inches below surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

<i>References.</i> —	°	'	''	
"Divide" (N 89° 24' E).....	0	00	00	..... 3/8 mile.
Near peak of shanty.....	48	16	..	..... 7/8 mile.
Chimney of house.....	51	46	..	..... 7/8 mile.
Peak of gable on Baldwin house.....	104	12	..	..... 3/8 mile.
Baldwin windmill.....	104	13	30	..... 7/8 mile.
Near corner of square chimney of house.....	159	10	..	..... 3/4 mile.
Cupola on barn.....	164	20	..	..... 3/4 mile.
Nail in blaze in gum tree (4 inches diameter). 249	05	50	.....	6.68 meters.
Nail in blaze in gum tree (2 inches diameter). 272	16	30	.....	5.73 meters.
REFERENCE STATION.....	293	11	20	..... 19.06 meters.
Nail in blaze in gum tree (4 inches diameter). 313	07	10	.....	4.15 meters.

DIVIDE.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south, on point at eastern side of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in point of woods, about 4 feet above high water, 2 yards west-northwest of edge of bank, 8 yards east-northeast of edge of bank, and 11 yards north-northeast of point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"Princess" (N 53° 04' E).....	0	00	00	..... 1/8 mile.
Right tangent of old wharf.....	12	44	..	..... 1/4 mile.
Near peak of large barn.....	50	24	..	..... 1 3/4 miles.
Chimney of house.....	141	53	..	..... 7/8 mile.
Baldwin windmill.....	162	18	30	..... 1 mile.
Right chimney of house.....	189	13	20	..... 2 miles.
Peak of house between two chimneys.....	195	40	..	..... 2 5/8 miles.
Nail in blaze in oak tree (14 inches diameter). 232	30	30	.....	4.05 meters.
Nail in blaze in gnarled oak tree (8 inches diameter).....	280	24	50	..... 9.98 meters.
Nail in blaze in oak tree (30 inches diameter). 316	39	20	.....	8.41 meters.

PRINCESS.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south, about 1/8 mile northeast of entrance to Dividing Creek and 3/8 mile west of entrance to Granary Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in marsh land, about 1 foot above high water, 4 yards north of shore, 18 yards east by north of a large oak tree at shore, 4 yards south of foot of bank 10 feet high covered with vegetation, and 10 yards west by south of a white oak tree on bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"Philip" (S 83° 05' E).....	0	00	00	..... 3/8 mile.
Chimney of house on Pickerings Creek.....	15	16	..	..... 1 3/4 miles.
Right peak of large barn.....	110	22	..	..... 1 mile.
Baldwin windmill.....	121	01	..	..... 1 1/4 miles.

References—Continued.	°	'	''	
Cupola of Baldwin stable.....	121	40	..	1¼ miles.
Nail in blaze in white oak tree (3 inches diameter).....	163	26	00	5.65 meters.
Nail in blaze in cedar tree (14 inches diameter).....	255	36	20	3.01 meters.
Right tangent of old wharf.....	351	19	..	150 yards.

## PHILIP.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south, on western side of entrance to Granary Creek and ½ mile east of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is about 1 foot above high water, 3 yards north of shore, 9 yards south-southwest of shore of creek, 9 yards west of extreme end of point, and 6 yards southeast of point of bank 4 feet high. Cement monument marking reference station is 4.62 meters N 18° 12' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub projecting 2 inches above 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—	°	'	''	
"Granary" (S 63° 59' E).....	0	00	00	¼ mile.
Baldwin windmill.....	113	44	20	1¾ miles.
Near peak of ell of house.....	141	49	..	1¼ miles.
Nail in blaze in cedar tree (3 inches diameter).....	169	10	50	9.33 meters.
Nail in blaze in pine tree (6 inches diameter).....	210	13	30	18.09 meters.
Nail in blaze in oak tree (7 inches diameter).....	238	45	30	4.41 meters.
REFERENCE STATION.....	262	11	40	4.62 meters.
Tangent of point.....	321	20	..	¼ mile.
Near peak of large building.....	358	32	..	2 miles.

## GRANARY.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on point at eastern side of entrance to Granary Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is among water bushes on marsh land about 1 foot above high water, 10 yards northeast of shore, 11 yards west of shore, 12 yards north by west of extreme end of point, and 50 yards from trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Morn" (N 89° 30' E).....	0	00	00	⅓ mile.
Large chimney of building.....	24	48	..	1¼ miles.
Right tangent of point.....	85	34	..	¼ mile.
Left end of barn.....	176	08	..	1½ miles.
Left tangent of old wharf.....	199	54	..	½ mile.

## MORN.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south about 300 yards east of entrance to Granary Creek and ¾ mile northwest of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is about 1 foot above high water, 4 yards northwest of shore, 4 yards northeast of shore, and 6 yards southeast of foot of wooded slope to field 12 feet above high water. Cement monument marking reference station is 3.82 meters N 33° 52' W of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub projecting 2 inches above 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

<i>References.</i> —	°	'	''	
"Bush" (N 83° 20' E).....	0	00	00	..... ¼ mile.
Tangent of point.....	4	01	..	..... ¼ mile.
Near peak of building.....	32	42	..	..... 1½ miles.
Tangent of foot of slope.....	56	33	..	..... ¼ mile.
Right tree on point.....	120	06	..	..... ¼ mile.
Tangent of woods.....	182	21	..	..... ⅝ mile.
Nail in blaze in locust tree (6 inches diameter).....	202	15	50	..... 2.49 meters.
Nail in blaze in cedar tree (4 inches diameter).....	241	37	00	..... 5.47 meters.
REFERENCE STATION.....	242	48	00	..... 3.82 meters.
Nail in blaze in locust tree (7 inches diameter).....	244	46	50	..... 6.68 meters.

BUSH.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on north side of entrance to a small cove about ½ mile east of entrance to Granary Creek and ⅝ mile northwest of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land, about 7 feet above high water, 4 yards northeast of edge of bank, 9 yards northwest of point of curve of land, 22 yards west of tangent of land at tree, 30 yards west-northwest of scattering trees, and 50 yards northwest of a point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"Nub" (S 83° 55' E).....	0	00	00	..... ⅞-mile.
Tangent of point.....	46	27	..	..... ¼ mile.
Largest cedar tree on point of high bank.....	96	41	..	..... ¼ mile.
Nail in blaze in locust tree (2 inches diameter).....	102	18	10	..... 3.81 meters.
Tangent of point.....	166	18	..	..... ¼ mile.
Nail in blaze in hackberry tree (5 inches diameter).....	180	06	00	..... 8.65 meters.
Nail in blaze in walnut tree (10 inches diameter).....	348	25	20	..... 20.04 meters.

NUB.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on eastern side of entrance to a creek about ⅜ mile east of entrance to Granary Creek and ½ mile north of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 2 yards east of shore, 20 yards southwest of shore, 45 yards west of shore, 20 yards south of extreme end of point, and 16 yards north-northwest of woods. Cement monument marking reference station is 15.10 meters N 83° 01' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub set in 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

## References.—

	o	'	"	
"Wheel" (S 4° 10' E).....	0	00	00	¼ mile.
Chimney on house.....	30	02	..	⅜ mile.
Largest cedar on point of high bank.....	47	16	..	⅜ mile.
Large oak tree.....	94	55	..	⅜ mile.
Large oak tree.....	143	43	..	⅜ mile.
Large oak tree.....	226	17	..	150 yards.
REFERENCE STATION.....	267	11	20	15.10 meters.
Nail in blaze in cedar tree (8 inches diameter).....	296	57	30	16.81 meters.
Nail in blaze in oak tree (5 inches diameter).....	333	04	40	19.64 meters.
Nail in blaze in oak tree (4 inches diameter).....	349	37	20	20.87 meters.

## WHEEL.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on a point about  $\frac{3}{8}$  mile southeast by east of entrance to Granary Creek and  $\frac{1}{2}$  mile northwest of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh point south of woods about 1 foot above high water, 2 yards east of shore, 4 yards southeast of point at slight cut in marsh, and 40 yards north of square point of shore. Cement monument marking reference station is 5.26 meters S 86° 47' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub set in 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

## References.—

	o	'	"	
"Pick" (S 12° 31' E).....	0	00	00	⅜ mile.
Left peak of building.....	0	04	..	⅜ mile.
Right tangent of woods.....	111	05	..	1 mile.
Large oak tree.....	129	21	..	½ mile.
Nail in blaze in oak tree (14 inches diameter).....	219	10	40	21.66 meters.
Nail in blaze in oak tree (9 inches diameter).....	230	46	50	18.74 meters.
Nail in blaze in cedar tree (6 inches diameter).....	262	26	00	19.26 meters.
REFERENCE STATION.....	285	44	00	5.26 meters.
Left peak of large building.....	299	31	..	¾ mile.
Chimney showing over fence.....	308	54	..	¾ mile.
Right peak of large barn.....	359	34	..	⅜ mile.

## PICK.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on western side of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 15 feet above high water, 25 yards southwest of edge of field at line of cedar trees, 22 yards west of gully, 40 yards south-southeast of a small clump of trees beyond small gully, and 300 yards east-southeast of fringe of cedar trees along edge of field northeast to east of gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	"	
"Corner" (N 77° 40' W).....	0	00	00	¼ mile.
Nail in blaze in cherry tree (6 inches diameter).....	42	54	00	36.64 meters.
Left peak of barn.....	58	21	..	1¼ miles.



References—Continued.	o	'	''	
Front peak of house .....	104	57	..	1½ miles.
Nail in blaze in cedar tree (6 inches diameter).....	110	11	50	27.24 meters.
Nail in blaze in cedar tree (6 inches diameter).....	134	46	00	26.37 meters.
Near peak of house.....	152	11	..	⅝ mile.
Nail in blaze in hackberry tree (5 inches diameter).....	169	37	50	23.00 meters.
Left peak of large barn.....	243	36	..	¼ mile.
Right peak of house.....	314	37	..	¼ mile.

CORNER.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south about ¼ mile west of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 15 feet above high water, 50 yards southwest of edge of bank, 55 yards south of gully, 70 yards north-northwest of trees in depression, and 120 yards west of point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	o	'	''	
"Right" (N 20° 45' W).....	0	00	00	¼ mile.
Nail in blaze in large elm tree.....	16	18	00	50.41 meters.
Near peak of building.....	18	21	..	1 mile.
Nail in blaze in one of twin elm trees.....	63	58	40	47.11 meters.
Near peak of house.....	101	49	..	1¼ miles.
Left peak of house with two chimneys.....	113	02	..	1½ miles.
Nail in blaze in oak tree (14 inches diameter). 162	16	00	00	61.44 meters.
Near peak of large barn.....	238	11	..	¾ mile.
Right corner of large house.....	275	51	..	1½ miles.
Chimney on middle of large house.....	280	01	..	1 mile.

RIGHT.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on a point about ½ mile southeast of entrance to Granary Creek and ¼ mile northwest of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in tree-fringed cultivated land about 15 feet above high water, 7 yards south of edge of bank, 9 yards from point of bank at path, 15 yards northwest of edge of bank, and 120 yards east of fence in depression.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	o	'	''	
"Chew" (N 71° 45' W).....	0	00	00	¼ mile.
Left chimney of long house in woods.....	33	06	..	1 mile.
Nail in blaze in cedar tree (8 inches diameter).....	76	18	00	8.25 meters.
Left one of two large chimneys showing over the trees.....	131	03	..	1 mile.
Left corner of building.....	168	32	..	1½ miles.
Nail in blaze in hickory tree (10 inches diameter).....	182	29	40	10.80 meters.
Nail in blaze in elm tree (10 inches diameter). 243	35	00	00	29.80 meters.
Right peak of house.....	269	37	..	¼ mile.
Windmill to right of two large cupolas.....	287	12	..	⅝ mile.

## CHEW.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{8}$  mile southeast of entrance to Granary Creek and  $\frac{5}{8}$  mile west-northwest of entrance to Pickering Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 6 yards northeast of foot of bank 12 feet high, 12 yards west of point of shore, and 10 yards northwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Whale" (N 77° 32' W).....	0	00	00	..... $\frac{1}{8}$ mile.
Large oak tree.....	72	58	..	..... $\frac{1}{4}$ mile.
Tangent of point.....	131	18	..	..... $\frac{3}{8}$ mile.
Left end of building.....	138	38	..	..... $\frac{1}{4}$ mile.
Near peak of building.....	175	22	..	..... $1\frac{1}{4}$ miles.
Near peak of large barn.....	179	07	..	..... 1 mile.
Nail in blaze in cedar tree (10 inches diameter).....	284	33	00	..... 18.19 meters.
Nail in blaze in cedar tree (6 inches diameter).....	348	47	10	..... 9.57 meters.
Nail in blaze in cedar tree (5 inches diameter).....	358	58	20	..... 21.82 meters.

## WHALE.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on a point at western side of entrance to a small cove about  $\frac{1}{4}$  mile south of entrance to Granary Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a sand-and-grass point about 2 feet above high water, 2 yards south-southeast of shore, 4 yards west-northwest of shore, 9 yards southwest of extreme point, and 7 yards east by north of foot of a terraced bank about 15 feet high.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Matter" (N 77° 03' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Near peak of larger barn.....	52	33	..	..... $\frac{3}{4}$ mile.
Large oak tree.....	115	39	..	..... $\frac{1}{4}$ mile.
Near corner of building.....	175	40	..	..... $1\frac{1}{4}$ miles.
Near peak of large barn.....	178	45	..	..... $1\frac{1}{2}$ miles.
Nail in blaze in cedar tree (10 inches diameter).....	286	06	30	..... 9.40 meters.
Nail in blaze in cedar tree (7 inches diameter).....	309	33	10	..... 5.50 meters.
Nail in blaze in cedar tree (5 inches diameter).....	315	23	40	..... 9.49 meters.

## MATTER.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{8}$  mile east-southeast of entrance to Dividing Creek and  $\frac{3}{8}$  mile west-southwest of entrance to Granary Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on small grassy point about 1 foot above high water, 3 yards south of shore and 2 yards north of foot of tree-fringed bank 5 feet high. Cement monument marking reference station is 8.58 meters S 0° 32' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub set in 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

<i>References.</i> —	°	'	''	
"Deck" (N 78° 05' W).....	0	00	00	200 yards.
Left tangent of wharf.....	62	43	..	¼ mile.
Near peak of large barn on Pickerings Creek.	180	05	..	1¾ miles.
Nail in blaze in cedar tree (14 inches diameter).....	204	10	50	2.31 meters.
REFERENCE STATION.....	257	32	20	8.58 meters.
Nail in blaze in one of twin cedar trees (8 inches diameter).....	276	33	10	3.72 meters.
Nail in blaze in cedar tree (8 inches diameter).....	305	43	30	2.42 meters.

DECK.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on a point about ½ mile southeast of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is at edge of water bushes on a grass point about 1 foot above high water, 4 yards south of shore, 10 yards west of a round point, 20 yards east of shore, and 30 yards north of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"Quarter" (S 38° 13' W).....	0	00	00	¼ mile.
Chimney of house.....	43	11	..	1¼ miles.
Tangent of point of land.....	74	32	..	¼ mile.
Left tangent of old wharf.....	149	46	..	400 yards.
South peak of large barn.....	170	41	..	¾ mile.
Tangent of point of land.....	206	49	..	500 yards.
Left cedar tree on point.....	243	41	..	200 yards.

QUARTER.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south about ⅜ mile south-southeast of entrance to Dividing Creek and at east side of entrance to a cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on bank in a cultivated field about 12 feet above high water, 2 yards southeast of edge of bank, 100 yards south of trees and break in bluff, and 120 yards north of edge of bank at point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"Nodim" (N 87° 45' W).....	0	00	00	½ mile.
Near peak of barn.....	1	18	..	1¾ miles.
Chimney outside near end of house.....	10	34	..	1¾ miles.
Near corner of barn.....	53	27	..	¾ mile.
Right tangent of old wharf.....	112	25	..	¾ mile.
Right peak of large barn.....	304	41	..	¾ mile.
Baldwin windmill.....	317	20	..	¾ mile.
Near peak of house.....	354	43	..	1¼ miles.

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## NODIM.

*General locality.*—Southeastern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{8}$  mile southwest of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 4 feet above high water, 4 yards south of shore, 8 yards southeast of shore, 25 yards southwest of shore of marsh, and 13 yards south of corner of marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Gusta" (S 21° 08' W).....	0	00	00	..... $\frac{1}{8}$ mile.
Near peak of house.....	42	04	..	..... $1\frac{3}{8}$ miles.
Left peak of house.....	63	19	..	..... 1 mile.
Chimney outside left end of house.....	134	07	..	..... $\frac{5}{8}$ mile.
Right corner of house.....	152	55	..	..... $\frac{3}{4}$ mile.
Right tangent of wharf.....	220	29	..	..... $\frac{3}{4}$ mile.
Baldwin windmill.....	354	18	..	..... $\frac{3}{8}$ mile.

## GUSTA.

*General locality.*—Southeastern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{7}{8}$  mile north-northeast of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 8 yards east of edge of bank, 12 yards southeast of edge of bank, 17 yards northeast of edge of bank, 35 yards north-northeast of a depression, and 65 yards southwest of end of cut in bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Sylvia" (S 22° 57' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Left tangent of house on Bruffs Island.....	26	06	..	..... 2 miles.
Left chimney of house.....	45	15	..	..... $1\frac{3}{8}$ miles.
Peak between two chimneys of house.....	51	42	..	..... 2 miles.
Right peak of house.....	80	53	..	..... 1 mile.
Cupola of barn.....	88	46	..	..... $\frac{5}{8}$ mile.
Left corner of house.....	155	40	..	..... $\frac{3}{4}$ mile.
Right peak of large barn.....	312	09	..	..... $\frac{3}{8}$ mile.
Baldwin windmill.....	350	13	..	..... $\frac{3}{8}$ mile.

## SYLVIA.

*General locality.*—Southeastern shore of the branch of Wye River bounding Wye Island on the south on second prominent point north of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 11 yards east by south of edge of bluff, 22 yards northeast of lone locust tree 2 feet in diameter at the edge of the bank, and 400 yards northwest of a large barn.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Baldwins" (S 27° 13' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Nail in blaze in locust tree (24 inches diameter).....	24	12	20	..... 19.90 meters.
Very large lone tree.....	40	21	..	..... 22 yards.
Nail in blaze in locust tree (6 inches diameter).....	53	42	20	..... 13.37 meters.

References—Continued.

	°	'	''	
Left peak of barn.....	73	23	..	5/8 mile.
Cupola of building.....	106	19	..	5/8 mile.
Near peak of large house.....	156	37	..	1 mile.
Near peak of large barn.....	273	21	..	3/8 mile.
Baldwin windmill.....	334	37	..	1/4 mile.
Peak of near gable of Baldwin house.....	336	06	..	1/4 mile.
Spindle on cupola.....	336	51	..	1/4 mile.

BALDWINS.

*General locality.*—Southeastern shore of the branch of Wye River bounding Wye Island on the south on a point about 3/8 mile north of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a short, sharp point of marsh about 100 yards north of a yacht landing, 7 yards northeast of shore, 10 yards southeast of shore, 12 yards east of extreme end of point, and 8 yards west of foot of bank 8 feet high.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Cousin" (S 25° 13' E).....	0	00	00	1/4 mile.
Flagstaff on yacht-landing house.....	11	27	..	100 yards.
Windmill.....	27	44	..	1 1/8 miles.
Left peak of bell cupola.....	27	55	..	1 1/8 miles.
Spindle on barn cupola.....	62	53	..	2 miles.
Front peak of boathouse on Bruffs Island....	77	51	..	1 1/2 miles.
Near corner of left chimney of house.....	111	37	..	3/4 mile.
Near peak of barn with cupola.....	175	20	..	3/8 mile.
Near peak of barn.....	215	40	..	1 mile.
Nail in blaze in cedar tree (6 inches diameter).....	248	59	50	7.91 meters.
Nail in blaze in locust tree (5 inches diameter).....	311	47	20	5.36 meters.
Nail in blaze in locust tree (4 inches diameter).....	324	04	50	13.45 meters.

COUSIN.

*General locality.*—Southeastern shore of the branch of Wye River bounding Wye Island on the south about 1 1/2 miles east-northeast of north end of Bruffs Island and at northern side of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a pasture about 9 feet above high water, 25 yards east of edge of bank, 65 yards south-southeast of a small clump of trees in bottom land, 65 yards north of trees, 60 yards north of edge of a field, and 200 yards south of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Lloyd" (S 36° 07' W).....	0	00	00	1/2 mile.
Spindle on barn cupola.....	8	04	50	2 miles.
Front peak of boathouse.....	26	05	..	1 1/2 miles.
Left peak of house.....	63	13	..	1 1/8 miles.
Chimney of house.....	91	31	..	3/4 mile.
Peak of near gable of Baldwin house.....	135	42	..	200 yards.
Windmill on large barn.....	187	08	..	1/4 mile.
Right peak of house.....	209	44	..	350 yards.
Left peak of bell cupola.....	333	34	..	1 mile.
Windmill.....	334	19	..	1 mile.

## LLOYD.

*General locality.*—Southern shore of the branch of East Wye River bounding Wye Island on the south at western side of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 12 feet above high water, 70 yards southwest of edge of bank, 65 yards south of edge of bank, 65 yards north-northeast of point of woods and bottom land, and 120 yards northwest of an oak tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Edward" (N 84° 02' W).....	0	00	00	..... 3/8 mile.
Near peak of house.....	32	43	..	..... 1 mile.
Left peak of barn.....	52	18	..	..... 1 1/8 miles.
Near peak of house.....	76	14	..	..... 7/8 mile.
Peak of near gable of Baldwin house.....	109	28	..	..... 3/4 mile.
Near peak of barn.....	122	59	..	..... 7/8 mile.
Right peak of large house.....	132	01	..	..... 1 mile.
Large oak tree.....	208	57	30	..... 120 yards.

## EDWARD.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on a point at eastern side of entrance to Shaw Bay about 3/4 mile east-northeast of north end of Bruffs Island and 3/8 mile west of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 8 yards southeast of edge of a bluff which is washing away, and 30 yards southwest of a line of large trees at edge of bank and field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Colonel" (S 0° 10' W).....	0	00	00	..... 1/2 mile.
Windmill.....	33	28	20	..... 1 1/4 miles.
Front peak of boathouse.....	64	02	..	..... 3/4 mile.
Peak between two chimneys of house.....	114	10	..	..... 1 3/8 miles.
Near peak of house.....	146	12	..	..... 7/8 mile.
Chimney of house.....	170	06	..	..... 1 1/4 miles.
Nail in blaze in walnut tree (13 inches diameter).....	201	56	40	..... 26.40 meters.
Nail in blaze in locust tree (4 inches diameter).....	216	09	10	..... 26.95 meters.
Nail in blaze in locust tree (10 inches diameter).....	235	55	40	..... 31.55 meters.
Windmill.....	309	41	00	..... 7/8 mile.

## COLONEL.

*General locality.*—Southern shore of Shaw Bay on a point at entrance to a small cove about 1/2 mile from the branch of Wye River bounding Wye Island on the south and 5/8 mile east of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a field about 10 feet above high water, 6 yards southeast of edge of bank which is washing away, 9 yards south-southwest of point of bank, and 3 yards west of top of bank lined with cedar, walnut, and oak trees. Cement monument marking reference station is 18.69 meters S 24° 06' E of observed station,

*Marks.*—Observed station is nail in center of 2-inch stub projecting 4 inches above 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	''	
"Shaw" (N 68° 12' W).....	0	00	00	..... ¾ mile.
Peak of roof between two chimneys of house. . . . .	19	29	..	..... 1½ miles.
Near peak of house.....	48	21	..	..... 1½ miles.
Peak of near gable of house.....	100	57	..	..... 1¼ miles.
Nail in blaze in oak tree (20 inches diameter). . . . .	110	47	00	..... 5.21 meters.
Nail in blaze in oak tree (6 inches diameter). . . . .	183	33	40	..... 6.46 meters.
Nail in blaze in oak tree (7 inches diameter). . . . .	213	01	40	..... 13.45 meters.
REFERENCE STATION.....	224	05	50	..... 18.69 meters.
Near corner of house on Bruffs Island.....	355	07	..	..... ¾ mile.

SHAW.

*General locality.*—Southern shore of entrance to the branch of Wye River bounding Wye Island on the south on northern end of Bruffs Island about ⅜ mile southwest of Bordley Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in walnut, pine, and cedar woods, about 15 feet above high water, 7 yards southwest of edge of bank, and 100 yards north-northwest of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Won" (N 69° 43' W).....	0	00	00	..... ½ mile.
Peak of house between two chimneys.....	39	56	..	..... ⅔ mile.
Chimney on right end of house.....	77	44	..	..... 1¼ miles.
Near peak of large barn.....	88	54	..	..... 1½ miles.
Near peak of house.....	137	02	..	..... 1½ miles.
Chimney of house.....	174	08	..	..... 1¼ miles.
Right corner of left piazza post.....	234	04	10	..... 100 yards.
Nail in blaze in walnut tree (28 inches diameter).....	235	00	00	..... 29.32 meters.
Nail in blaze in walnut tree (24 inches diameter).....	268	35	20	..... 24.30 meters.
Nail in blaze in walnut tree (15 inches diameter).....	291	48	10	..... 15.98 meters.

BRUFFS.

*General locality.*—Eastern shore of Wye River on northwest point of Bruffs Island about ⅜ mile northeast of Bennett Point and ⅓ mile southwest of Bordley Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 10 yards east of shore, 14 yards southwest of shore, 20 yards southeast of point of marsh, and 18 yards west of point of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Law" (S 2° 07' W).....	0	00	00	..... ½ mile.
"St. Michaels P. E. Church Spire".....	17	35	20	..... 5½ miles.
"St. Michaels Water Tank".....	17	50	20	..... 5¼ miles.
Cupola of barn.....	38	15	00	..... 4½ miles.
Near peak of large barn.....	54	30	..	..... 3¾ miles.
Large walnut tree.....	118	55	..	..... ½ mile.
Peak between two chimneys of house.....	156	15	..	..... ⅔ mile.
Near corner of house.....	184	29	..	..... 2½ miles.

References—Continued.	°	'	''	
Right peak of house.....	208	24	..	..... 7/8 mile.
Nail in blaze in tree (4 inches diameter)....	257	20	30	..... 17.38 meters.
Nail in blaze in walnut tree (3 inches diameter).....	278	43	50	..... 27.96 meters.
Nail in blaze in cedar tree (4 inches diameter).....	310	49	30	..... 41.27 meters.
Smoke pipe of building in woods.....	314	28	..	..... 200 yards.

## LAW.

*General locality.*—Southeastern shore of Wye River about 3/4 mile east of Bennett Point and 1/8 mile southwest of south end of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 15 feet above high water, 8 yards southeast of edge of a bluff, 45 yards southwest of a wire fence, 100 yards northeast of a clump of trees, and 150 yards northwest of a black walnut tree at edge of field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"James" (S 36° 41' W).....	0	00	00	..... 1/2 mile.
"Rich Neck Water Tower".....	47	20	10	..... 4 3/8 miles.
Chimney of house on Tilghmans Point Farm.	57	48	..	..... 3 3/4 miles.
Cupola of right barn.....	58	51	..	..... 3 3/4 miles.
Near peak of large barn.....	128	41	..	..... 1 1/4 miles.
Right corner of building in woods.....	169	31	..	..... 3/8 mile.
Nail in blaze in cedar tree (4 inches diameter).....	182	21	50	..... 38.67 meters.
Left peak of house.....	199	10	..	..... 2 miles.
Nail in blaze in black walnut tree (7 inches diameter).....	206	30	30	..... 45.23 meters.
Nail in blaze in cedar tree (4 inches diameter).....	224	46	40	..... 59.96 meters.
Black walnut tree (18 inches diameter)....	284	14	..	..... 150 yards.
Right corner of barn.....	297	53	..	..... 1/4 mile.
Large cedar tree.....	338	23	..	..... 100 yards.

## JAMES.

*General locality.*—Eastern shore of Miles River at southern side of entrance to Wye River about 5/8 mile southwest of Bruffs Island and 5/8 mile southeast of Bennett Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 20 feet above high water, 17 yards east of edge of a bluff at shore, and 14 yards south of edge of a bluff 18 feet high with uniform slope to shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Frank" (S 3° 18' W).....	0	00	00	..... 1/4 mile.
"St. Michaels P. E. Church Spire".....	15	09	00	..... 4 1/2 miles.
"St. Michaels Water Tank".....	17	06	00	..... 4 3/8 miles.
South chimney of house.....	63	16	..	..... 4 miles.
South chimney of house on Tilghmans Point Farm.....	97	14	..	..... 3 1/2 miles.
Right tangent of Tilghmans Point.....	109	08	..	..... 3 1/4 miles.
Chimney of small cabin.....	174	03	..	..... 1 3/8 miles.
West gable of barn.....	190	22	..	..... 2 3/4 miles.
Cupola of barn.....	297	26	..	..... 5/8 mile.



FRANK.

*General locality.*—Eastern shore of Miles River about ½ mile south of entrance to Wye River and 1 mile northeast of Herring Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated field about 18 feet above high water, 8 yards east of a bluff washed by high water, and 125 yards south of a ditch. Cement monument marking reference station is 25.51 meters S 87° 47' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—

	°	'	''	
"Wood" (S 12° 55' E).....	0	00	00	¼ mile.
"St. Michaels P. E. Church Spire".....	32	13	00	4¼ miles.
"St. Michaels Water Tank".....	34	18	00	4¾ miles.
East gable of barn.....	59	33	..	3 miles.
"Rich Neck Water Tank".....	105	14	00	3¾ miles.
South chimney of house on Tilghmans Point Farm.....	117	24	..	3½ miles.
Right tangent of Tilghmans Point.....	129	22	..	3¼ miles.
South gable of small house.....	185	22	..	1¼ miles.
REFERENCE STATION.....	285	08	10	25.51 meters.
Cupola on barn.....	289	06	..	¾ mile.
East chimney of house.....	335	53	..	1¼ miles.

WOOD.

*General locality.*—Eastern shore of Miles River about 1½ miles southeast of Bennett Point, 1¼ miles east-northeast of Herring Island and ⅝ mile north-northwest of entrance to Woodland Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 18 feet above high water, 18 yards east of shore and top of vertical bank 18 feet high, and 3 yards south of a wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Pearson" (N 65° 24' W).....	0	00	00	3¼ miles.
Right tangent of Tilghmans Point.....	5	29	..	3½ miles.
Left tangent of marsh on Bennett Point.....	36	49	..	1½ miles.
West gable of barn.....	127	56	..	½ mile.
"St. Michaels P. E. Church Spire".....	266	53	00	4 miles.
"St. Michaels Water Tank".....	269	09	00	3¾ miles.
North chimney of house.....	321	42	..	3 miles.
South chimney of house on Tilghmans Point Farm.....	353	51	..	3⅝ miles.

HERR.

*General locality.*—In Miles River on Herring Island about 1¼ miles southwest of entrance to Wye River. (See Chart No. 32.)

*Immediate locality.*—Observed station is on sandy ground in the center of Herring Island about 2 feet above high water, 30 yards northeast of shore and 30 yards southwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

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References.—	°	'	''	
"Rich Neck Water Tank" (N 77° 26' W)....	0	00	00	..... 3 miles.
North chimney of house on Tilghmans Point Farm.....	16	28	..	..... 2 $\frac{7}{8}$ miles.
Right tangent of Tilghmans Point.....	31	07	..	..... 2 $\frac{7}{8}$ miles.
South gable of barn.....	81	37	..	..... 7 miles.
North chimney of small house.....	108	59	..	..... 2 $\frac{3}{4}$ miles.
Cupola of barn.....	149	17	..	..... 1 $\frac{1}{2}$ miles.
North gable of barn.....	198	40	..	..... 1 $\frac{3}{4}$ miles.
East gable of barn.....	209	40	..	..... 3 miles.
Left chimney of Seth house.....	333	42	..	..... 2 miles.
North chimney of house.....	345	25	..	..... 2 $\frac{3}{8}$ miles.

## OLLIE.

*General locality.*—Eastern shore of Miles River about 1 mile north of entrance to Leeds Creek and  $\frac{3}{4}$  mile northeast of Deep Water Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in woods about 8 feet above high water, 6 yards west of edge of bank which is washing rapidly, and 8 yards northeast of large pine tree at edge of bank. Cement monument marking reference station is 14.42 meters N 74° 15' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe with top flush with surface of ground. Sub-surface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of the ground.

References.—	°	'	''	
"Swing" (S 1° 20' W).....	0	00	00	..... $\frac{3}{4}$ mile.
Nail in blaze in pine tree (3 feet diameter) ..	25	56	00	..... 7.62 meters.
"St. Michaels Water Tank".....	37	58	20	..... 2 $\frac{1}{4}$ miles.
Weather vane on house on Deep Water Point Farm.....	57	10	..	..... 1 mile.
Near peak of house.....	91	55	..	..... 1 $\frac{3}{8}$ miles.
Chimney of house on Tilghmans Point Farm.....	130	38	..	..... 4 $\frac{1}{2}$ miles.
Right tangent of Tilghmans Point.....	140	03	..	..... 4 $\frac{1}{2}$ miles.
"Parsons Island Water Tank".....	157	19	40	..... 7 $\frac{1}{4}$ miles.
Left tangent of main woods on Bennett Point.....	172	00	..	..... 3 miles.
Chimney on right end of house in woods.....	180	00	..	..... 4 miles.
Nail in blaze in pine tree (8 inches diameter).....	240	27	..	..... 10.56 meters.
REFERENCE STATION.....	284	24	40	..... 14.42 meters.
Nail in blaze in pine tree (7 inches diameter).....	285	22	10	..... 10.55 meters.
Nail in blaze in pine tree (7 inches diameter).....	316	39	..	..... 12.52 meters.

## DEEWAT.

*General locality.*—Western shore of Miles River on Deep Water Point, about  $\frac{7}{8}$  mile west-northwest of Fairview Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on sand and grass point about 2 feet above high water, 8 yards southwest of shore, 7 yards northwest of shore, and 10 yards west of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"St. Michaels Water Tank" (S 33° 08' W)....	0	00	00	..... 1 $\frac{1}{2}$ miles.
Weather vane on Dodson house.....	53	13	..	..... $\frac{1}{4}$ mile.
Tangent of Tilghmans Point.....	117	58	..	..... 4 $\frac{5}{8}$ miles.
Right tangent of Parsons Island.....	133	28	..	..... 7 $\frac{1}{2}$ miles.
Large square chimney of Starr house.....	179	59	..	..... 2 $\frac{5}{8}$ miles.
Large chimney of house.....	212	08	..	..... 1 $\frac{1}{8}$ miles.

## References—Continued.

	°	'	''	
Cupola on Rieman house.....	271	59	..	1¼ miles.
Tangent of Long Point.....	287	02	..	3¼ miles.
Steeple.....	295	04	..	4½ to 5 miles.
Large chimney of house.....	297	41	..	2¾ miles.
Large chimney of house.....	309	30	..	2¾ miles.
"St. Michaels P. E. Church Spire".....	353	40	40	1½ miles.

## SPAR.

*General locality.*—Southwestern shore of Miles River about 1 mile southeast of entrance to Hambleton Creek and ¾ mile northwest of Deep Water Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on cedar-and-locust-fringed shore about 4 feet above high water, 11 yards west of shore, 12 yards southwest of shore, and 15 yards south of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Sara" (N 39° 19' W).....	0	00	00	1 mile.
Chimney of house on Tilghmans Point Farm.....	1	19	..	4 miles.
Near peak of barn beyond Herring Island... ..	42	38	..	8¾ miles.
Nail in blaze in oak tree (3 inches diameter)..	54	59	00	4.52 meters.
Right tangent of chimney.....	125	32	..	1¼ miles.
Tangent of Deep Water Point.....	181	22	..	¾ mile.
Nail in blaze in locust tree (3 inches diameter).....	240	08	40	6.84 meters.
Nail in blaze in locust tree (4 inches diameter).....	279	53	30	3.58 meters.

## SARA.

*General locality.*—Southwestern shore of Miles River about ¾ miles south-southeast of northern end of Tilghmans Point ¼ miles southwest of Herring Island and on point at eastern side of entrance to Hambleton Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 15 feet above high water, 16 yards southwest of a bluff 12 feet high with uniform slope to shore, and 20 yards east of depression 4 feet deep.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Wood" (N 52° 14' E).....	0	00	00	2 miles.
West chimney of house.....	127	40	..	½ mile.
Nail in blaze in hackberry tree (12 inches diameter).....	158	58	50	22.02 meters.
Nail in blaze in cedar tree (12 inches diameter).....	204	12	50	12.66 meters.
Right tangent of Tilghmans Point.....	282	58	..	3¼ miles.
"Parsons Island Water Tank".....	297	11	00	6½ miles.
South gable of barn.....	315	40	..	8 miles.
South gable of house.....	323	03	..	6 miles.
South gable of barn.....	340	49	..	4 miles.

## SETH.

*General locality.*—Southwestern shore of Miles River on a point about 2½ miles south of northern end of Tilghmans Point and ¾ mile northwest of entrance to Porters Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in clump of cedar trees about 12 feet above high water, 9 yards southwest of top of vertical bank, washed by high water, 50 yards northwest of extreme end of

## Survey of Oyster Bars, Queen Annes County, Md.

point, and 400 yards northeast of a house. Cement monument marking reference station is 9.56 meters S  $67^{\circ} 41'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 12 inches above surface of ground.

<i>References.</i> —	°	'	''	
"Herr" (N $79^{\circ} 07'$ E).....	0	00	00	..... 2 miles.
Nail in blaze in cedar tree (12 inches diameter).....	145	20	20	..... 10.89 meters.
REFERENCE STATION.....	168	34	30	..... 9.56 meters.
Nail in blaze in cedar tree (6 inches diameter).....	219	59	45	..... 4.44 meters.
South gable of house.....	282	12	..	..... $5\frac{1}{2}$ miles.
South gable of barn.....	305	34	..	..... 6 miles.
West gable of house.....	312	30	..	..... 6 miles.
Cupola on barn.....	356	52	..	..... 3 miles.

## DIXON.

*General locality.*—Southeastern side of Eastern Bay on Tilghmans Point about halfway between Eastern Bay and Miles River,  $\frac{3}{4}$  mile southwest of northern end of point, and  $1\frac{5}{8}$  miles northeast of Claiborne Wharf. (See Chart No. 32.)

*Immediate locality.*—Observed station is on top of a 2-story square frame house on Tilghmans Point Farm.

*Marks.*—Observed station is center of upright staff, 3 inches square, set in the center of trap door at apex of square roof.

*References.*—None necessary.

## PEARSON.

*General locality.*—Western shore of Miles River on Tilghmans Point about  $\frac{3}{8}$  mile south-southeast of northern end of point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on wooded bluff about 20 feet above high water, 5 yards west of top of vertical bank at shore, and 100 yards north of first point south of northern end of Tilghmans Point. Cement monument marking reference station is 12.66 meters N  $86^{\circ} 03'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

<i>References.</i> —	°	'	''	
"Green" (N $45^{\circ} 46'$ E).....	0	00	00	..... $3\frac{3}{8}$ miles.
South gable of barn.....	1	14	..	..... 5 miles.
South chimney of house.....	11	48	..	..... $3\frac{1}{2}$ miles.
West chimney of house.....	26	31	..	..... $2\frac{7}{8}$ miles.
West gable of barn.....	62	31	..	..... $3\frac{1}{2}$ miles.
East gable of barn.....	76	09	..	..... 4 miles.
West chimney of house.....	111	30	..	..... $3\frac{1}{4}$ miles.
North chimney of house.....	125	20	..	..... $3\frac{3}{8}$ miles.
Chimney of house.....	130	36	..	..... $2\frac{1}{2}$ miles.
Nail in blaze in white oak tree (8 inches diameter).....	178	09	40	..... 5.31 meters.
REFERENCE STATION.....	228	11	00	..... 12.66 meters.
Nail in blaze in white oak tree (12 inches diameter).....	239	19	20	..... 9.99 meters.
South gable of house on Parsons Island.....	317	17	..	..... $3\frac{1}{2}$ miles.
South gable of barn.....	350	02	..	..... $4\frac{3}{8}$ miles.

## BOUNDARIES OF OYSTER BARS.

### EXPLANATION.

The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the designation and employment by the Department of Commerce and Labor of such officers, experts, and other technically qualified persons "as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland." The oyster laws of Maryland provide that the Maryland Shell Fish Commissioners, with the aid of such persons as may be designated by the Government, shall proceed "to have laid out, surveyed, and designated on the said charts the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts." The oyster laws of Maryland also provide in another section that there shall "be made a true and accurate survey of the natural oyster beds, bars, and rocks \* \* \* with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey."

Under the provisions of the laws quoted above the State of Maryland, in cooperation with the Department of Commerce and Labor, must define the boundaries of the natural oyster bars "as accurately as practicable" and also "with reference to fixed and permanent objects on the shore, giving courses and distances." The requirement of "as accurately as practicable" is easily fulfilled by definition of the location of the corners of the oyster bars by latitude and longitude. In fact, this method is probably the most satisfactory and accurate one that could be used for all purposes of legal definition or for relocation of the oyster-bar boundaries by competent engineers. Therefore the additional requirement of "giving courses and distances" is superfluous and is only fulfilled in the published definitions on account of the specific provisions of the law making it compulsory. This part of the description of boundaries has involved an immense amount of extra computations in order to prevent technical discrepancies between the latitude and longitude of a corner of an oyster bar and its distance and bearing from objects on shore of known latitude and longitude without adding anything to the accuracy and very little to the convenience of practical use of the descriptions of the oyster-bar boundaries.

As provided by law the boundaries of the oyster bars are all straight lines, but in the work already completed they have inclosed areas of all shapes from triangles to complicated 14-sided figures, and of all sizes from 4 acres to 7,548 acres. The sides have varied in length from 93 to 7,529 yards, and in some cases the corners of the boundaries have been practically at the triangulation stations from which they are located, while in other instances they were over 13,600 yards from the landmarks most available for the purpose of fixing their position.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made and the magnitude of the work with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and great importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and the future.

#### METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in each county.

*Title.*—At the top of each tabular form is given the legal name of the oyster bar to be described, and the one by which it is known and designated in the published oyster records and on the oyster charts. The adopted name of the oyster bar is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the commission; and when there was no local name in common use a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the oyster bar was located.

Underneath the name, in parentheses, is given the general locality of the oyster bar and the serial number of the "Maryland Oyster Chart" on which its legal boundaries are shown.<sup>1</sup>

*First column.*—This column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar. Where a corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars, only the number of the corner of the oyster bar being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the commission as the primary technical definition of the location of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations of the survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>1</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>2</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars: One, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

(1) *Triangulation.*—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for

<sup>1</sup> The mean magnetic variation for Queen Annes County was 6° 15' west of north in 1911 and increasing at the rate of 5' yearly.

<sup>2</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D. C.

cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic.*—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant, the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "Broad Creek" oyster bar, which is the first one described in this publication, and assume that "Corner No. 3," is to be examined as to its position. The angle between the two landmarks "Sandy Point Light" and "Ring" as determined from right to left from the forward bearings from this corner is  $98^{\circ} 09'$  and the angle between "Ring" and "Railway Water Tank" is  $71^{\circ} 08'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor ("position finder"), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus



obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant then the other until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic location of a point is attained. In fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State fishery force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer can take compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>1</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks, for which the bearings are published, have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used. This can be done by getting their bearings directly from the chart by parallel rulers or a protractor and then applying these new bearings in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fifth column of the tables opposite the "corner" in question. The direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

<sup>1</sup>The mean magnetic variation for Queen Annes County is 6° 15' west of north in 1911 and increasing at the rate of 5' yearly.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

## BOUNDARIES OF NATURAL OYSTER BARS.

## BROAD CREEK.

(Chesapeake Bay—Chart No. 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
	° / ' / ''	° / ' / ''	° / ' / ''	° / ' / ''	Yards.	
1	38 58 36.70	76 21 17.00	S 63 30 E	N 63 30 W	1,108	Wash.
			N 34 56 E	S 34 57 W	5,153	Ring.
			N 31 04 W	S 31 05 E	5,534	Sandy Point Light.
2	38 58 42.32	76 21 34.67	S 64 51 E	N 64 51 W	1,610	Wash.
			N 40 14 E	S 40 16 W	5,287	Ring.
			N 27 43 W	S 27 44 E	5,138	Sandy Point Light.
3	39 01 44.75	76 20 05.62	S 71 18 W	N 71 16 E	4,996	Sandy Point Light.
			S 26 51 E	N 26 51 W	2,373	Ring.
			N 82 01 E	S 82 02 W	2,439	Railway Water Tank.
4	39 01 39.96	76 19 43.20	S 74 51 W	N 74 49 E	5,514	Sandy Point Light.
			S 13 51 E	N 13 51 W	2,015	Ring.
			N 74 40 E	S 74 41 W	1,892	Railway Water Tank.
5	38 59 38.62	76 19 57.54	N 21 55 E	S 21 55 W	2,303	Ring.
			N 61 48 W	S 61 50 E	5,610	Sandy Point Light.
			S 23 04 W	N 23 04 E	2,807	Wash.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

LOVE POINT.

(Chesapeake Bay off Love Point—Chart No. 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	39 02 07.35	76 19 30.60	S 74 10 E N 85 49 E N 56 12 E	N 74 09 W S 85 50 W S 56 14 W	1,552 2,303 4,745	Railway Water Tank. Amour. Love Point Light.
2	39 02 10.90	76 19 54.10	S 75 35 E N 89 03 E N 61 05 E	N 75 34 W S 89 04 W S 61 07 W	2,180 2,916 5,211	Railway Water Tank. Amour. Love Point Light.
3	39 03 33.70	76 19 32.30	S 24 45 E S 40 28 E S 86 05 E	N 24 45 W N 40 28 W N 86 04 W	3,674 3,668 3,998	Railway Water Tank. Amour. Love Point Light.
4	39 03 18.65	76 18 33.10	S 0 23 W S 19 19 E N 84 30 E	N 0 23 E N 19 19 W S 84 31 W	2,827 2,370 2,443	Railway Water Tank. Amour. Love Point Light.
5	39 04 15.35	76 16 34.41	S 31 33 E N 25 49 E N 1 56 W	N 31 31 W S 25 50 W S 1 56 E	6,057 6,240 8,703	Wickes Beach. Stevens. Swan Point 3.
Thence along county boundary as delineated on Chart No. 29						to corner No. 6.
6	39 03 53.27	76 16 11.63	S 30 11 E N 18 25 E N 5 24 W	N 30 10 W S 18 26 W S 5 24 E	5,112 6,705 9,485	Wickes Beach. Stevens. Swan Point 3.
7	39 02 55.16	76 17 18.66	S 44 10 W S 60 26 E N 24 48 E	N 44 11 E N 60 24 W S 24 49 W	2,838 4,981 1,131	Railway Water Tank. Wickes Beach. Love Point Light.

STRONG BAY.

(Lower Chester River—Chart No. 29.)

1	39 00 55.40	76 17 09.16	S 3 37 E N 68 50 E N 2 32 E	N 3 37 W S 68 52 W S 2 32 W	2,853 4,379 5,070	Macum. Wickes Beach. Love Point Light.
2	39 01 52.82	76 18 04.90	S 86 08 E N 28 23 E N 85 01 W	N 86 06 W S 28 23 W S 85 01 E	5,561 3,556 764	Wickes Beach. Love Point Light. Railway Water Tank.
3	39 01 59.81	76 17 58.12	N 27 36 E N 17 50 W S 79 47 W	S 27 36 W S 17 50 E N 79 47 E	3,264 443 955	Love Point Light. Amour. Railway Water Tank.
4	39 01 14.60	76 16 49.55	S 5 30 W N 75 20 E N 63 42 W	N 5 29 E S 75 22 W S 63 43 E	3,512 3,688 3,060	Macum. Wickes Beach. Railway Water Tank.

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## CARVEL.

(Lower Chester River—Chart No. 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 59 41.98	76 16 57.80	S 70 07 E	N 70 05 W	Yards. 5,378 5,548 5,354	Muddy. Wickes Beach. Amour.
			N 43 01 E	S 43 02 W		
			N 18 46 W	S 18 46 E		
2	39 00 21.36	76 17 27.50	S 21 18 E	N 21 18 W	1,824 5,310 3,858	Macum. Wickes Beach. Amour.
			N 59 08 E	S 59 10 W		
			N 14 07 W	S 14 07 E		
3	38 59 48.72	76 16 28.53	S 64 22 E	N 64 20 W	4,755 4,873 5,446	Muddy. Wickes Beach. Amour.
			N 38 13 E	S 38 14 W		
			N 27 14 W	S 27 15 E		

## FERRY (QUEEN ANNES COUNTY).

(Lower Chester River—Chart No. 29.)

1	38 59 23.94	76 15 34.62	S 66 55 E	N 66 54 W	3,118 4,695 4,930	Muddy. Narrows Point. Wickes Beach.
			N 59 33 E	S 59 35 W		
			N 18 53 E	S 18 54 W		
2	39 00 09.66	76 15 58.46	S 52 10 W	N 52 10 E	2,128 4,455 3,833	Macum. Muddy. Wickes Beach.
			S 51 40 E	N 51 41 W		
			N 35 27 E	S 35 28 W		
3	39 00 29.37	76 15 30.72	S 38 53 E	N 38 52 W	4,405 3,949 2,876	Muddy. Narrows Point. Wickes Beach.
			N 87 30 E	S 87 32 W		
			N 31 17 E	S 31 18 W		
4	39 00 04.45	76 14 38.00	Thence along county boundary as delineated on Chart No. 29 to corner No. 4.		2,932 2,750 3,299	Muddy. Narrows Point. Wickes Beach.
			S 28 01 E	N 28 00 W		
			N 68 25 E	S 68 26 W		
5	38 59 49.10	76 14 48.41	S 38 34 E	N 38 33 W	2,649 3,218 3,834	Muddy. Narrows Point. Wickes Beach.
			N 61 37 E	S 61 38 W		
			N 5 42 E	S 5 42 W		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

LONG POINT (CHESTER RIVER).

(Lower Chester River—Charts Nos. 29 and 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 59 03.26	76 13 15.32	N 84 48 E	S 84 49 W	Yards.	Bluebeard. Narrows Point. Muddy.
			N 7 05 E	S 7 05 W	3,528	
			S 56 42 W	N 56 41 E	3,099	
2	38 59 28.93	76 14 37.13	S 44 14 E	N 44 14 W	1,941	Muddy. Narrows Point. Wickes Beach.
			N 48 55 E	S 48 56 W	3,363	
			N 1 04 E	S 1 04 W	4,497	
3	38 59 49.10	76 14 48.41	S 38 34 E	N 38 33 W	2,649	Muddy. Narrows Point. Wickes Beach.
			N 61 37 E	S 61 38 W	3,218	
			N 5 42 E	S 5 42 W	3,834	
4	39 00 04.45	76 14 38.00	S 28 01 E	N 28 00 W	2,932	Muddy. Narrows Point. Wickes Beach.
			N 68 25 E	S 68 26 W	2,750	
			N 1 51 E	S 1 51 W	3,299	
5	38 59 21.24	76 13 13.75	S 36 36 W	N 36 36 E	1,410	Muddy. Bluebeard. Narrows Point.
			S 85 17 E	N 85 16 W	3,484	
			N 7 51 E	S 7 52 W	2,492	

FLOOD POINT.

(Chester River Entrance Kent Island Narrows—Chart No. 29.)

1	38 58 37.28	76 14 44.20	S 20 44 W	N 20 44 E	862	Bridge. Muddy. Thin.
			N 77 07 E	S 77 07 W	1,581	
			N 17 46 E	S 17 46 W	420	
2	38 58 42.52	76 14 47.62	S 12 20 W	N 12 20 E	1,005	Bridge. Muddy. Thin.
			N 83 50 E	S 83 51 W	1,640	
			N 44 21 E	S 44 21 W	312	
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 58 48.66	76 14 37.20	S 22 22 W	N 22 21 E	1,286	Bridge. Railroad. Muddy.
			S 13 16 E	N 13 16 W	1,641	
			S 88 41 E	N 88 41 W	1,357	
4	38 58 46.95	76 14 30.61	S 30 21 W	N 30 21 E	1,311	Bridge. Railroad. Muddy.
			S 7 32 E	N 7 32 W	1,557	
			N 88 43 E	S 88 43 W	1,184	
5	38 58 39.02	76 14 35.72	S 31 26 W	N 31 26 E	1,013	Bridge. Muddy. Thin.
			N 77 25 E	S 77 26 W	1,351	
			N 15 34 W	S 15 34 E	354	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## KENT ISLAND NARROWS.

(Kent Island Narrows—Chart No. 29.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 58 11.04	76 14 47.80	S 23 36 E	N 23 36 W	1,789	Marshy. Railroad. Thin.
			S 63 09 E	N 63 08 W	736	
			N 9 51 E	S 9 51 W	1,304	
2	38 58 13.40	76 14 55.78	S 8 41 W	N 8 41 E	1,932	Kirwan. Railroad. Thin.
			S 64 34 E	N 64 34 W	960	
			N 19 46 E	S 19 46 W	1,281	
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 58 42.52	76 14 47.62	S 12 20 W	N 12 20 E	1,005	Bridge. Muddy. Thin.
			N 83 50 E	S 83 51 W	1,640	
			N 44 21 E	S 44 21 W	312	
4	38 58 37.28	76 14 44.20	S 20 44 W	N 20 44 E	862	Bridge. Muddy. Thin.
			N 77 07 E	S 77 07 W	1,581	
			N 17 46 E	S 17 46 W	420	
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

## BLUNT.

(Lower Chester River—Chart No. 30.)

1	38 58 22.34	76 12 41.74	N 57 08 E	S 57 09 W	3,131	Bluebeard. Narrows Point. Muddy.
			N 6 25 W	S 6 26 E	4,484	
			N 63 04 W	S 63 05 E	1,888	
2	38 58 43.78	76 12 55.80	N 71 59 E	S 72 00 W	3,155	Bluebeard. Narrows Point. Muddy.
			N 2 01 W	S 2 01 E	3,735	
			N 84 16 W	S 84 16 E	1,320	
3	38 59 33.65	76 11 51.36	S 61 35 E	N 61 34 W	1,483	Bluebeard. Rain. Narrows Point.
			N 3 00 W	S 3 00 E	2,334	
			N 41 42 W	S 41 43 E	2,747	
4	38 59 31.02	76 11 24.58	N 13 33 W	S 13 33 E	2,489	Rain. Narrows Point. Muddy.
			N 49 48 W	S 49 49 E	3,315	
			S 68 29 W	N 68 28 E	3,983	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

POPLAR.

(Lower Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 59 42.84	76 10 51.55	N 55 18 E	S 55 18 W	Yards. 2,063 2,489 1,051	Blakeford. Rain. Bluebeard.
			N 35 42 W	S 35 42 E		
			S 14 54 W	N 14 54 E		
2	38 59 48.93	76 11 00.88	S 1 10 W	N 1 10 W	1,221 2,170 2,180	Bluebeard. Blakeford. Rain.
			N 63 28 E	S 63 29 W		
			N 33 36 W	S 33 37 E		
3	39 00 14.45	76 10 34.15	N 63 26 W	S 63 27 E	2,135 2,205 1,242	Rain. Bluebeard. Blakeford.
			S 19 17 W	N 19 17 E		
			N 85 00 E	S 85 01 W		
4	39 00 07.93	76 10 25.43	S 27 14 W	N 27 13 E	2,093 1,060 2,846	Bluebeard. Blakeford. Break.
			N 71 58 E	S 71 59 W		
			N 1 34 W	S 1 34 E		

CARPENTER ISLAND.

(Middle Chester River—Chart No. 30.)

1	39 00 33.76	76 10 47.00	S 70 59 E	N 70 59 W	1,667 2,033 1,600	Blakeford. Break. Rain.
			N 13 56 E	S 13 56 W		
			N 79 04 W	S 79 05 E		
2	39 01 12.05	76 11 10.98	N 51 13 W	S 51 14 E	2,489 1,365 2,869	Overton. Rain. Blakeford.
			S 43 37 W	N 43 37 E		
			S 50 16 E	N 50 15 W		
3	39 01 08.78	76 10 30.30	N 3 37 E	S 3 37 W	794 2,194 2,005	Break. Rain. Blakeford.
			S 66 26 W	N 66 25 E		
			S 33 23 E	N 33 23 W		
4	39 01 07.33	76 10 11.84	N 27 23 W	S 27 23 E	947 2,630 1,797	Break. Rain. Blakeford.
			S 71 39 W	N 71 38 E		
			S 21 13 E	N 21 13 W		
5	39 00 36.84	76 10 02.42	N 20 05 W	S 20 05 E	1,990 2,752 762	Break. Rain. Blakeford.
			N 85 50 W	S 85 51 E		
			S 31 54 E	N 31 54 W		

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## HORSE RACE.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 01 08.78	76 10 30.30	N 3 37 E	S 3 37 W	794	Break.
			S 66 26 W	N 66 25 E	2,194	Rain.
			S 33 23 E	N 33 23 W	2,065	Blakeford.
2	39 01 12.05	76 11 10.98	N 51 13 W	S 51 14 E	2,489	Overton.
			S 43 37 W	N 43 37 E	1,365	Rain.
			S 50 16 E	N 50 15 W	2,869	Blakeford.
3	39 02 00.00	76 11 41.20	S 63 58 E	N 63 58 W	2,131	Break.
			N 32 18 E	S 32 18 W	1,808	Fir.
			S 87 04 W	N 87 04 E	1,147	Overton.
4	39 02 17.46	76 11 06.57	N 3 22 E	S 3 22 W	942	Fir.
			S 72 32 W	N 72 33 E	2,155	Overton.
			S 33 23 E	N 33 22 W	1,825	Break.
5	39 01 31.43	76 10 30.47	N 73 14 W	S 73 15 E	3,139	Overton.
			S 50 43 W	N 50 43 E	2,592	Rain.
			S 24 38 E	N 24 38 W	2,736	Blakeford.

## PINEY POINT (QUEEN ANNES COUNTY).

(Middle Chester River—Chart No. 30.)

1	39 02 00.00	76 11 41.20	S 63 58 E	N 63 58 W	2,131	Break.
			N 32 18 E	S 32 18 W	1,808	Fir.
			S 87 04 W	N 87 04 E	1,147	Overton.
Thence along county boundary as delineated by Chart No. 30 to Corner No. 2.						
2	39 03 18.25	76 11 43.76	S 21 47 W	N 21 46 E	2,905	Overton.
			S 42 56 E	N 42 56 W	1,517	Fir.
			N 81 22 E	S 81 23 W	1,697	Gordon.
3	39 02 59.93	76 11 14.07	S 27 08 E	N 27 08 W	555	Fir.
			N 45 49 E	S 45 49 W	1,251	Gordon.
			N 65 12 W	S 65 12 E	2,234	Bay Bush Point.
4	39 02 41.86	76 11 25.76	S 32 45 E	N 32 44 W	2,790	Break.
			N 78 14 E	S 78 14 W	572	Fir.
			N 39 07 E	S 39 07 W	1,914	Gordon.
5	39 02 17.46	76 11 06.57	N 3 22 E	S 3 22 W	942	Fir.
			S 72 32 W	N 72 33 E	2,155	Overton.
			S 33 23 E	N 33 22 W	1,825	Break.



Survey of Oyster Bars, Queen Annes County, Md.

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BOUNDARIES OF NATURAL, OYSTER BARS—continued.

HELLS DELIGHT.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 02 59.93	76 11 14.07	S 27 08 E	N 27 08 W	Yards.	Fir. Gordon. Bay Bush Point.
			N 45 49 E	S 45 49 W	555	
			N 65 12 W	S 65 12 E	1,251 2,234	
2	39 03 18.25	76 11 43.76	S 21 47 W	N 21 46 E	2,905	Overton. Fir. Gordon.
			S 42 56 E	N 42 56 W	1,517	
			N 81 22 E	S 81 23 W	1,697	
3	39 04 10.82	76 10 59.06	S 18 20 E	N 18 19 W	1,599	Gordon. Reeds. Holton Point.
			S 76 40 E	N 76 39 W	2,359	
			N 68 41 E	S 68 42 W	3,309	
4	39 04 02.56	76 10 33.54	S 7 44 W	N 7 44 E	1,251	Gordon. Reeds. Holton Point.
			S 80 43 E	N 80 42 W	1,646	
			N 58 26 E	S 58 27 W	2,830	

REEDS.

(Reed's Creek—Chart No. 30.)

1	39 03 30.37	76 09 42.66	N 19 17 E	S 19 17 W	868	Reeds. Bird. Grove.
			N 48 32 W	S 48 32 E	636	
			S 31 00 W	N 31 00 E	105	
2	39 03 36.60	76 09 49.85	S 24 16 E	N 24 16 W	328	Grove. Reeds. Bird.
			N 37 58 E	S 37 58 W	773	
			N 53 45 W	S 53 44 E	357	
3	39 03 38.95	76 09 34.61	N 8 04 E	S 8 04 W	536	Reeds. Bird. Grove.
			N 79 09 W	S 79 10 E	701	
			S 35 01 W	N 35 01 E	403	

ROBINS COVE.

(Middle Chester River—Chart No. 30.)

1	39 04 17.42	76 09 38.05	S 27 09 W	N 27 09 E	1,310	Bird. Reeds. Holton Point.
			S 22 11 E	N 22 11 W	784	
			N 44 12 E	S 44 12 W	1,367	
2	39 04 20.62	76 09 44.92	S 18 09 W	N 18 08 E	1,340	Bird. Reeds. Holton Point.
			S 21 36 E	N 21 36 W	941	
			N 52 26 E	S 52 27 W	1,429	
3	39 04 36.15	76 09 34.31	S 21 11 W	N 21 10 E	1,927	Bird. Reeds. Holton Point.
			S 2 45 E	N 2 45 W	1,400	
			N 67 50 E	S 67 51 W	923	
4	39 04 33.58	76 09 28.20	S 26 37 W	N 26 36 E	1,913	Bird. Reeds. Holton Point.
			S 4 04 W	N 4 04 E	1,310	
			N 57 56 E	S 57 56 W	819	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## OLD FIELD.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 03 55.67	76 10 11.82	S 36 17 W	N 36 16 E	1,250	Gordon.
			S 88 11 E	N 88 11 W	1,054	Reeds.
			N 47 03 E	S 47 04 W	2,514	Holton Point.
2	39 04 02.56	76 10 33.54	S 7 44 W	N 7 44 E	1,251	Gordon.
			S 80 43 E	N 80 42 W	1,646	Reeds.
			N 58 26 E	S 58 27 W	2,830	Holton Point.
3	39 04 10.82	76 10 59.06	S 18 20 E	N 18 19 W	1,599	Gordon.
			S 76 40 E	N 76 39 W	2,359	Reeds.
			N 68 41 E	S 68 42 W	3,309	Holton Point.
4	39 05 00.50	76 10 15.60	S 27 27 E	N 27 26 W	2,501	Reeds.
			S 76 18 E	N 76 17 W	1,997	Holton Point.
			N 63 30 E	S 63 31 W	2,750	Spaniard Point 2, Upper.
5	39 05 32.73	76 09 29.24	S 24 49 E	N 24 48 W	1,719	Holton Point.
			S 69 30 E	N 69 30 W	1,407	Corsica.
			N 83 33 E	S 83 33 W	1,251	Spaniard Point 2, Upper.
6	39 05 23.33	76 09 16.60	S 17 23 E	N 17 23 W	1,302	Holton Point.
			S 79 54 E	N 79 53 W	1,002	Corsica.
			N 63 20 E	S 63 20 W	1,019	Spaniard Point 2, Upper.
7	39 05 08.76	76 09 33.12	S 47 36 E	N 47 36 W	1,114	Holton Point.
			N 77 28 E	S 77 29 W	1,456	Corsica.
			N 54 48 E	S 54 48 W	1,646	Spaniard Point 2, Upper.

## HOLTON POINT.

(Entrance Corsica River—Chart No. 30.)

1	39 04 46.68	76 08 44.98	N 88 01 E	S 88 01 W	567	Earle.
			N 8 19 E	S 8 19 W	1,072	Corsica.
			S 89 05 W	N 89 05 E	442	Holton Point.
2	39 05 08.76	76 09 33.12	S 47 36 E	N 47 36 W	1,114	Holton Point.
			N 77 28 E	S 77 29 W	1,456	Corsica.
			N 54 48 E	S 54 48 W	1,646	Spaniard Point 2, Upper.
3	39 05 23.33	76 09 16.60	S 17 23 E	N 17 23 W	1,302	Holton Point.
			S 79 54 E	N 79 53 W	1,002	Corsica.
			N 63 20 E	S 63 20 W	1,019	Spaniard Point 2, Upper.
4	39 05 13.48	76 09 07.72	S 9 42 E	N 9 42 W	924	Holton Point.
			N 78 15 E	S 78 16 W	769	Corsica.
			N 40 30 E	S 40 30 W	1,043	Spaniard Point 2, Upper.
5	39 05 06.92	76 08 41.24	S 38 05 W	N 38 05 E	876	Holton Point.
			S 35 12 E	N 35 12 W	812	Earle.
			S 80 26 E	N 80 26 W	779	Swepson.

Survey of Oyster Bars, Queen Annes County, Md.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

TOWN POINT.

(Corsica River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 04 40.98	76 07 56.52	N 24 25 E	S 24 25 W	805	Engineer. Swepson. Earle.
			N 28 39 W	S 28 39 E	850	
			N 73 21 W	S 73 21 E	739	
2	39 04 56.98	76 08 20.33	S 71 59 W	N 71 59 E	1,146	Holton Point. Earle. Hydrographic.
			S 14 03 W	N 14 03 E	338	
			S 47 23 E	N 47 23 W	1,118	
3	39 04 46.68	76 08 44.98	N 88 01 E	S 88 01 W	567	Earle. Corsica. Holton Point.
			N 8 19 E	S 8 19 W	1,072	
			S 89 05 W	N 89 05 E	442	
4	39 05 06.92	76 08 41.24	S 38 05 W	N 38 05 E	876	Holton Point. Earle. Swepson.
			S 35 12 E	N 35 12 W	812	
			S 80 26 E	N 80 26 W	779	
5	39 04 56.57	76 07 59.97	N 55 15 W	S 55 15 E	385	Swepson. Earle. Hydrographic.
			S 63 02 W	N 63 02 E	692	
			S 21 09 E	N 21 09 W	796	

EMORY WHARF.

(Corsica River—Chart No. 30.)

1	39 04 40.98	76 07 56.52	N 24 25 E	S 24 25 W	805	Engineer. Swepson. Earle.
			N 28 39 W	S 28 39 E	850	
			N 73 21 W	S 73 21 E	739	
2	39 04 56.57	76 07 59.97	N 55 15 W	S 55 15 E	385	Swepson. Earle. Hydrographic.
			S 63 02 W	N 63 02 E	692	
			S 21 09 E	N 21 09 W	796	
3	39 04 49.41	76 07 31.24	N 36 29 W	S 36 29 E	558	Engineer. Hydrographic. Ruth.
			S 43 01 W	N 43 01 E	686	
			S 23 45 E	N 23 45 W	657	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## EARLE COVE.

(Corsica River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	39 04 29.18	76 08 04.65	N 66 14 E	S 66 14 W	Yards.	Hydrographic. Swepson. Corsica.
			N 9 36 W	S 9 36 E	448	
			N 28 44 W	S 28 45 E	1,159 1,882	
2	39 04 33.48	76 08 09.74	N 86 14 E	S 86 15 W	545	Hydrographic. Swepson. Corsica.
			N 3 25 W	S 3 25 E	1,001	
			N 27 04 W	S 27 05 E	1,694	
3	39 04 37.95	76 08 01.72	N 29 21 E	S 29 21 W	958	Engineer. Swepson. Earle.
			N 17 42 W	S 17 42 E	889	
			N 61 12 W	S 61 12 E	652	
4	39 04 32.82	76 07 58.16	N 20 27 E	S 20 27 W	1,075	Engineer. Swepson. Earle.
			N 19 38 W	S 19 38 E	1,084	
			N 53 47 W	S 53 47 E	823	

Thence from corner No. 4 along the mean low water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide

## SHIP POINT.

(Corsica River—Chart No. 30.)

1	39 04 47.45	76 07 10.09	S 66 58 W	N 66 57 E	1,112	Hydrographic. Ruth. Bath.	
			S 28 32 W	N 28 32 E			610
			N 89 25 E	S 89 25 W			662
2	39 04 48.55	76 07 19.82	S 58 24 W	N 58 24 E	902	Hydrographic. Ruth. Bath.	
			S 3 33 W	N 3 33 E	573		
			S 87 44 E	N 87 43 W	919		
3	39 04 52.90	76 07 19.08	S 51 50 W	N 51 49 E	1,002	Hydrographic. Ruth. Bath.	
			S 4 22 W	N 4 22 E	722		
			S 78 29 E	N 78 28 W	918		
4	39 04 51.25	76 07 10.08	S 61 11 W	N 61 10 E	1,169	Hydrographic. Ruth. Bath.	
			S 23 43 W	N 23 43 E	725		
			S 79 06 E	N 79 05 W	674		

BOUNDARIES OF NATURAL, OYSTER BARS—continued.

POSSUM POINT.

(Corsica River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	39 04 46.63	76 06 54.57	S 14 07 W	N 14 07 E	705	Melfield. Bath. Ship.
			N 83 38 E	S 83 38 W	256	
			N 32 46 W	S 32 46 E	232	
2	39 04 50.64	76 06 57.25	S 68 15 W	N 68 15 E	1,465	Hydrographic. Ruth. Bath.
			S 44 21 W	N 44 21 E	900	
			S 71 46 E	N 71 45 W	341	
3	39 04 57.82	76 06 44.53	S 65 09 W	N 65 09 E	1,869	Hydrographic. Ruth. Bath.
			S 47 25 W	N 47 24 E	1,308	
			S 1 38 W	S 1 38 E	348	
4	39 04 56.40	76 06 39.66	S 67 59 W	N 67 59 E	1,967	Hydrographic. Ruth. Bath.
			S 52 30 W	N 52 29 E	1,376	
			S 24 37 W	N 24 37 E	331	

SPANIARD POINT.

(Middle Chester River—Chart No. 30.)

1	39 05 23.33	76 09 16.60	S 17 23 E	N 17 23 W	1,302	Holton Point. Corsica. Spaniard Point 2, Upper.
			S 79 54 E	N 79 53 W	1,002	
			N 63 20 E	S 63 20 W	1,019	
2	39 05 32.73	76 09 29.24	S 24 49 E	N 24 48 W	1,719	Holton Point. Corsica. Spaniard Point 2, Upper.
			S 69 30 E	N 69 30 W	1,407	
			N 83 33 E	S 83 33 W	1,251	
3	39 05 53.20	76 09 05.65	S 30 33 E	N 30 34 W	1,374	Corsica. Spaniard Point 2, Upper. Brown.
			S 48 35 E	N 48 35 W	831	
			N 32 20 E	S 32 20 W	1,067	
4	39 06 05.75	76 08 16.82	S 67 57 E	N 67 56 W	1,554	Chester. Deep Point 2. Brown.
			N 62 55 E	S 62 56 W	1,988	
			N 56 06 W	S 56 07 E	857	
5	39 06 00.63	76 08 14.36	S 73 22 E	N 73 21 W	1,436	Chester. Deep Point 2. Brown.
			N 57 43 E	S 57 43 W	2,017	
			N 50 02 W	S 50 02 E	1,014	
6	39 05 46.26	76 08 49.00	S 30 27 E	N 30 27 W	366	Spaniard Point 2, Upper. Evans. Brown.
			N 73 03 E	S 73 04 W	1,025	
			N 6 41 E	S 6 41 W	1,144	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## EMORY HOLLOW.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	39 05 56.60	76 08 04.60	S 76 11 E	N 76 11 W	Yards.	Chester. Deep Point 2. Brown.
			N 50 03 E	S 50 04 W	1,153	
			N 52 42 W	S 52 43 E	1,890 1,299	
2	39 06 00.63	76 08 14.36	S 73 22 E	N 73 21 W	1,436	Chester. Deep Point 2. Brown.
			N 57 43 E	S 57 43 W	2,017	
			N 50 02 W	S 50 02 E	1,014	
3	39 06 05.75	76 08 16.82	S 67 57 E	N 67 56 W	1,554	Chester. Deep Point 2. Brown.
			N 62 55 E	S 62 56 W	1,988	
			N 56 06 W	S 56 07 E	857	
4	39 06 23.28	76 07 08.81	S 16 26 W	N 16 26 E	1,225	Chester. Corpse. Deep Point 2.
			S 84 36 E	N 84 35 W	576	
			N 3 04 W	S 3 04 E	314	
5	39 06 18.51	76 07 03.33	S 25 49 W	N 25 49 E	1,126	Chester. Corpse. Deep Point 2.
			N 76 05 E	S 76 05 W	443	
			N 18 43 W	S 18 43 E	502	
6	39 05 58.62	76 07 29.60	S 83 54 W	N 83 54 E	1,112	Evans. Chester. Corpse.
			S 30 11 E	N 30 11 W	397	
			N 55 15 E	S 55 15 W	1,364	

## SHEEP (QUEEN ANNES COUNTY).

(Middle Chester River—Chart No. 30.)

1	39 06 18.51	76 07 03.33	S 25 49 W	N 25 49 E	1,126	Chester. Corpse. Deep Point 2.
			N 76 05 E	S 76 05 W	443	
			N 18 43 W	S 18 43 E	502	
2	39 06 23.28	76 07 08.81	S 16 26 W	N 16 26 E	1,225	Chester. Corpse. Deep Point 2.
			S 84 36 E	N 84 36 W	576	
			N 3 04 W	S 3 04 E	314	
3	39 06 34.74	76 06 47.60	S 2 09 E	N 2 09 W	441	Corpse. Indian. Thorn.
			N 59 13 E	S 59 13 W	794	
			N 14 19 E	S 14 20 W	900	
4	39 06 32.37	76 06 45.00	N 51 37 E	S 51 37 W	783	Indian. Thorn. Deep Point 2.
			N 9 12 E	S 9 13 W	965	
			N 89 20 W	S 89 21 E	643	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

MUMMYS COVE.

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	39 06 47.25	76 06 28.65	S 65 15 W	N 65 14 E	1,180	Deep Point 2. Thorn. Shippen.
			N 31 29 W	S 31 29 E	527	
			N 16 47 E	S 16 47 W	1,141	
2	39 06 50.40	76 06 32.73	S 58 06 W	N 58 05 E	1,136	Deep Point 2. Thorn. Shippen.
			N 26 06 W	S 26 06 E	383	
			N 23 54 E	S 23 54 W	1,077	
3	39 07 04.97	76 06 16.27	N 79 53 E	S 79 54 W	538	Ashland. Shippen. Thorn.
			N 0 27 E	S 0 27 W	494	
			S 76 09 W	N 76 09 E	619	
4	39 06 59.70	76 06 10.52	N 54 17 E	S 54 17 W	466	Ashland. Shippen. Thorn.
			N 12 22 W	S 12 22 E	688	
			N 87 44 W	S 87 45 E	752	

HOLLYDAY (QUEEN ANNES COUNTY).

(Middle Chester River—Chart No. 30.)

1	39 07 39.14	76 05 20.98	S 26 23 W	N 26 23 E	322	Burns. Starkley. Jarrett.
			N 81 18 E	S 81 18 W	548	
			N 27 27 E	S 27 27 W	911	
2	39 07 45.52	76 05 27.55	S 3 23 E	N 3 23 W	504	Burns. Starkley. Jarrett.
			S 79 31 E	N 79 31 W	726	
			N 44 58 E	S 44 59 W	839	
3	39 07 53.80	76 05 00.86	N 89 29 E	S 89 30 W	1,051	Booker. Jarrett. Oyster.
			N 19 07 W	S 19 07 E	333	
			S 84 25 W	N 84 25 E	1,159	
4	39 07 50.40	76 05 00.81	N 83 16 E	S 83 16 W	1,058	Booker. Jarrett. Oyster.
			N 14 25 W	S 14 25 E	442	
			N 89 54 W	S 89 54 E	1,155	

BOOKER WHARF.

(Middle Chester River—Chart No. 30.)

1	39 08 08.80	76 04 14.09	N 14 56 W	S 14 57 E	949	Cake. Melton. Booker.
			N 53 36 W	S 53 36 E	517	
			S 19 39 W	N 19 39 E	527	
2	39 08 09.25	76 04 19.93	S 2 40 W	N 2 40 E	512	Booker. Journey. Cake.
			N 56 21 E	S 56 22 W	466	
			N 5 46 W	S 5 46 E	911	
3	39 08 16.10	76 04 20.35	S 1 00 W	N 1 00 E	743	Booker. Journey. Cake.
			N 86 37 E	S 86 37 W	399	
			N 6 50 W	S 6 50 E	677	
4	39 08 16.25	76 04 12.41	N 23 21 W	S 23 21 E	728	Cake. Melton. Booker.
			N 83 09 W	S 83 09 E	463	
			S 16 30 W	N 16 30 E	780	

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## NORTHWEST (QUEEN ANNES COUNTY).

(Middle Chester River—Chart No. 30.)

Corner of bar	Latitude	Longitude	True bearing				Distance	U. S. C. & G. S. triangulation station
			Forward		Back			
			° / ' "	° / ' "	° / ' "	° / ' "		
1	39 08 30.13	76 04 28.43	S 53 39 E N 33 40 E N 75 40 W	N 53 39 W S 33 40 W S 75 40 E	Yards. 750 238 948	Journey. Cake. Pomona.		
2	39 08 49.92	76 04 53.37	S 59 11 E N 66 46 E N 39 52 W	N 59 10 W S 66 46 W S 39 52 E	916 636 538	Cake. Bill. Taste.		
3	39 08 54.27	76 04 46.60	N 4 24 E N 63 01 W S 37 17 W	S 4 24 W S 63 01 E N 37 17 E	721 586 728	Make. Taste. Pomona.		
4	39 08 33.26	76 04 27.72	N 82 09 W S 6 22 W S 46 51 E	S 82 09 E N 6 22 E N 46 51 W	946 522 812	Pomona. Melton. Journey.		

## BRICK HOUSE.

(Chesapeake Bay—Off Kent Island—Chart No. 31.)

1	38 55 40.93	76 22 25.00	N 43 59 E N 5 42 W S 59 16 W	S 44 00 W S 5 43 E N 59 14 E	1,379 10,718 6,905	Craney. Sandy Point Light. Thomas Point Shoal Light.
2	38 55 41.83	76 22 57.65	N 62 07 E N 1 07 W S 54 57 W	S 62 07 W S 1 07 E N 54 55 E	2,056 10,638 6,200	Craney. Sandy Point Light. Thomas Point Shoal Light.
3	38 56 45.73	76 22 47.84	S 52 34 E N 46 10 E N 3 08 W	N 52 33 W S 46 11 W S 3 08 E	1,963 4,691 8,492	Craney. Wash. Sandy Point Light.
4	38 57 54.10	76 21 53.66	S 2 10 E N 64 17 E N 17 01 W	N 2 10 W S 64 18 W S 17 02 E	3,502 2,172 6,458	Craney. Wash. Sandy Point Light.
5	38 57 38.73	76 21 24.70	S 11 57 W N 39 17 E N 21 37 W	N 11 57 E S 39 17 W S 21 38 E	3,047 1,887 7,199	Craney. Wash. Sandy Point Light.
6	38 56 05.58	76 22 28.00	N 81 12 E N 5 44 W S 53 20 W	S 81 12 W S 5 44 E N 53 18 E	1,049 9,883 7,302	Craney. Sandy Point Light. Thomas Point Shoal Light.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

GUM THICKET.

(Chesapeake Bay—Off Kent Island—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 52 08.37	76 22 45.10	N 10 20 E	S 10 20 W	8,294	Craney. Thomas Point Shoal Light. Bloody Point Bar Light.
			N 56 03 W	S 56 05 E	6,516	
			S 15 46 W	N 15 46 E	4,459	
2	38 52 08.42	76 23 02.35	N 13 23 E	S 13 24 W	8,387	Craney. Thomas Point Shoal Light. Bloody Point Bar Light.
			N 53 42 W	S 53 44 E	6,144	
			S 10 00 W	N 10 00 E	4,370	
3	38 53 02.63	76 23 14.86	N 19 44 E	S 19 45 W	6,726	Craney. Thomas Point Shoal Light. Bloody Point Bar Light.
			N 68 38 W	S 68 40 E	4,964	
			S 3 59 W	N 3 59 E	6,136	
4	38 54 04.55	76 22 49.73	N 20 46 E	S 20 47 W	4,537	Craney. Thomas Point Shoal Light. Bloody Point Bar Light.
			S 86 59 W	N 86 57 E	5,292	
			S 7 23 W	N 7 23 E	8,278	
5	38 54 05.44	76 22 29.22	N 14 14 E	S 14 15 W	4,346	Craney. Thomas Point Shoal Light. Bloody Point Bar Light.
			S 86 58 W	N 86 56 E	5,833	
			S 11 12 W	N 11 11 E	8,399	

KENT POINT.

(Chesapeake Bay—Off Bloody Point—Chart No. 31.)

1	38 50 01.13	76 23 31.08	S 4 59 E	N 4 58 W	7,688	Valliant. Haddaway Tenk.
			S 37 30 E	N 37 28 W	8,834	
			N 86 33 E	S 86 34 W	2,242	
2	38 51 05.68	76 23 37.00	N 15 31 E	S 15 33 W	10,663	Craney. Thomas Point Shoal Light. Bloody Point Bar Light.
			N 35 04 W	S 35 06 E	7,028	
			S 4 07 E	N 4 07 W	2,183	
3	38 52 08.42	76 23 02.35	N 13 23 E	S 13 24 W	8,387	Craney. Thomas Point Shoal Light. Bloody Point Bar Light.
			N 53 42 W	S 53 44 E	6,144	
			S 10 00 W	N 10 00 E	4,370	
4	38 52 08.37	76 22 45.10	N 10 20 E	S 10 20 W	8,294	Craney. Thomas Point Shoal Light. Bloody Point Bar Light.
			N 56 03 W	S 56 05 E	6,516	
			S 15 46 W	N 15 46 E	4,459	
5	38 50 56.25	76 22 54.85	N 40 18 W	S 40 20 E	7,960	Thomas Point Shoal Light. Bloody Point Bar Light. Valliant.
			S 27 11 W	N 27 11 E	2,090	
			S 1 44 W	N 1 44 E	9,522	
6	38 50 16.48	76 22 40.82	N 36 40 W	S 36 42 E	9,241	Thomas Point Shoal Light. Bloody Point Bar Light. Valliant.
			S 68 39 W	N 68 38 E	1,423	
			S 4 37 W	N 4 36 E	8,203	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## LONG POINT (EASTERN BAY).

(Eastern Bay—Chart No. 31.)

Corner of bar.	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 51 18.40	76 19 34.33	N 82 32 W S 39 22 E S 77 01 E	S 82 32 E N 39 20 W N 76 59 W	1,123 4,250 5,453	Straight. Kemp Tower. Rich Neck Water Tank.
2	38 51 25.33	76 19 46.67	S 83 39 W S 40 38 E S 75 30 E	N 83 39 E N 40 37 W N 75 28 W	793 4,639 5,825	Straight. Kemp Tower. Rich Neck Water Tank.
3	38 51 53.78	76 19 32.60	N 36 50 W S 47 54 W S 30 36 E	S 36 51 E N 47 53 E N 30 35 W	1,071 1,562 5,204	Mouth. Straight. Kemp Tower.
4	38 52 45.28	76 19 47.60	S 15 40 W S 53 43 E N 46 03 E	N 15 40 E N 53 42 W S 46 04 W	913 7,025 3,972	Mouth. Rich Neck Water Tank. Turkey.
5	38 52 37.54	76 19 15.83	S 60 18 W S 51 06 E N 33 50 E	N 60 18 E N 51 04 W S 33 49 W	1,248 6,201 3,633	Mouth. Rich Neck Water Tank. Turkey.
6	38 52 16.19	76 19 29.57	N 32 32 E N 82 00 W S 34 29 W	S 32 33 W S 82 00 E N 34 29 E	4,433 729 2,187	Turkey. Mouth. Straight.
7	38 51 50.00	76 19 15.73	N 47 50 W S 60 10 W S 26 52 E	S 47 50 E N 60 09 E N 26 51 W	1,467 1,848 4,879	Mouth. Straight. Kemp Tower.

## BODKIN SHOALS.

(Eastern Bay—Chart No. 31.)

1	38 51 58.65	76 18 27.46	N 73 37 W S 07 10 W S 11 20 E	S 73 38 E N 07 09 E N 11 20 W	2,460 3,121 4,736	Mouth. Straight. Kemp Tower.
2	38 52 19.47	76 18 56.95	S 89 40 W S 17 44 E S 52 48 E	N 89 40 E N 17 43 W N 52 46 W	1,582 5,612 5,433	Mouth. Kemp Tower. Rich Neck Water Tank.
3	38 53 06.03	76 18 54.67	S 41 19 E N 07 39 E N 35 27 E	N 41 17 W S 07 40 W S 35 28 W	6,463 3,595 2,525	Rich Neck Water Tank. Needle. Turkey.
4	38 53 14.22	76 18 24.42	S 48 05 E N 66 36 E N 20 33 E	N 48 04 W S 66 37 W S 20 33 W	5,764 2,663 1,902	Dixon. Needle. Turkey.
5	38 53 20.65	76 17 59.50	N 64 49 E N 0 24 E S 56 13 W	S 64 49 W S 0 24 W N 56 12 E	1,975 1,564 3,726	Needle. Turkey. Mouth.
6	38 53 36.26	76 16 59.40	N 60 04 W  N 32 57 E N 56 35 W	S 60 05 E  S 32 57 W S 56 36 E	3,823  374 1,884	Parsons Island Water Tank. Needle. Turkey.

Survey of Oyster Bars, Queen Annes County, Md.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

BODKIN SHOALS—Continued.

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
7	38 53 15.14	76 17 04.90	N 18 45 E	S 18 45 W	1,084	Needle. Turkey. Mouth.
			S 39 13 W	S 39 13 E	2,258	
			S 67 26 W	N 67 24 E	4,912	
8	38 52 32.28	76 16 44.32	N 31 40 W	S 31 40 E	3,753	Turkey. Mouth. Rich Neck Water Tank.
			S 85 01 W	N 84 59 E	5,098	
			S 12 35 E	N 12 34 W	3,809	
9	38 52 11.20	76 17 26.07	Thence along county boundary as delineated on Chart No. 31		3,987 5,114 3,246 3,609	Mouth. Kemp Tower. Dixon. Mouth.
			N 86 08 W	S 86 10 E		
			S 7 44 W	N 7 44 E		
			S 57 54 E	N 57 55 W		
10	38 51 59.14	76 17 42.52	Thence along county boundary as delineated on Chart No. 31		4,667 3,445	Mouth. Kemp Tower. Dixon.
			N 79 11 W	S 79 12 E		
			S 3 07 W	N 3 07 E		
			S 67 31 E	N 67 30 W		

BRICK HOUSE HILL.

(Eastern Bay—Chart No. 31.)

1	38 52 49.80	76 19 18.59	S 44 26 W	N 44 25 E	1,445	Mouth. Rich Neck Water Tank. Turkey.
			S 48 40 E	N 48 38 W	6,522	
			N 38 49 E	S 38 50 W	3,342	
2	38 52 50.80	76 19 26.63	S 36 53 W	N 36 53 E	1,332	Mouth. Rich Neck Water Tank. Turkey.
			S 49 39 E	N 49 37 W	6,705	
			N 41 54 E	S 41 55 W	3,451	
3	38 53 11.10	76 19 16.92	S 31 06 W	N 31 06 E	2,044	Mouth. Rich Neck Water Tank. Turkey.
			N 43 59 E	S 44 01 W	6,988	
			N 47 24 E	S 47 25 W	2,786	
4	38 53 10.08	76 19 07.41	S 37 17 W	N 37 16 E	2,157	Mouth. Rich Neck Water Tank. Turkey.
			S 42 41 E	N 42 39 W	6,790	
			N 43 09 E	S 43 10 W	2,632	

BUNKER HILL.

(Eastern Bay—Chart No. 31.)

1	38 52 58.18	76 19 42.94	S 23 43 E	N 23 42 W	7,265	Kemp Tower. Rich Neck Water Tank. Turkey.
			S 50 22 E	N 50 20 W	7,195	
			N 49 41 E	S 49 42 W	3,589	
2	38 52 58.43	76 19 51.90	S 25 23 E	N 25 21 W	7,370	Kemp Tower. Rich Neck Water Tank. Turkey.
			S 51 29 E	N 51 27 W	7,383	
			N 52 07 E	S 52 08 W	3,767	
3	38 53 14.63	76 19 53.42	S 23 56 E	N 23 55 W	7,884	Kemp Tower. Rich Neck Water Tank. Turkey.
			S 48 31 E	N 48 28 W	7,765	
			N 59 36 E	S 59 38 W	3,493	
4	38 53 11.33	76 19 39.50	S 21 46 E	N 21 44 W	7,630	Kemp Tower. Rich Neck Water Tank. Turkey.
			S 47 17 E	N 47 14 W	7,418	
			N 54 38 E	S 54 39 W	3,246	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## TURKEY POINT.

(Eastern Bay—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 53 20.65	76 17 59.50	N 64 49 E	S 64 49 W	1,975	Needle. Turkey. Mouth.
			N 0 24 E	S 0 24 W	1,504	
			S 56 13 W	N 56 12 E	3,726	
2	38 54 01.60	76 18 06.30	N 46 06 E	S 46 06 W	265	Turkey. Batts. Matta.
			N 51 24 W	S 51 24 E	2,098	
			N 79 29 W	S 79 29 E	3,388	
3	38 53 58.58	76 17 29.90	S 66 28 E	N 66 27 W	1,098	Needle. Cox. Turkey.
			N 10 52 W	S 10 52 E	1,340	
			N 69 40 W	S 69 40 E	820	
4	38 53 36.26	76 16 59.40	N 60 04 W	S 60 05 E	3,823	Parsons Island Water Tank. Needle. Turkey.
			N 32 57 E	S 32 57 W	374	
			N 56 35 W	S 56 36 E	1,884	

## MIDDLE BLOCK.

(Eastern Bay—Chart No. 31.)

1	38 53 14.22	76 18 24.42	S 48 05 E	N 48 04 W	5,764	Dixon. Needle. Turkey.
			N 66 36 E	S 66 37 W	2,663	
			N 20 33 E	S 20 33 W	1,902	
2	38 53 51.90	76 18 32.00	N 0 14 E	S 0 14 W	3,243	Dell. Batts. Matta.
			N 30 28 W	S 30 28 E	1,898	
			N 70 24 W	S 70 25 E	2,817	
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 53 57.08	76 18 11.38	S 79 31 E	N 79 30 W	2,136	Needle. Turkey. Batts.
			N 43 21 E	S 43 21 W	461	
			N 45 51 W	S 45 52 E	2,099	
4	38 54 01.60	76 18 06.30	N 46 06 E	S 46 06 W	265	Turkey. Batts. Matta.
			N 51 24 W	S 51 24 E	2,098	
			N 79 29 W	S 79 29 E	3,388	
5	38 53 20.65	76 17 59.50	N 64 49 E	S 64 49 W	1,975	Needle. Turkey. Mouth.
			N 0 24 E	S 0 24 W	1,504	
			S 56 13 W	N 56 12 E	3,726	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

WILD GROUND.

(Eastern Bay—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 53 06.03	76 18 54.67	S 41 19 E	N 41 17 W	Yards. 6,463 3,505 2,525	Rich Neck Water Tank. Needle. Turkey.
			N 67 39 E	S 67 40 W		
			N 35 27 E	S 35 28 W		
2	38 53 45.50	76 19 39.87	S 8 48 W	N 8 48 E	2,945 8,250 2,754	Mouth. Rich Neck Water Tank. Turkey.
			S 41 26 E	N 41 24 W		
			N 74 43 E	S 74 43 W		
3	38 54 05.60	76 19 43.00	N 88 59 E	S 89 00 W	2,738 1,484 920	Turkey. Batts. Matta.
			N 37 43 E	S 37 44 W		
			N 58 23 W	S 58 24 E		
4	38 53 51.90	76 18 32.00	N 0 14 E	S 0 14 W	3,243 1,898 2,817	Dell. Batts. Matta.
			N 30 28 W	S 30 28 E		
			N 70 24 W	S 70 25 E		
5	38 53 14.22	76 18 24.42	S 48 05 E	N 48 04 W	5,764 2,663 1,902	Dixon. Needle. Turkey.
			N 66 36 E	S 66 37 W		
			N 20 33 E	S 20 33 W		

PINE TREE.

(Eastern Bay—Chart No. 31.)

1	38 53 37.70	76 19 54.16	S 1 36 W	N 1 36 E	2,649 4,816 3,190	Mouth. Needle. Turkey.
			N 86 50 E	S 86 51 W		
			N 71 56 E	S 71 57 W		
2	38 53 37.90	76 20 02.86	S 3 21 E	N 3 21 W	2,659 5,046 3,407	Mouth. Needle. Turkey.
			N 87 03 E	S 87 05 W		
			N 73 14 E	S 73 16 W		
3	38 53 49.34	76 19 49.85	S 3 32 W	N 3 32 E	3,046 4,697 2,979	Mouth. Needle. Turkey.
			S 88 28 E	N 88 26 W		
			N 78 27 E	S 78 28 W		

GREEVES COVE.

(Cox Creek—Chart No. 31.)

1	38 54 28.94	76 20 21.80	S 78 54 E	N 78 52 W	3,833 1,970 971	Turkey. Batts. Then.
			N 78 39 E	S 78 40 W		
			N 15 58 E	S 15 58 W		
2	38 54 30.76	76 20 33.95	S 78 55 E	N 78 54 W	4,159 2,275 1,738	Turkey. Batts. Some.
			N 81 45 E	S 81 46 W		
			N 48 36 E	S 48 36 W		
3	38 54 34.87	76 20 36.40	S 77 15 E	N 77 14 W	4,250 2,323 1,701	Turkey. Batts. Some.
			N 85 23 E	S 85 23 W		
			N 53 33 E	S 53 33 W		

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## GREEVES COVE—Continued.

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
4	38 54 39.70	76 20 25.23	S 74 03 E N 89 18 E N 51 42 E	N 74 01 W S 89 19 W S 51 43 W	4,006 2,021 1,368	Turkey. Batts. Some.
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 54 45.24	76 20 22.72	S 17 10 E S 85 14 E N 37 13 E	N 17 10 W N 85 13 W S 37 13 W	893 1,962 482	Matta. Batts. Then.
6	38 54 46.80	76 20 04.50	S 81 42 E N 40 56 E N 29 40 W	N 81 41 W S 40 56 W S 29 40 E	1,491 805 382	Batts. Some. Then.
7	38 54 33.60	76 20 12.72	S 75 44 E N 35 14 E N 2 04 E	N 75 43 W S 35 14 W S 2 04 W	3,633 1,289 778	Turkey. Some. Then.

## MATTAPEX.

(Cox Creek—Chart No. 31.)

1	38 54 27.39	76 19 31.84	N 54 25 E N 46 47 W S 76 50 W	S 54 25 W S 46 48 E N 76 50 E	756 1,439 1,106	Batts. Then. Matta.
2	38 54 30.65	76 19 41.35	N 4 06 W N 42 22 W S 66 21 W	S 4 06 E S 42 22 E N 66 21 E	1,155 1,185 902	Some. Then. Matta.
3	38 54 33.60	76 20 12.72	S 75 44 E N 35 14 E N 2 04 E	N 75 43 W S 35 14 W S 2 04 W	3,633 1,289 778	Turkey. Some. Then.
4	38 54 46.80	76 20 04.50	S 81 42 E N 40 56 E N 29 40 W	N 81 41 W S 40 56 W S 29 40 E	1,491 805 382	Batts. Some. Then.
5	38 54 58.98	76 20 02.56	S 11 29 W S 66 16 E N 67 30 E	N 11 29 E N 66 17 W S 67 30 W	1,344 1,555 515	Matta. Batts. Some.
6	38 54 56.33	76 19 49.20	N 23 25 E N 89 03 W S 26 46 W	S 23 25 W S 89 03 E N 26 46 E	313 592 1,376	Some. Then. Matta.
7	38 54 58.90	76 19 39.52	N 33 13 W S 84 49 W S 33 38 W	S 33 13 E N 84 48 E N 33 38 E	239 851 1,579	Some. Then. Matta.
8	38 54 43.13	76 19 41.20	N 6 45 W N 60 27 W S 46 41 W	S 6 45 E S 60 27 E N 46 41 E	737 923 1,141	Some. Then. Matta.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SHIPPING CREEK.

(Cox Creek—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station.
			Forward	Back		
			° / ' "	° / ' "		
1	38 54 05.15	76 19 58.28	N 88 50 E	S 88 50 W	Yards. 3,142	Turkey. Batts. Matta.
			N 47 47 E	S 47 47 W	1,771	
			N 37 22 W	S 37 22 E	627	
2	38 54 20.61	76 20 08.82	S 82 23 E	N 82 21 W	3,449	Turkey. Batts. Then.
			N 67 12 E	S 67 12 W	1,724	
			N 3 32 W	S 3 32 E	1,217	
3	38 54 30.65	76 19 41.35	N 4 06 W	S 4 06 E	1,155	Some. Then. Matta.
			N 42 22 W	S 42 22 E	1,185	
			S 66 21 W	N 66 21 E	902	
4	38 54 27.39	76 19 31.84	N 54 25 E	S 54 25 W	756	Batts. Then. Matta.
			N 46 47 W	S 46 48 E	1,439	
			S 76 50 W	N 76 50 E	1,106	
5	38 54 05.60	76 19 43.00	N 88 50 E	S 89 00 W	2,738	Turkey. Batts. Matta.
			N 37 43 E	S 37 44 W	1,484	
			N 58 23 W	S 58 24 E	920	

BATTS NECK.

(Cox Creek—Chart No. 31.)

1	38 53 51.90	76 18 32.00	N 0 14 E	S 0 14 W	3,243	Dell. Batts. Matta.
			N 30 28 W	S 30 28 E	1,898	
			N 70 24 W	S 70 25 E	2,817	
2	38 54 05.60	76 19 43.00	N 88 50 E	S 89 00 W	2,738	Turkey. Batts. Matta.
			N 37 43 E	S 37 44 W	1,484	
			N 58 23 W	S 58 24 E	920	
3	38 54 27.39	76 19 31.84	N 54 25 E	S 54 25 W	756	Batts. Then. Matta.
			N 46 47 W	S 46 48 E	1,439	
			S 76 50 W	N 76 50 E	1,106	
4	38 54 34.66	76 18 59.50	N 22 15 E	S 22 16 W	1,947	Dell. Batts. Matta.
			N 50 46 W	S 50 46 E	307	
			S 75 33 W	N 75 32 E	1,993	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## RINGOLD MIDDLEGROUND.

(Cox Creek—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 53 51.90	76 18 32.00	N 0 14 E	S 0 14 W	Yards.	Dell. Batts. Matta.
			N 30 28 W	S 30 28 E	3,243	
			N 70 24 W	S 70 25 E	1,898	
2	38 54 34.66	76 18 59.50	N 22 15 E	S 22 16 W	1,947	Dell. Batts. Matta.
			N 50 46 W	S 50 46 E	307	
			S 75 33 W	N 75 32 E	1,993	
3	38 54 36.10	76 18 15.70	N 13 22 W	S 13 22 E	1,802	Dell. Batts. Turkey.
			N 84 02 W	S 84 02 E	1,400	
			S 24 04 E	N 24 04 W	1,074	
4	38 54 20.58	76 18 06.96	N 15 51 W	S 15 52 E	2,367	Dell. Batts. Turkey.
			N 67 35 W	S 67 36 E	1,755	
			S 24 26 E	N 24 26 W	502	
5	38 54 07.46	76 18 17.10	N 7 57 W	S 7 57 E	2,745	Dell. Batts. Matta.
			N 50 38 W	S 50 39 E	1,753	
			N 82 08 W	S 82 10 E	3,075	
6	38 54 01.60	76 18 06.30	N 46 06 E	S 46 06 W	265	Turkey. Batts. Matta.
			N 51 24 W	S 51 24 E	2,098	
			N 79 29 W	S 79 29 E	3,388	
7	38 53 57.08	76 18 11.38	S 79 31 E	N 79 30 W	2,136	Needle. Turkey. Batts.
			N 43 21 E	S 43 21 W	461	
			N 45 51 W	S 45 52 E	2,090	

Thence from corner No. 7 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## ERICKSON SANDS.

(Cox Creek—Chart No. 31.)

1	38 54 34.66	76 18 59.50	N 22 15 E	S 22 16 W	1,947	Dell. Batts. Matta.
			N 50 46 W	S 50 46 E	307	
			S 75 33 W	N 75 32 E	1,993	
2	38 54 57.62	76 18 39.60	N 11 43 E	S 11 43 W	1,050	Dell. Top. Batts.
			N 46 53 W	S 46 53 E	945	
			S 52 44 W	N 52 44 E	958	
3	38 54 54.40	76 18 16.10	N 19 40 W	S 19 40 E	1,206	Dell. Top. Batts.
			N 60 02 W	S 60 03 E	1,510	
			S 71 09 W	N 71 09 E	1,460	
4	38 54 36.10	76 18 15.70	N 13 22 W	S 13 22 E	1,802	Dell. Batts. Turkey.
			N 84 02 W	S 84 02 E	1,400	
			S 24 04 E	N 24 04 W	1,074	



BOUNDARIES OF NATURAL OYSTER BARS—continued.

PEA HILL.

(Cox Creek—Chart No. 31.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 54 54.40	76 18 16.10	N 19 40 W	S 19 40 E	1,206	Dell. Top. Batts.
			N 60 02 W	S 60 03 E	1,510	
			S 71 09 W	N 71 09 E	1,460	
2	38 54 57.62	76 18 39.60	N 11 43 E	S 11 43 W	1,050	Dell. Top. Batts.
			N 46 53 W	S 46 53 E	945	
			S 52 44 W	N 52 44 E	958	
3	38 55 11.26	76 18 45.30	N 32 37 E	S 32 37 W	674	Dell. Top. Batts.
			N 71 00 W	S 71 00 E	571	
			S 30 29 W	N 30 28 E	1,206	
4	38 55 26.11	76 18 44.46	N 78 56 E	S 78 56 W	348	Dell. Ware. Top.
			N 18 20 W	S 18 20 E	1,263	
			S 60 43 W	N 60 43 E	644	
5	38 55 13.30	76 18 16.58	N 38 15 W	S 38 16 E	635	Dell. Top. Batts.
			N 84 50 W	S 84 51 E	1,301	
			S 51 03 W	N 51 03 E	1,760	

STEVENS.

(Cox Creek—Chart No. 31.)

1	38 55 11.26	76 18 45.30	N 32 37 E	S 32 37 W	674	Dell. Top. Batts.
			N 71 00 W	S 71 00 E	571	
			S 30 29 W	N 30 28 E	1,206	
2	38 55 12.42	76 18 57.05	S 34 43 E	N 34 42 W	2,683	Turkey. Dell. Ware.
			N 51 51 E	S 51 51 W	855	
			N 2 16 W	S 2 16 E	1,661	
3	38 55 19.60	76 19 00.21	S 33 21 E	N 33 21 W	2,930	Turkey. Dell. Ware.
			N 69 16 E	S 69 16 W	808	
			N 0 43 E	S 0 43 W	1,418	
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 55 31.72	76 19 13.30	S 21 27 E	N 21 27 W	541	Top. Dell. Tom.
			S 83 39 E	N 83 39 W	1,108	
			N 53 45 E	S 53 45 W	1,259	
5	38 55 34.62	76 19 00.00	S 14 12 W	N 14 12 E	621	Top. Dell. Tom.
			S 73 39 E	N 73 39 W	783	
			N 45 48 E	S 45 48 W	927	
6	38 55 26.11	76 18 44.46	N 78 56 E	S 78 56 W	348	Dell. Ware. Top.
			N 18 20 W	S 18 20 E	1,263	
			S 60 43 W	N 60 43 E	644	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## JONES HOLE.

(Cox Creek—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 55 26.11	76 18 44.46	N 78 56 E	S 78 56 W	Yards. 348 1,263 644	Dell. Ware. Top.
			N 18 20 W	S 18 20 E		
			S 60 43 W	N 60 43 E		
2	38 55 34.62	76 19 00.00	S 14 12 W	N 14 12 E	621 783 927	Top. Dell. Tom.
			S 73 39 E	N 73 39 W		
			N 45 48 E	S 45 48 W		
3	38 55 41.86	76 18 56.58	S 54 53 E	N 54 53 W	607 702 671	Dell. Tom. Ware.
			N 55 00 E	S 55 00 W		
			N 6 40 W	S 6 40 E		
4	38 55 48.90	76 18 58.50	S 45 22 E	N 45 22 W	1,000 647 431	Dell. Tom. Ware.
			N 75 12 E	S 75 12 W		
			N 3 39 W	S 3 39 E		
5	38 56 01.78	76 18 48.73	S 21 46 E	N 21 46 W	1,223 456 1,073	Dell. Tom. Greek.
			S 53 50 E	N 53 50 W		
			N 42 26 E	S 42 27 W		
6	38 55 57.20	76 18 42.72	N 30 52 E	S 30 53 W	1,102 468 1,493	Greek. Ware. Top.
			N 71 17 W	S 71 17 E		
			S 24 01 W	N 24 01 E		

## POND MARSH.

(Cox Creek—Chart No. 31.)

1	38 55 57.20	76 18 42.72	N 30 52 E	S 30 53 W	1,102 468 1,493	Greek. Ware. Top.
			N 71 17 W	S 71 17 E		
			S 24 01 W	N 24 01 E		
2	38 56 01.78	76 18 48.73	S 21 46 E	N 21 46 W	1,223 456 1,073	Dell. Tom. Greek.
			S 53 50 E	N 53 50 W		
			N 42 26 E	S 42 27 W		
3	38 56 06.34	76 18 51.02	S 45 23 E	N 45 23 W	601 1,012 1,179	Tom. Greek. Tuxon.
			N 50 52 E	S 50 53 W		
			N 4 58 E	S 4 58 W		
4	38 56 07.92	76 18 56.05	S 49 41 E	N 49 41 W	736 1,087 1,146	Tom. Greek. Tuxon.
			N 57 28 E	S 57 29 W		
			N 11 48 E	S 11 49 W		
5	38 56 26.53	76 19 11.72	S 88 09 E	N 88 09 W	1,331 419 270	Greek. Liver. Coffee.
			N 4 07 W	S 4 07 E		
			N 78 52 W	S 78 52 E		
6	38 56 31.40	76 18 56.38	S 80 30 W	N 80 30 E	679 1,007 948	Coffee. Ware. Greek.
			S 4 45 W	N 4 45 E		
			S 77 23 E	N 77 23 W		
7	38 56 24.24	76 18 26.81	N 8 54 E	S 8 54 W	669 783 1,150	Ville. Tuxon. Ware.
			N 43 10 W	S 43 11 E		
			S 48 32 W	N 48 32 E		
8	38 55 59.52	76 18 37.10	N 10 40 W	S 10 40 E	1,429 595 202	Tuxon. Ware. Tom.
			N 83 04 W	S 83 04 E		
			S 17 47 E	N 17 47 W		

Survey of Oyster Bars, Queen Annes County, Md.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

ISLAND COVE.

(Cox Creek—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / '	° / '	° / '	° / '	Yards.	
1	38 56 26.53	76 19 11.72	S 88 09 E	N 88 09 W	1,331	Greek. Liver. Coffee.
			N 4 07 W	S 4 07 E	419	
			N 78 52 W	S 78 52 E	270	
2	38 56 32.46	76 19 35.90	S 68 19 E	N 68 18 W	400	Coffee. Liver. Samuel.
			N 70 15 E	S 70 15 W	645	
			N 2 44 E	S 2 44 W	600	
3	38 56 42.00	76 19 43.12	S 75 20 E	N 75 19 W	2,229	Greek. Liver. Samuel.
			S 82 34 E	N 82 34 W	804	
			N 38 09 E	S 38 09 W	354	
4	38 56 52.40	76 19 28.60	S 66 11 W	N 66 11 E	178	Samuel. Coffee. Tom.
			S 12 19 E	N 12 19 W	840	
			S 35 40 E	N 35 40 W	2,432	
5	38 56 38.40	76 19 13.24	N 54 51 W	S 54 51 E	694	Samuel. Coffee. Tom.
			S 32 56 W	N 32 56 E	414	
			S 33 59 E	N 33 59 W	1,813	
6	38 56 31.40	76 18 56.38	S 80 30 W	N 80 30 E	679	Coffee. Ware. Greek.
			S 4 45 W	N 4 45 E	1,007	
			S 77 23 E	N 77 23 W	948	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## ROOKS.

(Cox Creek—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	38 56 24.24	76 18 26.81	N 8 54 E	S 8 54 W	669	Ville.
			N 43 10 W	S 43 11 E	783	Tuxon.
			S 48 32 W	N 48 32 E	1,150	Ware.
2	38 56 31.40	76 18 56.38	S 80 30 W	N 80 30 E	679	Coffee.
			S 4 45 W	N 4 45 E	1,007	Ware.
			S 77 23 E	N 77 23 W	948	Greek.
3	38 56 41.66	76 18 37.67	S 38 02 E	N 38 02 W	702	Greek.
			N 79 16 E	S 79 16 W	397	Ville.
			N 25 59 E	S 25 59 W	682	Timber.
4	38 56 48.16	76 18 48.02	S 77 37 E	N 77 37 W	678	Ville.
			N 55 23 E	S 55 23 W	694	Timber.
			N 1 39 W	S 1 39 E	338	Steve.
5	38 56 52.57	76 18 35.24	S 47 54 E	N 47 54 W	440	Ville.
			N 43 44 E	S 43 44 W	340	Timber.
			N 61 19 W	S 61 19 E	395	Steve.
6	38 56 43.85	76 18 22.88	N 9 32 W	S 9 32 E	547	Timber.
			S 81 57 W	N 81 57 E	645	Tuxon.
			S 3 57 E	N 3 57 W	628	Greek.
Thence from corner No. 6 along the mean low water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 56 28.50	76 18 11.22	N 44 21 W	S 44 21 E	1,401	Steve.
			N 65 42 W	S 65 42 E	1,038	Tuxon.
			S 67 31 W	N 67 30 E	285	Greek.
8	38 56 25.18	76 18 18.70	N 10 06 W	S 10 06 E	628	Ville.
			N 35 05 W	S 35 05 E	1,360	Steve.
			N 87 41 W	S 87 41 E	67	Greek.
9	38 56 27.30	76 18 20.64	N 6 02 W	S 6 02 E	561	Ville.
			N 56 11 W	S 56 11 E	841	Tuxon.
			S 49 50 W	N 49 49 E	1,341	Ware.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

THOMPSONS.

(Cox Creek—Chart No. 3r.)

Corner of bar	Latitude	Longitude	True bearing				Distance	U. S. C. & G. S. triangulation station
			Forward		Back			
			° / ' "	° / ' "	° / ' "	° / ' "		
1	38 56 48.16	76 18 48.02	S 77 37 E	N 77 37 W	678	Ville.		
			N 55 23 E	S 55 23 W			694	Timber.
			N 1 39 W	S 1 39 E			338	Steve.
2	38 57 02.40	76 18 46.74	S 80 55 E	N 80 55 W	545	Timber.		
			N 8 15 E	S 8 15 W	503	Landing.		
			N 51 16 W	S 51 16 E	495	Thompson.		
3	38 57 03.10	76 18 54.30	S 81 32 E	N 81 32 W	745	Timber.		
			N 29 45 E	S 29 45 W	547	Landing.		
			N 33 14 W	S 33 14 E	343	Thompson.		
4	38 57 13.24	76 19 00.40	S 31 56 E	N 31 56 W	598	Steve.		
			N 72 56 E	S 72 57 W	452	Landing.		
			N 10 02 E	S 10 02 W	632	Hope.		
5	38 57 37.50	76 18 47.92	S 48 07 W	N 48 07 E	294	Hope.		
			S 22 11 W	N 22 11 E	943	Thompson.		
			S 0 32 W	N 0 32 E	1,325	Steve.		
6	38 57 17.18	76 18 44.00	S 10 14 W	N 10 14 E	651	Steve.		
			S 38 33 E	N 38 33 W	747	Timber.		
			N 3 06 W	S 3 06 E	408	Knock.		
Thence from corner No. 6 along the mean low water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.								
7	38 57 13.24	76 18 40.36	S 84 21 W	N 84 20 E	558	Thompson.		
			S 22 37 W	N 22 37 E	550	Steve.		
			S 39 19 E	N 39 18 W	584	Timber.		
8	38 57 07.06	76 18 26.80	N 80 27 W	S 80 27 E	925	Thompson.		
			S 62 15 W	N 62 15 E	642	Steve.		
			S 31 33 W	N 31 32 E	1,025	Tuxon.		
9	38 56 52.57	76 18 35.24	S 47 54 E	N 47 54 W	440	Ville.		
			N 43 44 E	S 43 44 W	340	Timber.		
			N 61 19 W	S 61 19 E	395	Steve.		

JOHNSON ISLAND.

(Crab Alley Bay—Chart No. 3r.)

1	38 55 24.75	76 16 46.80	S 41 07 W	N 41 07 E	2,111	Cox.
			S 75 54 E	N 75 54 W	1,696	Norman.
			N 34 40 E	S 34 40 W	1,662	Over.
2	38 55 30.85	76 16 58.97	S 30 44 E	N 30 44 W	2,090	Cox.
			S 72 32 E	N 72 31 W	2,061	Norman.
			N 20 49 W	S 20 49 E	1,182	Tull.
3	38 55 54.98	76 16 59.34	S 54 03 E	N 54 02 W	2,441	Norman.
			N 74 46 E	S 74 47 W	1,322	Over.
			N 54 38 W	S 54 38 E	503	Tull.
4	38 56 03.90	76 16 26.66	S 89 34 W	N 89 34 E	1,271	Tull.
			S 32 45 E	N 32 46 W	2,060	Norman.
			N 83 36 E	S 83 36 W	417	Over.

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## CRAB ALLEY LUMPS.

(Crab Alley Bay—Charts Nos. 31 and 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station		
			Forward	Back				
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.			
1	38. 55 00. 00	76 16 46. 54	S 72 54 E N 75 34 E N 23 05 E	N 72 53 W S 75 35 W S 23 06 W	3, 112 1, 092 2, 393	Parsons Norman. Over.	Island	Water [Tank.
2	38 55 24. 75	76 16 46. 80	S 41 07 W S 75 54 E N 34 40 E	N 41 07 E N 75 54 W S 34 40 W	2, 111 1, 696 1, 662	Cox. Norman. Over.		
3	38 56 03. 90	76 16 26. 66	S 89 34 W S 32 45 E N 83 36 E	N 89 34 E N 32 46 W S 83 36 W	1, 271 2, 060 417	Tull. Norman. Over.		
4	38 55 51. 92	76 16 08. 26	N 8. 48 W N 77 21 W S 25 22 E	S 8 48 E S 77 21 E N 25 21 W	456 1, 799 1, 471	Over. Tull. Norman.		
5	38 55 00. 00	76 16 00. 00	N 44 23 E N 42 37 W S 73 56 W	S 44 23 W S 42 37 E N 73 54 E	589 2, 914 2, 729	Norman. Tull. Cox.		

## CEDAR ISLAND.

(Crab Alley Bay—Chart No. 31.)

1	38 54 46. 17	76 17 31. 86	S 34 48 W S 83 52 E N 38 38 E	N 34 47 E N 83 50 W S 38 39 W	352 4, 193 3, 415	Cox. Parsons Over.	Island	Water [Tank.
2	38 55 00. 92	76 17 50. 90	S 31 34 E N 83 19 E N 50 30 E	N 31 33 W S 83 21 W S 50 31 W	2, 982 3, 357 3, 413	Needle. Norman. Over.		
3	38 55 43. 39	76 17 35. 13	S 2 58 W S 70 22 E N 71 35 E	N 2 58 E N 70 21 W S 71 36 W	2, 222 3, 099 2, 338	Cox. Norman. Over.		
4	38 55 39. 02	76 17 21. 60	S 12 49 W S 70 46 E N 11 58 E	N 12 49 E N 70 45 W S 11 59 W	2, 125 2, 714 848	Cox. Norman. Tull.		
5	38 55 27. 30	76 17 24. 08	S 13 37 W S 79 15 E N 11 09 W	N 13 37 E N 79 14 W S 11 09 E	1, 725 2, 075 1, 249	Cox. Norman. Tull.		
6	38 55 30. 85	76 16 58. 97	S 30 44 E S 72 32 E N 20 49 W	N 30 44 W N 72 31 W S 20 49 E	2, 090 2, 061 1, 182	Cox. Norman. Tull.		
7	38 55 24. 75	76 16 46. 80	S 41 07 W S 75 54 E N 34 40 E	N 41 07 E N 75 54 W S 34 40 W	2, 111 1, 696 1, 662	Cox. Norman. Over.		
8	38 55 00. 00	76 16 46. 54	S 72 54 E N 75 34 E N 23 05 E	N 72 53 W S 75 35 W S 23 06 W	3, 112 1, 092 2, 393	Parsons Norman. Over.	Island	Water [Tank.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

NORMANS FINE EYES.

(Eastern Bay—Charts Nos. 31 and 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station		
			Forward	Back				
			° / ' / "	° / ' / "				
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.			
1	38 54 23.01	76 16 46.20	N 83 37 E N 44 19 W N 70 42 W	S 83 38 W S 44 20 E S 70 43 E	2,984 2,333 1,487	Parsons Norman. Cox.	Island	Water [Tank.
2	38 55 00.00	76 16 46.54	S 72 54 E N 75 34 E N 23 05 E	N 72 53 W S 75 35 W S 23 06 W	3,112 1,692 2,393	Parsons Norman. Over.	Island	Water [Tank.
3	38 55 00.00	76 16 00.00	N 44 23 E N 42 37 W S 73 56 W	S 44 23 W S 42 37 E N 73 54 E	589 2,914 2,729	Norman. Tull. Cox.		
4	38 54 47.63	76 15 58.00	S 73 37 E N 23 13 W S 82 47 W	N 73 36 W S 23 13 E N 82 46 E	1,767 912 2,696	Parsons Norman. Cox.	Island	Water [Tank.
5	38 54 37.00	76 15 16.13	N 31 50 W S 55 27 W S 54 20 E	S 31 50 E N 55 26 E N 54 20 W	1,410 3,058 619	Norman. Needle. Parsons.		
6	38 54 29.50	76 15 40.98	S 84 40 E N 3 30 W N 85 00 W	N 84 39 W S 3 30 E S 85 01 E	1,164 1,453 3,134	Parsons. Norman. Cox.		
7	38 54 33.30	76 16 07.13	S 89 34 E N 24 26 E N 86 35 W	N 89 33 W S 24 26 W S 86 36 E	1,937 1,452 2,438	Parsons Norman. Cox.	Island	Water [Tank.

COX NECK.

(Eastern Bay—Chart No. 31.)

1	38 54 03.40	76 16 57.90	N 73 07 E N 39 45 E N 43 33 W	S 73 08 W S 39 45 W S 43 33 E	3,421 3,030 1,591	Parsons Norman. Cox.	Island	Water [Tank.
2	38 54 05.63	76 17 31.13	N 77 31 E N 11 33 W S 86 20 W	S 77 32 W S 11 33 E N 86 20 E	4,250 1,100 738	Parsons Cox. Turkey.	Island	Water [Tank.
3	38 54 40.83	76 17 37.30	S 86 27 E N 70 15 E N 11 55 E	N 86 25 W S 70 16 W S 11 56 W	4,320 3,162 2,853	Parsons Norman. Tull.	Island	Water [Tank.
4	38 54 46.17	76 17 31.86	S 34 48 W S 83 52 E N 38 38 E	N 34 47 E N 83 50 W S 38 39 W	352 4,193 3,415	Cox. Parsons Over.	Island	Water [Tank.
5	38 55 00.00	76 16 46.54	S 72 54 E N 75 34 E N 23 05 E	N 72 53 W S 75 35 W S 23 06 W	3,112 1,692 2,393	Parsons Norman. Over.	Island	Water [Tank.
6	38 54 23.01	76 16 46.20	N 83 37 E N 44 19 W N 70 42 W	S 83 38 W S 44 20 E S 70 43 E	2,984 2,333 1,487	Parsons Norman. Cox.	Island	Water [Tank.

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BODKIN ISLAND.

(Eastern Bay—Charts Nos. 31 and 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station		
			Forward	Back				
			° /	° /				
	° / //	° / //	° /	° /	Yards.			
1	38 54 03.40	76 16 57.90	N 73 07 E N 39 45 E N 43 33 W	S 73 08 W S 39 45 W S 43 33 E	3,421 3,030 1,591	Parsons Norman. Cox.	Island	Water [Tank.]
2	38 54 23.01	76 16 46.20	N 83 37 E N 44 19 W N 70 42 W	S 83 38 W S 44 20 E S 70 43 E	2,984 2,333 1,487	Parsons Norman. Cox.	Island	Water [Tank.]
3	38 54 33.30	76 16 07.13	S 89 34 E N 24 26 E N 86 35 W	N 89 33 W S 24 26 W S 86 36 E	1,937 1,452 2,438	Parsons Norman. Cox.	Island	Water [Tank.]
4	38 54 05.40	76 16 28.53	N 27 14 E N 59 51 W N 42 23 W	S 27 14 W S 59 52 E S 42 23 E	2,545 2,162 904	Norman. Cox. Needle.		

## PARSONS ISLAND.

(Eastern Bay—Chart No. 32.)

1	38 53 36.00	76 15 37.82	N 31 15 E N 3 01 W N 57 03 W	S 31 16 W S 3 01 E S 57 04 E	2,242 3,259 3,820	Parsons Norman. Cox.	Island	Water [Tank.]
2	38 53 58.40	76 16 16.00	N 61 50 E N 18 28 E N 59 00 W	S 61 50 W S 18 28 W S 59 01 E	2,461 2,634 2,567	Parsons Norman. Cox.	Island	Water [Tank.]
3	38 54 06.43	76 16 13.60	N 67 04 E N 19 05 E N 65 05 W	S 67 05 W S 19 05 W S 65 06 E	2,287 2,358 2,496	Parsons Norman. Cox.	Island	Water [Tank.]
4	38 54 07.22	76 15 49.00	N 59 21 E N 3 12 E N 70 37 W	S 59 21 W S 3 12 W S 70 38 E	1,695 2,205 3,086	Parsons Norman. Cox.	Island	Water [Tank.]
5	38 54 29.50	76 15 40.98	S 84 40 E N 3 30 W N 85 00 W	N 84 39 W S 3 30 E S 85 01 E	1,164 1,453 3,134	Parsons. Norman. Cox.		
6	38 54 37.00	76 15 16.13	N 31 50 W S 55 27 W S 54 20 E	S 31 50 E N 55 26 E N 54 20 W	1,410 3,058 619	Norman. Needle. Parsons.		
7	38 53 59.10	76 15 18.07	N 8 32 E N 15 37 W S 79 31 W	S 8 32 W S 15 38 E N 79 31 E	3,164 2,570 2,509	Alley. Norman. Needle.		



BOUNDARIES OF NATURAL OYSTER BARS—continued.

BUCKHORN.

(Prospect Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 57 44.82	76 14 50.80	S 46 27 E N 53 08 E N 7 45 W	N 46 27 W S 53 08 W S 7 45 E	1,098 920 973	Marshy. Railroad. Bridge.
2	38 57 54.01	76 15 09.06	S 50 07 E N 78 45 E N 28 08 E	N 50 07 W S 78 46 W S 28 08 W	1,663 1,240 741	Marshy. Railroad. Bridge.
3	38 58 01.44	76 15 05.70	S 42 03 E S 89 34 E N 32 55 E	N 42 03 W N 89 33 W S 32 56 W	1,774 1,128 480	Marshy. Railroad. Bridge.
4	38 57 58.14	76 14 56.20	S 37 53 E N 83 20 E N 1 14 E	N 37 53 W S 83 20 W S 1 14 W	1,528 884 514	Marshy. Railroad. Bridge.
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 58 00.05	76 14 48.18	S 29 47 E N 86 44 E N 23 58 W	N 29 47 W S 86 44 W S 23 58 E	1,463 667 492	Marshy. Railroad. Bridge.

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## WELL COVE.

(Prospect Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 57 20.22	76 14 36.28	N 14 21 E	S 14 21 W	1,426 814 2,189	Railroad. Kirwan. Dull.
			S 81 45 W	N 81 45 E		
			S 18 44 W	N 18 43 E		
2	38 57 44.82	76 14 50.80	S 46 27 E	N 46 27 W	1,098 920 973	Marshy. Railroad. Bridge.
			N 53 08 E	S 53 08 W		
			N 7 45 W	S 7 45 E		
3	38 58 00.05	76 14 48.18	S 29 47 E	N 29 47 W	1,463 667 492	Marshy. Railroad. Bridge.
			N 86 44 E	S 86 44 W		
			N 23 58 W	S 23 58 E		
Thence from corner No. 3 along the mean low water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 58 04.54	76 14 52.38	S 30 30 E	N 30 30 W	1,650 785 1,543	Marshy. Railroad. Thin.
			S 81 42 E	N 81 42 W		
			N 12 52 E	S 12 52 W		
5	38 58 05.70	76 14 48.08	S 26 22 E	N 26 22 W	1,631 681 1,483	Marshy. Railroad. Thin.
			S 77 04 E	N 77 04 W		
			N 8 56 E	S 8 56 W		
6	38 57 55.78	76 14 36.16	S 20 02 E	N 20 01 W	1,199 395 787	Marshy. Railroad. Bridge.
			N 62 31 E	S 62 32 W		
			N 41 00 W	S 41 00 E		
7	38 57 45.77	76 14 30.41	N 35 38 W	S 35 38 E	1,146 1,369 830	Bridge. Kirwan. Marshy.
			S 44 31 W	N 44 31 E		
			S 18 11 E	N 18 11 W		
8	38 57 30.64	76 14 15.04	N 36 38 W	S 36 39 E	1,797 1,442 2,734	Bridge. Kirwan. Dull.
			S 71 04 W	N 71 03 E		
			S 27 30 W	N 27 30 E		
Thence from corner No. 8 along the mean low water line of the shore to corner No. 9, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
9	38 57 22.38	76 14 20.57	N 2 38 W	S 2 38 E	1,310 1,234 2,419	Railroad. Kirwan. Dull.
			S 81 10 W	N 81 10 E		
			S 27 29 W	N 27 29 E		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SANDY POINT.

(Prospect Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 57 21.80	76 15 12.78	S 44 47 E	N 44 46 W	2,462	Bonnet.
			N 89 11 E	S 89 12 W	1,376	Marshy.
			N 44 42 E	S 44 43 W	1,869	Railroad.
Thence from corner No. 1 along the mean low water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 57 22.31	76 15 23.06	S 48 52 E	N 48 51 W	2,604	Bonnet.
			N 89 55 E	S 89 56 W	1,609	Marshy.
			N 50 52 E	S 50 53 W	2,077	Railroad.
3	38 57 27.81	76 15 30.82	S 48 34 E	N 48 33 W	2,947	Bonnet.
			S 84 20 E	N 84 19 W	1,859	Marshy.
			N 57 50 E	S 57 51 W	2,114	Railroad.
4	38 57 54.01	76 15 09.06	S 50 07 E	N 50 07 W	1,663	Marshy.
			N 78 45 E	S 78 46 W	1,240	Railroad.
			N 28 08 E	S 28 08 W	741	Bridge.
5	38 57 44.82	76 14 50.80	S 46 27 E	N 46 27 W	1,098	Marshy.
			N 53 08 E	S 53 08 W	920	Railroad.
			N 7 45 W	S 7 45 E	973	Bridge.
6	38 57 37.63	76 15 03.60	S 65 35 E	N 65 35 W	1,245	Marshy.
			N 53 29 E	S 53 29 W	1,335	Railroad.
			N 9 41 E	S 9 41 W	1,224	Bridge.
Thence from corner No. 6 along the mean low water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 57 31.44	76 15 13.18	S 40 05 E	N 40 05 W	2,710	Bonnet.
			S 77 34 E	N 77 33 W	1,418	Marshy.
			N 52 52 E	S 52 53 W	1,662	Railroad.

HOG ISLAND.

(Prospect Bay—Chart No. 32.)

1	38 57 20.22	76 14 36.28	N 14 21 E	S 14 21 W	1,426	Railroad.
			S 81 45 W	N 81 45 E	814	Kirwan.
			S 18 44 W	N 18 43 E	2,189	Dull.
2	38 57 20.52	76 14 49.96	S 33 37 E	N 33 37 W	2,047	Bonnet.
			N 85 22 E	S 85 22 W	776	Marshy.
			N 27 29 E	S 27 29 W	1,545	Railroad.
3	38 57 37.63	76 15 03.60	S 65 35 E	N 65 35 W	1,245	Marshy.
			N 53 29 E	S 53 29 W	1,335	Railroad.
			N 9 41 E	S 9 41 W	1,224	Bridge.
4	38 57 44.82	76 14 50.80	S 46 27 E	N 46 27 W	1,098	Marshy.
			N 53 08 E	S 53 08 W	920	Railroad.
			N 7 45 W	S 7 45 E	973	Bridge.

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

WALTER WHITE.

(Prospect Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 56 25.62	76 14 33.54	N 78 09 E	S 78 09 W	716	Bonnet. Kirwan. Dull.
			N 26 58 W	S 26 58 E	1,935	
			S 73 19 W	N 73 19 E	809	
2	38 56 37.34	76 15 04.08	S 46 20 W	N 46 20 E	949	New Barn Cupola. Bonnet. Marshy.
			S 80 38 E	N 80 38 W	1,526	
			N 36 55 E	S 36 55 W	1,907	
3	38 57 23.90	76 15 04.12	S 39 38 E	N 39 38 W	2,361	Bonnet. Marshy. Railroad.
			S 87 26 E	N 87 26 W	1,148	
			N 40 50 E	S 40 50 W	1,661	
4	38 57 20.52	76 14 49.96	S 33 37 E	N 33 37 W	2,047	Bonnet. Marshy. Railroad.
			N 85 22 E	S 85 22 W	776	
			N 27 29 E	S 27 29 W	1,545	
5	38 57 20.22	76 14 36.28	N 14 21 E	S 14 21 W	1,426	Railroad. Kirwan. Dull.
			S 81 45 W	N 81 45 E	814	
			S 18 44 W	N 18 43 E	2,189	
6	38 57 07.56	76 14 35.66	S 30 50 E	N 30 50 W	1,476	Bonnet. Marshy. Kirwan.
			N 38 29 E	S 38 29 W	639	
			N 69 19 W	S 69 19 E	878	

## PROSPECT.

(Prospect Bay—Chart No. 32.)

1	38 56 25.62	76 14 33.54	N 78 09 E	S 78 09 W	716	Bonnet. Kirwan. Dull.
			N 26 58 W	S 26 58 E	1,935	
			S 73 19 W	N 73 19 E	809	
2	38 57 07.56	76 14 35.66	S 30 50 E	N 30 50 W	1,476	Bonnet. Marshy. Kirwan.
			N 38 29 E	S 38 29 W	639	
			N 69 19 W	S 69 19 E	878	
3	38 57 08.86	76 14 18.78	N 24 07 W	S 24 07 E	2,384	Bridge. Kirwan. Dull.
			N 78 07 W	S 78 08 E	1,294	
			S 34 33 W	N 34 32 E	2,053	
4	38 56 28.00	76 14 19.97	N 79 00 E	S 79 00 W	350	Bonnet. Kirwan. Dull.
			N 36 54 W	S 36 55 E	2,056	
			S 74 34 W	N 74 34 E	1,175	

Survey of Oyster Bars, Queen Annes County, Md.

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BOUNDARIES OF NATURAL OYSTER BARS—continued.

DOMINION.

(Prospect Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 55 54.10	76 14 30.30	N 26 58 E N 46 01 W S 46 30 W	S 26 58 W S 46 01 E N 46 30 E	1,357 1,195 1,088	Bonnet. Dull. Alley.
2	38 55 55.64	76 14 52.48	N 46 01 E N 19 32 W N 52 52 W	S 46 01 W S 19 32 E S 52 54 E	1,668 827 1,245	Bonnet. Dull. New Barn Cupola.
3	38 56 11.72	76 15 21.64	S 22 45 E N 64 19 E N 47 00 W	N 22 45 W S 64 20 W S 47 00 E	1,457 546 306	Alley. Dull. New Barn Cupola.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 56 19.44	76 15 11.92	N 3 57 E S 83 52 W S 10 41 E	S 3 57 W N 83 52 E N 10 40 W	1,938 482 1,633	Kirwan. New Barn Cupola. Alley.
5	38 56 19.48	76 15 06.87	N 0 00 E S 85 04 W S 6 12 E	S 0 00 W N 85 04 E N 6 11 W	1,932 616 1,614	Kirwan. New Barn Cupola. Alley.
Thence from corner No. 5 along the mean low-water line of the shore to corner No. 6, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
6	38 56 17.28	76 15 02.60	N 88 19 W S 2 18 E N 73 43 E	S 88 20 E N 2 17 W S 73 44 W	725 1,532 1,528	New Barn Cupola. Alley. Bonnet.
7	38 56 25.62	76 14 33.54	N 78 09 E N 26 58 W S 73 19 W	S 78 09 W S 26 58 E N 73 19 E	716 1,935 809	Bonnet. Kirwan. Dull.

BIBBY.

(Prospect Bay—Chart No. 32.)

1	38 55 40.54	76 15 05.90	S 26 59 E N 3 26 E N 26 52 W	N 26 59 W S 3 26 W S 26 52 E	327 1,290 1,413	Alley. Dull. New Barn Cupola.
2	38 55 48.28	76 15 27.44	S 52 20 E N 32 07 E N 4 04 W	N 52 20 W S 32 07 W S 4 04 E	904 1,213 1,002	Alley. Dull. New Barn Cupola.
3	38 56 11.72	76 15 21.64	S 22 45 E N 64 19 E N 47 00 W	N 22 45 W S 64 20 W S 47 00 E	1,457 546 306	Alley. Dull. New Barn Cupola.
4	38 55 55.64	76 14 52.48	N 46 01 E N 19 32 W N 52 52 W	S 46 01 W S 19 32 E S 52 54 E	1,668 827 1,245	Bonnet. Dull. New Barn Cupola.
5	38 55 43.66	76 15 05.48	N 44 38 E N 3 12 E N 29 21 W	S 44 38 W S 3 12 W S 29 21 E	2,195 1,184 1,328	Bonnet. Dull. New Barn Cupola.

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## NORMANS MARSH.

(Prospect Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 55 09.76	76 14 32.20	N 62 15 E N 44 44 W S 24 26 W	S 62 14 W S 44 44 E N 24 26 E	3,139 1,051 1,367	Brian Reference Station. Alley. [Tank. Parsons Island Water
2	38 55 18.62	76 14 56.14	S 2 25 E N 71 10 E N 13 42 W	N 2 25 W S 71 11 W S 13 42 E	1,545 3,601 458	Parsons Island Water Tank. Brian Reference Station. Alley.
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 55 43.66	76 15 05.48	N 44 38 E N 3 12 E N 29 21 W	S 44 38 W S 3 12 W S 29 21 E	2,195 1,184 1,328	Bonnet. Dull. New Barn Cupola.
4	38 55 55.64	76 14 52.48	N 46 01 E N 19 32 W N 52 52 W	S 46 01 W S 19 32 E S 52 54 E	1,668 827 1,245	Bonnet. Dull. New Barn Cupola.
5	38 55 54.10	76 14 30.30	N 26 58 E N 46 01 W S 46 30 W	S 26 58 W S 46 01 E N 46 30 E	1,357 1,195 1,088	Bonnet. Dull. Alley.
6	38 55 37.10	76 14 36.84	N 26 07 W S 74 06 W S 11 34 W	S 26 07 E N 74 06 E N 11 33 E	1,564 642 2,211	Dull. Alley. [Tank. Parsons Island Water
7	38 55 16.34	76 14 18.94	N 7 16 E N 64 17 W S 31 57 W	S 7 16 W S 64 17 E N 31 57 E	2,503 1,208 1,729	Bonnet. Alley. [Tank. Parsons Island Water

BOUNDARIES OF NATURAL, OYSTER BARS—continued.

HOOD.

(Prospect Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 55 00.74	76 14 05.56	N 49 38 E	S 49 38 W	Yards. 2,725 1,784 1,786	Brian Reference Station. Alley. Parsons.
			N 53 54 W	S 53 55 E		
			N 49 25 W	S 49 25 E		
2	38 55 40.74	76 14 23.86	N 15 02 E	S 15 02 W	1,719 1,004 2,420	Bonnet. Alley. [Tank. Parsons Island Water
			S 72 43 W	N 72 42 E		
			S 18 56 W	N 18 56 E		
3	38 56 28.00	76 14 19.97	N 79 00 E	S 79 00 W	350 2,056 1,175	Bonnet. Kirwan. Dull.
			N 36 54 W	S 36 55 E		
			S 74 34 W	N 74 34 E		
4	38 56 24.54	76 14 05.44	S 62 54 E	N 62 53 W	2,328 188 1,528	Brian Reference Station. Bonnet. Dull.
			N 12 04 W	S 12 04 E		
			S 82 38 W	N 82 37 E		
5	38 56 31.94	76 13 50.00	S 81 34 W	N 81 34 E	451 2,746 4,590	Bonnet. Alley. Parsons.
			S 42 22 W	N 42 21 E		
			S 22 38 W	N 22 37 E		
6	38 56 26.46	76 13 37.50	N 81 18 W	S 81 18 E	784 2,853 4,563	Bonnet. Alley. Parsons.
			S 49 50 W	N 49 49 E		
			S 27 21 W	N 27 20 E		
7	38 56 24.74	76 13 28.26	N 80 09 W	S 80 10 E	1,033 3,008 4,393	Bonnet. Alley. [Tank. Parsons Island Water
			S 53 40 W	N 53 40 E		
			S 30 49 W	N 30 48 E		
8	38 55 25.69	76 13 46.50	N 83 51 W	S 83 52 E	1,954 2,732 4,407	Alley. Parsons. Green.
			S 42 52 W	N 42 52 E		
			S 31 36 E	N 31 35 W		

## Survey of Oyster Bars, Queen Annes County, Md.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

## CABIN CREEK.

(Prospect Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 55 25.69	76 13 46.50	N 83 51 W	S 83 52 E	1,954	Alley. Parsons. Green.
			S 42 52 W	N 42 52 E	2,732	
			S 31 36 E	N 31 35 W	4,407	
2	38 56 24.74	76 13 28.26	N 80 09 W	S 80 10 E	1,033	Bonnet. Alley. Parsons
			S 53 40 W	N 53 40 E	3,008	
			S 30 49 W	N 30 48 E	4,393	
3	38 56 48.84	76 13 17.88	S 63 47 W	N 63 47 E	1,440	Bonnet. Alley. Brian Reference Station.
			S 46 06 W	N 46 05 E	3,742	
			S 23 34 E	N 23 34 W	2,052	
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 56 37.44	76 13 03.46	S 81 26 W	N 81 26 E	1,691	Bonnet. Alley. Parsons
			S 54 19 W	N 54 17 E	3,788	
			S 34 39 W	N 34 38 E	5,107	
5	38 56 34.10	76 13 05.89	S 85 04 W	N 85 03 E	1,614	Bonnet. Alley. Parsons
			S 55 09 W	N 55 08 E	3,671	
			S 34 47 W	N 34 46 E	4,978	
6	38 56 30.96	76 12 58.60	S 88 41 E	N 88 41 W	1,800	Bonnet. Alley. Parsons
			S 58 10 W	N 58 09 E	3,775	
			S 37 17 W	N 37 16 E	5,005	
7	38 56 42.20	76 12 53.22	S 78 01 W	N 78 01 E	1,985	Bonnet. Alley. Parsons
			S 54 41 W	N 54 40 E	4,101	
			S 36 02 W	N 36 01 E	5,394	
Thence from corner No. 7 along the mean low-water line of the shore to corner No. 8, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
8	38 56 34.64	76 12 50.76	S 85 32 W	N 85 31 E	2,012	Bonnet. Alley. Parsons
			S 58 12 W	N 58 10 E	4,015	
			S 38 16 W	N 38 14 E	5,230	
9	38 56 21.86	76 12 46.22	N 82 39 W	S 82 40 E	2,143	Bonnet. Alley. Parsons
			S 64 30 W	N 64 28 E	3,912	
			S 42 25 W	N 42 24 E	4,978	
Thence from corner No. 9 along the mean low-water line of the shore to corner No. 10, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
10	38 56 11.36	76 12 53.74	N 71 57 W	S 71 58 E	2,028	Bonnet. Alley. Parsons.
			S 68 13 W	N 68 12 E	3,589	
			S 42 31 W	N 42 30 E	4,806	
11	38 55 35.86	76 13 02.36	S 15 37 E	N 15 38 W	4,254	Green. Brian Reference Station. Bonnet.
			N 35 19 E	S 35 19 W	712	
			N 42 59 W	S 42 59 E	2,495	



BOUNDARIES OF NATURAL OYSTER BARS—continued.

SAW MILL CREEK.

(Prospect Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1.	38 54 13.35	76 13 26.94	N 42 52 W	S 42 53 E	3,613	Alley. Parsons. Green.
			N 79 35 W	S 79 30 E	2,414	
			S 53 46 E	N 53 46 W	2,223	
2	38 54 41.45	76 13 50.46	N 47 13 W	S 47 14 E	2,504	Alley. Parsons. Green.
			S 73 46 W	N 73 45 E	1,827	
			S 46 51 E	N 46 52 W	3,307	
3	38 55 25.69	76 13 46.50	N 83 51 W	S 83 52 E	1,954	Alley. Parsons. Green.
			S 42 52 W	N 42 52 E	2,732	
			S 31 36 E	N 31 35 W	4,407	
4	38 55 35.86	76 13 02.36	S 15 37 E	N 15 38 W	4,254	Green. Brian Reference Station. Bonnet.
			N 35 19 E	S 35 19 W	712	
			N 42 59 W	S 42 59 E	2,495	
5	38 55 28.16	76 12 22.94	N 36 43 W	S 36 44 E	1,049	Brian Reference Station. Alley. Parsons.
			N 88 15 W	S 88 16 E	4,146	
			S 62 49 W	N 62 47 E	4,565	
6	38 54 32.72	76 12 41.92	N 2 41 W	S 2 41 E	2,713	Brian Reference Station. Parsons. Green.
			S 86 32 W	N 86 30 E	3,567	
			S 17 09 E	N 17 08 W	2,059	

PARSONS ISLAND NARROWS.

(Eastern Bay—Chart No. 32.)

1	38 54 41.66	76 15 05.88	S 47 18 E	N 47 18 W	437	Parsons Island Water Alley. [Tank. Norman.
			N 5 00 E	S 5 00 W	1,701	
			N 44 15 W	S 44 15 E	1,452	
2	38 55 19.95	76 15 06.88	N 23 25 E	S 23 25 W	439	Alley. Norman. [Tank. Parsons Island Water
			N 75 43 W	N 75 43 E	1,018	
			S 12 22 E	N 12 22 W	1,626	
3	38 55 19.18	76 15 02.16	N 6 40 E	S 6 40 W	432	Alley. Norman. [Tank. Parsons Island Water
			S 78 32 W	N 78 32 E	1,134	
			S 8 09 E	N 8 09 W	1,578	
Thence from corner No. 3 along the mean low water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 55 09.30	76 14 59.22	N 2 04 W	S 2 04 E	762	Alley. Norman. [Tank. Parsons Island Water
			N 84 49 W	S 84 49 E	1,193	
			S 6 48 E	N 6 48 W	1,238	
5	38 54 56.56	76 14 18.61	N 51 47 E	S 51 48 W	3,081	Brian Reference Station. Alley. [Tank. Parsons Island Water
			N 42 39 W	S 42 39 E	1,620	
			S 49 07 W	N 49 07 E	1,222	
6	38 54 44.00	76 14 34.13	N 50 32 E	S 50 33 W	3,666	Brian Reference Station. Alley. [Tank. Parsons Island Water
			N 23 05 W	S 23 05 E	1,755	
			S 53 51 W	N 53 51 E	638	
7	38 54 56.62	76 14 49.52	N 13 23 W	S 13 23 E	1,223	Alley. Norman. [Tank. Parsons Island Water
			N 69 39 W	S 69 40 E	1,540	
			S 7 45 W	N 7 45 E	809	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BALD EAGLE.

(Eastern Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / '	° / '	° / '	° / '	Yards.	
1	38 53 29.64	76 14 33.38	N 18 02 W	S 18 02 E	2,012	Parsons.
			N 81 38 W	S 81 39 E	3,684	Needle.
			S 22 26 W	N 22 25 E	4,728	Dixon.
2	38 54 00.00	76 14 09.88	S 73 32 E	N 73 31 W	3,950	Green.
			N 29 52 E	S 29 53 W	4,397	Brian Reference Station.
			N 54 23 W	S 54 24 E	1,528	Parsons.
3	38 54 27.78	76 14 10.76	N 31 06 W	S 31 06 E	2,525	Alley.
			S 87 48 W	N 87 47 E	1,220	Parsons.
			S 58 34 E	N 58 33 W	3,455	Green.
4	38 54 27.88	76 13 57.24	N 37 34 W	S 37 34 E	2,723	Alley.
			S 88 10 W	N 88 10 E	1,576	Parsons.
			S 55 09 E	N 55 08 W	3,158	Green.
5	38 54 04.37	76 13 42.15	S 65 14 E	N 65 13 W	2,416	Green.
			N 21 43 E	S 21 43 W	3,946	Brian Reference Station.
			N 69 23 W	S 69 24 E	2,108	Parsons.
6	38 53 30.70	76 13 57.36	N 22 04 W	S 22 05 E	4,410	Alley.
			N 83 47 W	S 83 49 E	4,622	Needle.
			S 32 00 W	N 31 59 E	5,196	Dixon.

## MILL HILL.

(Eastern Bay—Chart No. 32.)

1	38 53 38.92	76 12 38.14	S 73 10 E	N 73 10 W	530	Green.
			N 2 52 W	S 2 52 E	4,530	Brian Reference Station.
			N 66 25 W	S 66 26 E	3,993	Parsons.
2	38 53 43.94	76 13 10.82	S 76 44 E	N 76 43 W	1,406	Green.
			N 8 17 E	S 8 18 W	4,401	Brian Reference Station.
			N 62 58 W	S 62 59 E	3,142	Parsons.
3	38 53 50.80	76 13 31.74	S 73 57 E	N 73 56 W	1,998	Green.
			N 16 02 E	S 16 03 W	4,290	Brian Reference Station.
			N 61 57 W	S 61 56 E	2,546	Parsons.
4	38 54 13.35	76 13 26.94	N 42 52 W	S 42 53 E	3,613	Alley.
			N 79 35 W	S 79 36 E	2,414	Parsons.
			S 53 46 E	N 53 46 W	2,223	Green.
5	38 54 32.72	76 12 41.92	N 2 41 W	S 2 41 E	2,713	Brian Reference Station.
			S 86 32 W	N 86 30 E	3,567	Parsons.
			S 17 09 E	N 17 08 W	2,059	Green.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

GREENWOOD CREEK.

(Eastern Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / '	° / '		
1	38 53 11.96	76 12 10.20	N 16 53 W	S 16 53 E	790	Green. Pearson. Benn.
			S 52 48 W	N 52 46 E	5,741	
			S 4 05 W	N 4 05 E	4,121	
2	38 53 20.70	76 12 13.48	N 17 13 W	S 17 14 E	482	Green. Pearson. Benn.
			S 49 59 W	N 49 58 E	5,858	
			S 2 41 W	N 2 41 E	4,410	
3	38 53 22.08	76 12 09.06	N 32 02 W	S 32 02 E	489	Green. Pearson. Benn.
			S 50 22 W	N 50 20 E	5,978	
			S 4 09 W	N 4 09 E	4,464	
4	38 53 13.24	76 12 05.60	N 26 12 W	S 26 12 E	794	Green. Pearson. Benn.
			S 53 11 W	N 53 09 E	5,865	
			S 5 42 W	N 5 42 E	4,174	

PROSPECT POINT.

(Eastern Bay—Chart No. 32.)

1	38 52 49.46	76 12 22.68	N 3 46 E	S 3 46 W	1,518	Green. Pearson. Benn.
			S 57 25 W	N 57 23 E	5,037	
			S 0 36 E	N 0 36 W	3,353	
2	38 52 55.00	76 12 29.68	N 12 05 E	S 12 05 W	1,357	Green. Pearson. Benn.
			S 54 28 W	N 54 26 E	4,989	
			S 3 34 E	N 3 34 W	3,545	
3	38 53 06.78	76 12 15.16	N 6 03 W	S 6 03 E	936	Green. Pearson. Benn.
			S 53 25 W	N 53 23 E	5,533	
			S 2 22 W	N 2 22 E	3,940	
4	38 53 01.44	76 12 08.54	N 13 49 W	S 13 49 E	1,143	Green. Pearson. Benn.
			S 55 59 W	N 55 57 E	5,571	
			S 5 08 W	N 5 08 E	3,771	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BUGBY.

(Eastern Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 52 07.64	76 14 09.20	S 26 44 E	N 26 43 W	Yards. 4,554 3,444 4,123	Herr. Benn. Green.
			S 55 41 E	N 55 40 W		
			N 44 50 E	S 44 51 W		
2	38 52 36.14	76 14 11.60	S 31 14 W	N 31 14 E	2,647 4,109 3,561	Pearson. Benn. Green.
			S 45 03 E	N 45 02 W		
			N 56 32 E	S 56 33 W		
3	38 53 43.94	76 13 10.82	S 76 44 E	N 76 43 W	1,406 4,401 3,142	Green. Brian Reference Station. Parsons.
			N 8 17 E	S 8 18 W		
			N 62 58 W	S 62 59 E		
4	38 53 38.92	76 12 38.14	S 73 10 E	N 73 10 W	530 4,530 3,993	Green. Brian Reference Station. Parsons.
			N 2 52 W	S 2 52 E		
			N 66 25 W	S 66 26 E		
5	38 52 53.04	76 12 51.34	N 31 32 E	S 31 32 W	1,635 4,494 3,562	Green. Pearson. Benn.
			S 50 55 W	N 50 54 E		
			S 12 50 E	N 12 50 W		
6	38 52 31.38	76 12 21.20	N 1 38 E	S 1 38 W	2,125 4,771 2,742	Green. Pearson. Benn.
			S 63 51 W	N 63 49 E		
			S 0 04 W	N 0 04 E		
7	38 52 18.46	76 13 01.34	S 62 40 W	N 62 38 E	3,630 2,536 2,793	Pearson. Benn. Green.
			S 24 35 E	N 24 35 W		
			N 23 36 E	S 23 37 W		
8	38 52 08.96	76 13 31.06	S 61 07 W	N 61 06 E	2,788 2,707 3,451	Pearson. Benn. Green.
			S 42 48 E	N 42 47 W		
			N 33 26 E	S 33 27 W		

## COFFEE.

(Eastern Bay—Chart No. 32.)

1	38 51 07.52	76 13 33.22	S 28 19 E	N 28 19 W	2,317 1,897 5,325	Herr. Benn. Green.
			N 87 25 E	S 87 26 W		
			N 21 35 E	S 21 36 W		
2	38 52 08.96	76 13 31.06	S 61 07 W	N 61 06 E	2,788 2,707 3,451	Pearson. Benn. Green.
			S 42 48 E	N 42 47 W		
			N 33 26 E	S 33 27 W		
3	38 52 18.46	76 13 01.34	S 62 40 W	N 62 38 E	3,630 2,536 2,793	Pearson. Benn. Green.
			S 24 35 E	N 24 35 W		
			N 23 36 E	S 23 37 W		
4	38 52 04.58	76 12 33.48	N 7 14 E	S 7 14 W	3,052 4,137 1,867	Green. Pearson. Benn.
			S 73 09 W	N 73 07 E		
			S 9 53 E	N 9 53 W		
5	38 51 43.28	76 12 45.24	N 10 30 E	S 10 30 W	3,810 3,681 1,286	Green. Pearson. Benn.
			S 82 30 W	N 82 28 E		
			S 29 22 E	N 29 22 W		
6	38 51 29.86	76 12 20.80	N 0 41 E	S 0 41 W	4,199 4,293 668	Green. Pearson. Benn.
			S 89 37 W	N 89 35 E		
			S 1 12 W	N 1 12 E		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

PERSIMMON TREE.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 50 39.24	76 12 20.10	S 35 12 W S 75 46 E N 71 09 E	N 35 11 E N 75 45 W S 71 09 W	3,530 734 778	Sara. Frank. James.
Thence along county boundary as delineated on Chart No. 32 to corner No. 2.						
2	38 50 48.30	76 13 17.28	S 9 22 W S 77 40 E N 63 33 E	N 9 22 E N 77 39 W S 63 34 W	3,234 2,271 1,648	Sara. Frank. Benn.
3	38 51 07.52	76 13 33.22	S 28 19 E N 87 25 E N 21 35 E	N 28 19 W S 87 26 W S 21 36 W	2,317 1,897 5,325	Herr. Bcnn. Green.
4	38 51 29.86	76 12 20.80	N 0 41 E S 89 37 W S 1 12 W	S 0 41 W N 89 35 E N 1 12 E	4,199 4,293 668	Green. Pearson. Benn.
5	38 51 19.38	76 12 26.20	N 2 25 E N 85 32 W S 22 13 E	S 2 25 W S 85 33 E N 22 13 W	4,556 4,164 340	Green. Pearson. Benn.

SHIPPEN HOLE.

(Wye River—Chart No. 32.)

1	38 51 01.04	76 12 07.44	S 32 34 W S 39 44 E N 40 34 E	N 32 33 E N 39 44 W S 40 35 W	2,161 629 1,374	Herr. James. Bruffs.
2	38 51 05.78	76 12 14.70	S 26 07 W S 42 41 E N 50 50 E	N 26 07 E N 42 41 W S 50 51 W	2,207 875 1,399	Herr. James. Bruffs.
3	38 51 18.46	76 12 00.60	S 29 09 W S 56 06 E N 57 24 E	N 29 08 E N 56 05 W S 57 24 W	2,758 819 846	Herr. Law. Bruffs.
4	38 51 38.88	76 11 55.38	S 12 54 W S 67 59 E N 10 28 W	N 12 54 E N 67 59 W S 10 28 E	647 620 113	Hough. Bruffs. Won.
5	38 51 40.30	76 11 46.76	N 13 13 E N 75 39 W S 28 43 W	S 13 13 W S 75 39 E N 28 43 E	969 256 773	Nose. Won. Hough.
6	38 51 11.30	76 11 56.38	S 33 52 W S 69 15 E N 40 47 E	N 33 52 E N 69 15 W S 40 48 W	2,610 607 921	Herr. Law. Bruffs.

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MILLS.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 51 38.88	76 11 55.38	S 12 54 W	N 12 54 E	647 620 113	Hough. Bruffs. Won.
			S 67 59 E	N 67 59 W		
			N 10 28 W	S 10 28 E		
2	38 51 50.10	76 11 57.08	S 5 11 E	N 5 11 W	268 871 786	Won. Bruffs Nose.
			S 45 25 E	N 45 25 W		
			N 38 52 E	S 38 52 W		
3	38 52 03.76	76 11 36.74	N 47 08 E	S 47 08 W	553 157 890	Snout. Nose. Won.
			N 15 43 W	S 15 43 E		
			S 35 08 W	N 35 08 E		
4	38 52 12.66	76 11 33.18	N 2 06 E	S 2 06 W	604 201 1,332	Stop. Nose. Shaw.
			S 42 38 W	N 42 38 E		
			S 7 58 E	N 7 58 W		
5	38 51 51.30	76 11 24.38	S 4 30 W	N 4 30 E	601 390 801	Shaw. South. Snout.
			S 86 02 E	N 86 02 W		
			N 5 43 E	S 5 44 W		
6	38 51 40.30	76 11 46.76	N 13 13 E	S 13 13 W	969 256 773	Nosc. Won. Hough.
			N 75 39 W	S 75 39 E		
			S 28 43 W	N 28 43 E		

## HOBBS.

(Wye River—Chart No. 32.)

1	38 52 03.76	76 11 36.74	N 47 08 E	S 47 08 W	553 157 890	Snout. Nose. Won.
			N 15 43 W	S 15 43 E		
			S 35 08 W	N 35 08 E		
2	38 52 22.34	76 11 37.50	S 2 44 W	N 2 44 E	476 494 296	Nose. Snout. Stop.
			S 59 35 E	N 59 35 W		
			N 27 21 E	S 27 21 W		
3	38 52 28.04	76 11 29.30	S 25 22 E	N 25 22 W	489 522 107	Snout. Leaven. Stop.
			N 76 31 E	S 76 31 W		
			N 48 32 W	S 48 32 E		
4	38 52 55.02	76 11 42.08	S 12 01 E	N 12 01 W	406 2,615 451	Orb. Twixt. Piney.
			N 73 07 E	S 73 07 W		
			N 22 20 E	S 22 20 W		
5	38 52 51.05	76 11 33.48	N 75 02 E	S 75 02 W	425 553 299	Star. Piney. Orb.
			N 5 46 W	S 5 46 E		
			S 28 29 W	N 28 29 E		
6	38 52 28.58	76 11 22.98	N 77 58 W	S 77 58 E	253 403 357	Stop. Snout. Leaven.
			S 5 20 W	N 5 20 E		
			N 73 07 E	S 73 07 W		
7	38 52 12.66	76 11 33.18	N 2 06 E	S 2 06 W	604 201 1,332	Stop. Nose. Shaw.
			S 42 38 W	N 42 38 E		
			S 7 58 E	N 7 58 W		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

BAXTERS HOLLOW.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	38 52 51.05	76 11 33.48	N 75 02 E	S 75 02 W	425	Star. Piney. Orb.
			N 5 46 W	S 5 46 E	553	
			S 28 29 W	N 28 29 E	299	
2	38 52 55.02	76 11 42.08	S 12 01 E	N 12 01 W	406	Orb. Twixt. Piney.
			N 73 07 E	S 73 07 W	2,615	
			N 22 20 E	S 22 20 W	451	
3	38 53 15.04	76 11 25.26	S 46 28 W	N 46 28 E	375	Piney. Twixt. Ferry.
			N 87 39 E	S 87 40 W	2,060	
			N 67 42 E	S 67 42 W	378	
4	38 53 18.30	76 11 10.28	N 64 25 E	S 64 25 W	1,214	Owe. Ferry. Darce.
			N 52 52 W	S 52 52 E	56	
			S 0 09 W	N 0 09 E	386	
5	38 53 14.48	76 11 08.88	S 8 23 W	N 8 23 E	260	Darce. Wide. Ferry.
			S 86 45 E	N 86 44 W	1,270	
			N 26 37 W	S 26 37 E	182	
6	38 53 09.78	76 11 24.96	S 73 49 W	N 73 49 E	292	Piney. Twixt. Ferry.
			N 82 43 E	S 82 44 W	2,068	
			N 46 51 E	S 46 51 W	469	

PACA.

(Wye River—Chart No. 32.)

1	38 53 13.58	76 10 38.88	S 74 41 W	N 74 41 E	860	Darce. Wide. Owe.
			S 84 59 E	N 84 59 W	479	
			N 21 21 E	S 21 21 W	734	
2	38 53 14.48	76 11 08.88	S 8 23 W	N 8 23 E	260	Darce. Wide. Ferry.
			S 86 45 E	N 86 44 W	1,270	
			N 26 37 W	S 26 37 E	182	
3	38 53 18.30	76 11 10.28	N 64 25 E	S 64 25 W	1,214	Owe. Ferry. Darce.
			N 52 52 W	S 52 52 E	56	
			S 0 09 W	N 0 09 E	386	
4	38 53 25.72	76 10 35.20	N 77 24 W	S 77 25 E	993	Ferry. Wide. Owe.
			S 40 07 E	N 40 06 W	589	
			N 31 50 E	S 31 50 W	323	
5	38 53 15.28	76 10 31.94	S 71 22 E	N 71 22 W	311	Wide. Owe. Ferry.
			N 7 39 E	S 7 39 W	631	
			N 82 41 W	S 82 41 E	1,064	

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BRYAN.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 53 15.28	76 10 31.94	S 71 22 E	N 71 22 W	Yards. 311 631 1,064	Wide. Owe. Ferry.
			N 7 39 E	S 7 39 W		
			N 82 41 W	S 82 41 E		
2	38 53 25.72	76 10 35.20	N 77 24 W	S 77 25 E	993 589 323	Ferry. Wide. Owe.
			S 40 07 E	N 40 06 W		
			N 31 50 E	S 31 50 W		
3	38 53 28.30	76 10 22.88	S 5 52 E	N 5 52 W	541 565 243	Wide. Aller. Owe.
			N 47 53 E	S 47 53 W		
			N 39 38 W	S 39 38 E		
4	38 53 46.42	76 10 23.88	N 68 20 W	S 68 20 E	210 443 231	Hook. Owe. Chin.
			S 16 50 W	N 16 50 E		
			N 90 00 E	S 90 00 W		
5	38 53 38.26	76 10 14.86	N 78 16 E	S 78 16 W	212 276 396	Aller. Chin. Owe.
			N 1 52 W	S 1 52 E		
			S 67 51 W	N 67 51 E		
6	38 53 18.40	76 10 18.66	N 27 03 W	S 27 03 E	585 212 305	Owe. Wide. Twist.
			S 15 18 W	N 15 18 E		
			S 84 33 E	N 84 33 W		

## WYE ISLAND.

(Wye River—Chart No. 32.)

1	38 52 57.94	76 10 38.40	N 43 43 E	S 43 44 W	671 1,237 893	Wide. Owe. Darce.
			N 11 52 E	S 11 52 W		
			N 70 22 W	S 70 22 E		
2	38 53 08.74	76 11 10.50	N 6 13 W	S 6 13 E	359 1,696 63	Ferry. Twist. Darce.
			N 79 55 E	S 79 56 W		
			S 4 14 E	N 4 14 W		
3	38 53 11.22	76 11 09.78	N 11 59 W	S 11 59 E	278 1,664 149	Ferry. Twist. Darce.
			N 82 39 E	S 82 39 W		
			S 5 30 W	N 5 30 E		
4	38 53 13.18	76 10 57.72	S 88 20 E	N 88 20 W	974 429 395	Wide. Ferry. Darce.
			N 61 13 W	S 61 13 E		
			S 57 14 W	N 57 14 E		
5	38 53 08.52	76 10 42.28	N 77 12 E	S 77 12 W	582 863 741	Wide. Ferry. Darce.
			N 65 05 W	S 65 05 E		
			S 85 37 W	N 85 37 E		
6	38 53 13.58	76 10 38.88	S 74 41 W	N 74 41 E	860 479 734	Darce. Wide. Owe.
			S 84 59 E	N 84 59 W		
			N 21 21 E	S 21 21 W		
7	38 53 15.28	76 10 31.94	S 71 22 E	N 71 22 W	311 631 1,064	Wide. Owe. Ferry.
			N 7 39 E	S 7 39 W		
			N 82 41 W	S 82 41 E		



BOUNDARIES OF NATURAL OYSTER BARS—continued.

DRUM POINT.

(Wye River—Chart No. 32.)

Corner of bar	Latitude			Longitude			True bearing				Distance	U. S. C. & G. S. triangulation station
				Forward		Back						
	°	'	"	°	'	"	°	'	°	'	Yards.	
1	38	52	56.70	76	11	21.80	S 52 03 E	N 52 03 W	131	Star.		
							N 43 29 E	S 43 29 W			207	Twixt.
							N 45 17 W	S 45 18 E			512	Piney.
2	38	52	56.66	76	11	29.36	S 29 04 W	N 29 04 E	517	Orb.		
							S 75 19 E	N 75 19 W	313	Star.		
							N 24 27 W	S 24 27 E	397	Piney.		
3	38	53	09.32	76	11	21.10	N 35 34 E	S 35 34 W	413	Ferry.		
							S 80 14 W	N 80 14 E	387	Piney.		
							S 9 31 E	N 9 31 W	513	Star.		
4	38	53	11.22	76	11	09.78	N 11 59 W	S 11 59 E	278	Ferry.		
							N 82 39 E	S 82 39 W	1,664	Twixt.		
							S 5 30 W	N 5 30 E	149	Darce.		
5	38	53	08.74	76	11	10.50	N 6 13 W	S 6 13 E	359	Ferry.		
							N 79 55 E	S 79 56 W	1,696	Twixt.		
							S 4 14 E	N 4 14 W	63	Darce.		

WYE RIVER MIDDLEGROUND.

(Wye River—Chart No. 32.)

1	38	52	28.26	76	11	18.82	N 1 37 E	S 1 37 W	870	Star.
							N 79 55 W	S 79 55 E	362	Stop.
							S 8 26 W	N 8 26 E	454	Snout.
2	38	52	38.54	76	11	26.36	S 29 06 W	N 29 06 E	325	Stop.
							S 61 38 E	N 61 37 W	489	Leaven.
							N 22 48 E	S 22 48 W	577	Star.
3	38	52	56.66	76	11	29.36	S 29 04 W	N 29 04 E	517	Orb.
							S 75 19 E	N 75 19 W	313	Star.
							N 24 27 W	S 24 27 E	397	Piney.
4	38	52	56.70	76	11	21.80	S 52 03 E	N 52 03 W	131	Star.
							N 43 29 E	S 43 29 W	207	Twixt.
							N 45 17 W	S 45 18 E	512	Piney.
5	38	52	44.36	76	11	14.38	N 15 22 W	S 15 22 E	348	Star.
							S 86 45 W	N 86 44 E	646	Orb.
							S 14 57 E	N 14 57 W	444	Leaven.
6	38	52	28.52	76	11	13.88	N 43 48 E	S 43 48 W	147	Leaven.
							N 83 36 W	S 83 36 E	490	Stop.
							S 23 15 W	N 23 16 E	499	Snout.

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

HESS.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 51 41.26	76 11 04.68	N 84 54 W	S 84 54 E	Yards.	Edward. South. Shaw.
			N 22 44 W	S 22 44 E	728	
			S 65 16 W	N 65 16 E	338 624	
2	38 51 44.72	76 11 17.94	N 48 21 E	S 48 21 W	293	South. Nose. Shaw.
			N 34 09 W	S 34 09 E	959	
			N 29 53 W	S 29 53 E	435	
3	38 52 15.60	76 11 30.14	S 41 12 W	N 41 12 E	329	Nose. Snout. Stop.
			S 84 26 E	N 84 26 W	233	
			N 6 45 W	S 6 45 E	493	
4	38 52 18.68	76 11 19.94	N 30 51 E	S 30 51 W	509	Leaven. Stop. Snout.
			N 40 14 W	S 40 14 E	506	
			S 16 23 W	N 16 23 E	131	
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 51 50.72	76 11 07.52	S 82 24 W	N 82 24 E	57	South. Shaw. Edward.
			S 40 18 W	N 40 17 E	761	
			S 72 22 E	N 72 22 W	840	

## STONE WHARF.

(Wye River—Chart No. 32.)

1	38 51 50.80	76 10 58.08	N 42 27 E	S 42 27 W	731	Flat. South. Shaw.
			S 88 06 W	N 88 06 E	395	
			S 51 48 W	N 51 48 E	943	
2	38 51 53.74	76 11 02.82	S 58 41 W	N 58 41 E	210	South. Edward. Flat.
			S 62 13 E	N 62 13 W	764	
			N 54 34 E	S 54 34 W	759	
3	38 52 04.80	76 10 53.60	S 41 14 W	N 41 14 E	642	South. Edward. Flat.
			S 30 42 E	N 30 43 W	849	
			N 79 54 E	S 79 54 W	381	
4	38 52 04.54	76 10 45.78	S 53 01 W	N 53 01 E	787	South. Edward. Flat.
			S 17 28 E	N 17 28 W	756	
			N 65 53 E	S 65 53 W	185	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

RACE HORSE (QUEEN ANNES COUNTY).

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 51 41.04	76 10 59.44	N 82 59 E	S 83 00 W	592	Edward. South. Shaw.
			N 40 06 W	S 40 06 E	417	
			S 70 13 W	N 70 12 E	749	
2	38 51 54.38	76 10 51.82	S 45 39 E	N 45 39 W	540	Edward. Flat. South.
			N 38 09 E	S 38 09 W	531	
			S 74 28 W	N 74 27 E	488	
3	38 51 58.16	76 10 41.72	N 11 59 E	S 11 59 W	297	Flat. South. Edward.
			S 70 39 W	N 70 39 E	780	
			S 13 20 E	N 13 20 W	519	
4	38 51 56.76	76 10 34.74	S 8 00 W	N 8 00 E	463	Edward. Albert. Flat.
			N 57 01 E	S 57 02 W	753	
			N 19 54 W	S 19 54 E	300	
Thence along county boundary as delineated on Chart No. 32 to corner No. 1.						

WHEATSTONE.

(Wye River—Chart No. 32.)

1	38 51 55.86	76 10 09.00	S 7 36 W	N 7 36 E	593	Lloyd. Cousin. Albert.
			N 60 57 E	S 60 57 W	572	
			N 5 59 W	S 5 59 E	443	
2	38 52 01.18	76 10 15.58	N 81 42 E	S 81 43 W	680	Cousin. Albert. Flat.
			N 25 59 E	S 25 59 W	291	
			N 73 15 W	S 73 15 E	655	
3	38 52 06.62	76 10 07.68	N 39 44 E	S 39 44 W	424	Baldwins. Albert. Lloyd.
			N 46 06 W	S 46 06 E	113	
			S 6 42 W	N 6 42 E	807	
4	38 52 17.26	76 10 09.48	N 28 08 E	S 28 08 W	396	Attila. Le Seur. Albert.
			S 74 46 W	N 74 46 E	30	
			S 6 48 W	N 6 48 E	282	
5	38 52 27.72	76 10 00.40	N 7 52 E	S 7 52 W	385	Tobine. Attila. Le Seur.
			S 85 38 W	N 85 38 E	52	
			S 36 37 W	N 36 37 E	449	
6	38 52 26.50	76 09 57.10	S 1 19 W	N 1 19 E	344	Baldwins. Sylvia. Gusta.
			S 85 52 E	N 85 52 W	163	
			N 41 24 E	S 41 24 W	490	
Thence along county boundary as delineated on Chart No. 32 to corner No. 7.						
7	38 52 20.62	76 10 01.72	N 4 25 W	S 4 25 E	230	Attila. Le Seur. Baldwins.
			S 62 33 W	N 62 33 E	202	
			S 37 57 E	N 37 57 W	185	
Thence along county boundary as delineated on Chart No. 32 to corner No. 8.						
8	38 52 10.38	76 10 01.42	S 54 43 E	N 54 43 W	367	Cousin. Baldwins. Le Seur.
			N 28 00 E	S 28 00 W	226	
			N 47 03 W	S 47 04 E	329	
Thence along county boundary as delineated on Chart No. 32 to corner No. 1:						

## Survey of Oyster Bars, Queen Annes County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MELVIN.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 52 26.50	76 09 57.10	S 1 19 W	N 1 19 E	344	Baldwms.
			S 85 52 E	N 85 52 W	163	Sylvia.
			N 41 24 E	S 41 24 W	490	Gusta.
2	38 52 27.72	76 10 00.40	N 7 52 E	S 7 52 W	385	Tobine.
			S 85 38 W	N 85 38 E	52	Attila.
			S 36 37 W	N 36 37 E	449	Le Seur.
3	38 52 39.03	76 09 58.40	S 15 18 W	N 15 18 E	400	Attila.
			S 81 14 E	N 81 14 W	362	Gusta.
			N 6 21 W	S 6 21 E	458	Sang.
4	38 52 50.52	76 09 50.37	S 48 08 W	N 48 08 E	352	Sang.
			S 28 33 E	N 28 33 W	533	Nodim.
			S 84 55 E	N 84 55 W	327	Go.
5	38 52 52.64	76 09 45.28	S 89 31 W	N 89 31 E	396	Sang.
			S 26 53 E	N 26 53 W	265	Nodim.
			N 43 23 E	S 43 23 W	280	Go.
Thence along county boundary as delineated on Chart No. 32			to corner No. 1.			

## DIVIDING.

(Wye River—Chart No. 32.)

1	38 52 52.18	76 09 12.82	N 81 40 E	S 81 40 W	382	Deck.
			N 5 04 E	S 5 04 W	226	Divide.
			N 71 47 W	S 71 47 E	699	Go.
Thence along county boundary as delineated on Chart No. 32			to corner No. 2.			
2	38 52 52.48	76 09 30.12	N 65 37 E	S 65 37 W	523	Divide.
			N 44 54 W	S 44 54 E	294	Go.
			S 50 31 W	N 50 31 E	362	Nodim.
Thence along county boundary as delineated on Chart No. 32			to corner No. 3.			
3	38 52 52.64	76 09 45.28	S 89 31 W	N 89 31 E	396	Sang.
			S 26 53 E	N 26 53 W	265	Nodim.
			N 43 23 E	S 43 23 W	280	Go.
4	38 52 50.52	76 09 50.37	S 48 08 W	N 48 08 E	352	Sang.
			S 28 33 E	N 28 33 W	533	Nodim.
			S 84 55 E	N 84 55 W	327	Go.
5	38 52 58.74	76 09 37.94	N 85 25 W	S 85 25 E	329	Turn.
			S 9 29 W	N 9 29 E	448	Nodim.
			N 89 36 E	S 89 36 W	682	Divide.
6	38 52 57.50	76 09 13.60	S 60 48 W	N 60 47 E	819	Nodim.
			S 19 34 E	N 19 34 W	460	Quarter.
			N 41 06 E	S 41 06 W	62	Divide.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SHAWNS WHARF.

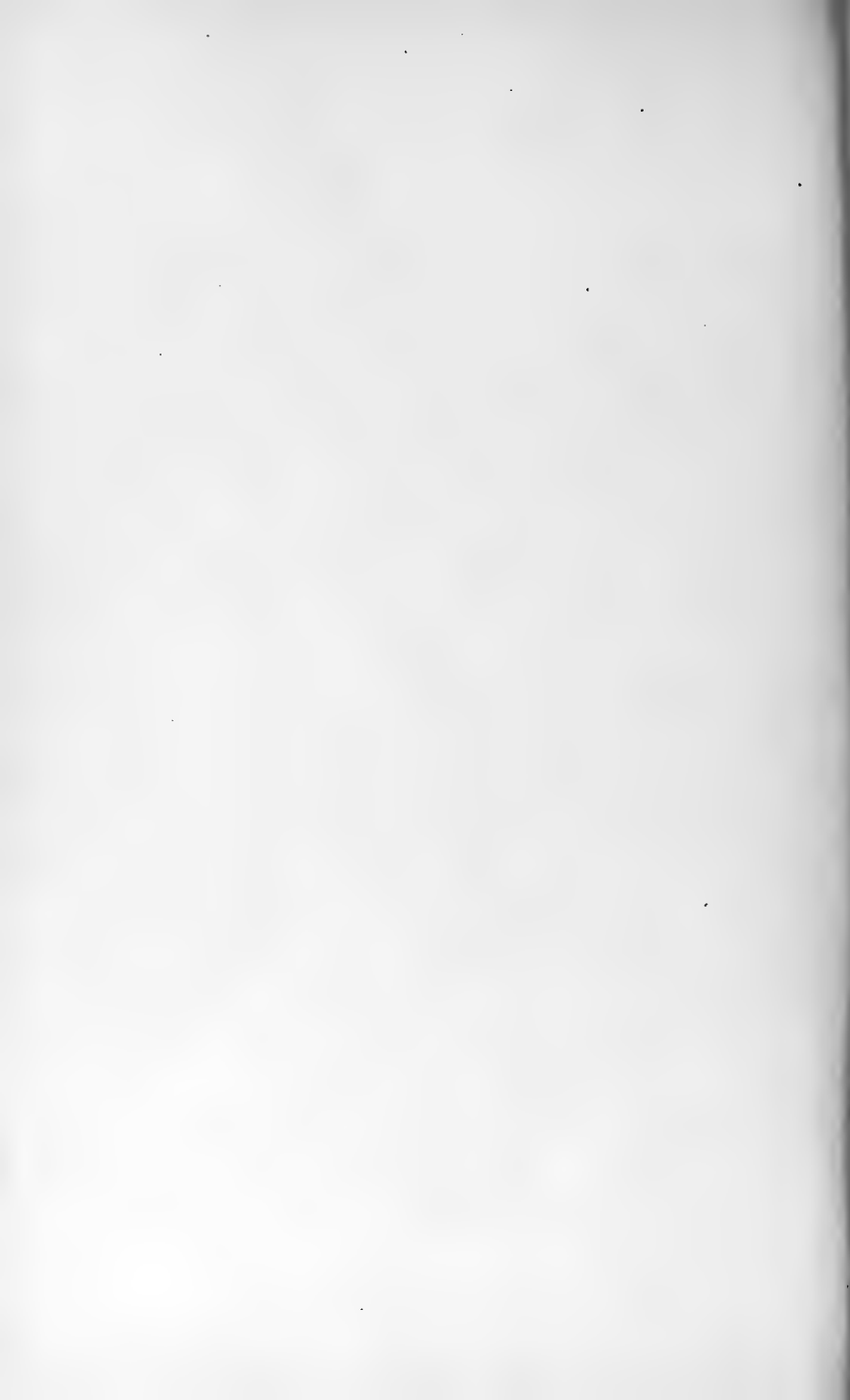
(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 52 52.18	76 09 12.82	N 81 40 E	S 81 40 W	Yards. 382 226 699	Deck. Divide. Go.
			N 5 04 E	S 5 04 W		
			N 71 47 W	S 71 47 E		
2	38 52 57.50	76 09 13.60	S 60 48 W	N 60 47 E	819 460 62	Nodim. Quarter. Divide.
			S 19 34 E	N 19 34 W		
			N 41 06 E	S 41 06 W		
3	38 53 03.94	76 09 00.30	N 78 37 W	S 78 37 E	67 344 515	Princess. Deck. Philip.
			S 7 58 E	N 7 57 W		
			S 83 41 E	N 83 41 W		
4	38 53 01.38	76 08 39.78	N 44 04 W	S 44 04 E	42 441 645	Philip. Matter. Whale.
			S 49 04 W	N 49 04 E		
			S 43 34 E	N 43 34 W		
5	38 52 57.70	76 08 40.66	N 2 04 W	S 2 04 E	154 351 580	Philip. Matter. Whale.
			S 62 01 W	N 62 01 E		
			S 53 44 E	N 53 44 W		
6	38 52 59.30	76 08 55.38	N 88 09 W	S 88 09 E	440 202 296	Divide. Deck. Philip.
			S 23 55 W	N 23 55 E		
			N 75 22 E	S 75 23 W		
Thence along county boundary as delineated on Chart No. 32 to corner No. 1.						

GRANARY POINT.

(Wye River—Chart No. 32.)

1	38 52 51.88	76 08 22.72	N 62 21 E	S 62 21 W	242 112 784	Morn. Granary. Matter.
			N 6 15 E	S 6 15 W		
			N 87 41 W	S 87 41 E		
2	38 52 53.94	76 08 22.64	N 81 44 E	S 81 45 W	643 217 217	Bush. Morn. Whale.
			N 78 35 E	S 78 35 W		
			S 2 02 W	N 2 02 E		
3	38 52 54.20	76 08 10.39	S 55 46 W	N 55 46 E	400 291 325	Whale. Chew. Bush.
			S 14 44 W	N 14 44 E		
			N 75 04 E	S 75 04 W		
4	38 52 51.88	76 08 10.46	N 44 07 W	S 44 07 E	155 330 1,106	Morn. Granary. Matter.
			N 70 25 W	S 70 26 E		
			N 88 21 W	S 88 22 E		



## APPENDIXES.

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### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

**AN ACT** To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\*            \*            \*            \*            \*            \*            \*

SEC. 4. That this act shall take effect from the date of its passage.

[Act of Congress approved June 30, 1906.]

**AN ACT** Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

*Survey of Oyster Bars, Queen Annes County, Md.*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven. \* \* \*

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[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

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[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of Congress approved March 4, 1909.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and ten, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and ten, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of Congress approved June 25, 1910.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eleven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eleven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, fifteen thousand dollars.



*Survey of Oyster Bars, Queen Annes County, Md.*

171

[Act of Congress approved March 4, 1911.]

AN ACT Making appropriation for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and twelve, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects herein-after expressed, for the fiscal year ending June thirtieth, nineteen hundred and twelve, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, thirteen thousand dollars.

[Act of the Legislature of Maryland approved April 2, 1906.]

AN ACT To establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis, and the said commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie. \* \* \*

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

\* \* \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the same to the Clerks of the Circuit court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed other than those embraced in the survey authorized by this Act, and that all areas of the Ches-

peake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks shall be construed in all the courts of the State to be barren bottoms and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act; provided, that the said survey and report shall not be construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act.

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the survey, is as follows:

AN ACT Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or leveling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>1</sup> *And be it enacted,* That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses (to be by them sworn or affirmed and examined), shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted,* That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first

<sup>1</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

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APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from Second Report of Shell Fish Commission.]

OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland, had a twofold object in view.

1. To encourage an industry in oyster culture upon the barren bottoms beneath the tidewaters of the State.

2. To prevent the leasing of natural oyster bars for the purpose of oyster culture."

SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."

DEFINITION OF A NATURAL OYSTER BAR.

NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, charting and buoying them, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the Commission."

DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturists, may be made to yield a greater number of oysters than they now produce."

"It should be evident to every one that neither of these definitions could be adopted by the Commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by *oystermen* on one hand and by *oyster culturists* on the other is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd v. Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed, and is as follows:

What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be

possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them, and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters, within the meaning of the act of assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and can not be located or appropriated by any individual.

#### APPLICATION OF DEFINITION.

Before this definition may be of use in determining, accurately and scientifically, the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors, and these factors must be confined into a practical scheme of investigating the condition of the ground under consideration.

Stated briefly, a *livelihood* is represented by a *sum of money* obtained from the sale, at a fixed *price*, of a certain *quantity of oysters* gathered in a given *time* from an allotted *area* of ground.

Knowing the value of each of these factors it becomes possible to calculate the number of oysters an oyster ground must produce per square yard in order that oystermen may secure a livelihood by working upon it.

NOTE.—The factors into which the commission resolved the livelihood problem, the value assigned to each factor, and the scheme devised for practical use in examining and applying the definition to oyster bottoms are given in outline in their second report under the heading of the preceding extract, and in detail in their first report on pages 32 to 69.

#### APPENDIX C.—SUMMARY OF THE PARTICULAR SURVEYING OPERATIONS WHICH CONSTITUTE AN "OYSTER SURVEY" AS NOW BEING CARRIED ON IN MARYLAND.

*Explanation.*—A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest practical accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

*Triangulation survey.*—Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a framework or foundation. Therefore, a triangulation survey including the permanent marking of the positions of landmarks with monuments and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

*Topographic survey.*—The technical records which establish the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned

as to the leasable bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore, a topographic survey is a necessary operation of a complete oyster survey.

*Hydrographic survey.*—In the settlement of the important question of what is, or what is not, a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore, a hydrographic survey is a necessary operation of a complete oyster survey.

*Necessary foundation for an oyster survey.*—Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

*Special surveys and investigations pertaining to oysters.*—Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>1</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding boat party in addition to the usual hydrographic work.<sup>2</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells or absence of shells.

The special oyster investigations<sup>3</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affects the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

*Preparation of results.*—The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>4</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for publication by the Government, the preparation of that part of the annual report of the commission covering the special oyster surveys and investigations, the making of the leasing charts and finished projections, and finally the filing of the oyster charts and records with the courts and the commission, thus opening a county for oyster culture.

*Summary.*—From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> See pp. 104 to 123 of First Annual Report of Maryland Shell Fish Commission.

<sup>3</sup> See pp. 30 to 67 and 129 to 199 of First Annual Report of Maryland Shell Fish Commission.

<sup>4</sup> No mention is made here of the large amount of administrative work of the commission, which is greatly complicated and increased by the effect of the oyster-survey operations on many thousands of people whose interests are more or less involved; or of the large amount of survey work involved in the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

## Survey of Oyster Bars, Queen Annes County, Md.

APPENDIX D.—STATISTICS OF RESULTS OF THE COMBINED OYSTER SURVEY OPERATIONS OF THE GOVERNMENT AND STATE.<sup>1</sup>

Operations	Anne Arundel County	Somerset County	Wicomico County	Worcester County	Calvert County	Charles County
Beginning of field work.....	June 29, 1906	May 2, 1907	Aug. 27, 1907	Nov. 8, 1907	May 2, 1908	Aug. 18, 1908
Filing of certified charts and reports.....	June 20, 1907	July 1, 1908	Dec. 1, 1908	Apr. 12, 1909	Dec. 14, 1909	Jan. 27, 1911
Natural oyster bars surveyed and delineated.....	91	37	15	28	41	15
Acres of natural oyster bars.....	33,666	27,566	2,038	1,655	12,303	2,285
Crab bottoms surveyed and delineated.....		54				
Acres of crab bottoms.....		32,108				
Clam beds surveyed and delineated.....		3				
Acres of clam beds.....		506				
Boundary buoys located and planted.....	362	154	53	108	149	51
Triangulation landmarks established.....	123	86	30	48	78	42
Miles of shore line covered by triangulation.....	110	125	46	95	95	32
Square miles of water covered by triangulation.....	220	375	44	110	157	20
Miles of examination of shell bottom with chain apparatus.....	369	296	58	63	250	38
Oyster-investigation stations occupied.....	440	679	162	147	667	113
Tide stations established.....	4	3	1	1	2	1
Number of soundings over shell bottoms.....	37,949	17,904	3,387	3,649	11,292	1,631
Square miles covered by soundings and chain apparatus.....	58	47	3	3	30	4
Projections prepared and plotted.....	9	13	2	5	8	3
Leasing charts prepared.....	13	12	2	3	5	2
Oyster charts published.....	4	6	2	3	5	1
Reports published.....	2	2	2	2	2	2
Progress maps published.....	2	2	2	2	2	2

Operations	St. Marys County	Baltimore County	Kent County	Queen Annes County	Total <sup>2</sup>
Beginning of field work.....	May 2, 1908	Apr. 14, 1909	Apr. 14, 1909	Apr. 14, 1909	
Filing of certified charts and reports.....	July 6, 1911	Aug. 10, 1911	Oct. 5, 1911	Nov. 29, 1911	
Natural oyster bars surveyed and delineated.....	124	3	64	98	316
Acres of natural oyster bars.....	25,778	3,010	12,800	24,721	<sup>3</sup> 145,831
Crab bottoms surveyed and delineated.....					54
Acres of crab bottoms.....					32,108
Clam beds surveyed and delineated.....					3
Acres of clam beds.....					506
Boundary buoys located and planted.....	513	13	211	340	1,954
Triangulation landmarks established.....	238	15	147	199	765
Miles of shore line covered by triangulation.....	160	12	110	240	840
Square miles of water covered by triangulation.....	180	10	130	500	1,472
Miles of examination of shell bottom with chain apparatus.....	400	33	164	288	1,959
Oyster-investigation stations occupied.....	1,472	64	1,151	1,949	6,344
Tide stations established.....	7	1	3	3	25
Number of soundings over shell bottoms.....	19,334	1,080	8,123	13,880	117,339
Square miles covered by soundings and chain apparatus.....	57	6	21	47	276
Projections prepared and plotted.....	15	4	10	12	58
Leasing charts prepared.....	10	1	4	11	62
Oyster charts published.....	8	1	3	4	32
Reports published.....	2	2	2	2	13
Progress maps published.....	2	1	1	1	12

<sup>1</sup> These statistics do not include the large amount of triangulation, topography, and hydrography resulting from previous work of the Coast and Geodetic Survey, which was utilized in the preparation of the published oyster charts and records. Work in Talbot and Dorchester counties has been finished, but final statistics of results will not be published until these counties are opened for oyster culture.

<sup>2</sup> Less quantities covered by statistics of more than 1 county.

<sup>3</sup> Total area of natural oyster bars of Connecticut is 5,770 acres.







COAST AND GEODETIC SURVEY  
**PROGRESS MAP**  
**QUEEN ANNES COUNTY**  
**MARYLAND**

To accompany report of work of United States  
 Coast and Geodetic Survey in cooperation  
 with the Maryland Shell Fish Commission

o Landmarks (Coast Survey Triangulation Stations)

--- Waters contiguous to county

--- Waters within territorial limits of county

--- Limits of projections on file at Washington

--- Limits of charts published by Coast and Geodetic Survey

Scale: 1:62,500

Scale: 1:125,000

Scale: 1:250,000

Scale: 1:500,000

Scale: 1:1,000,000

Scale: 1:2,000,000

Scale: 1:4,000,000

Scale: 1:8,000,000

Scale: 1:16,000,000

Scale: 1:32,000,000

Scale: 1:64,000,000

Scale: 1:128,000,000

Scale: 1:256,000,000

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Scale: 1:33,554,432,000,000

Scale: 1:67,108,864,000,000

Scale: 1:134,217,728,000,000

Scale: 1:268,435,456,000,000

Scale: 1:536,870,912,000,000

Scale: 1:1,073,741,824,000,000

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Scale: 1:144,115,188,075,855,872,000,000

Scale: 1:288,230,376,151,711,744,000,000

CHART No. 29

CHART No. 30

CHART No. 31

CHART No. 32

—Special Note—  
 For Descriptions of Triangulation  
 Stations in this County and Inlier  
 County the locations of which are shown  
 on the map but which are not shown  
 in the accompanying publications,  
 see the corresponding publications for  
 these two counties.



DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY  
O. H. TITTMANN, Superintendent

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# SURVEY OF OYSTER BARS

## ST. MARYS COUNTY MARYLAND

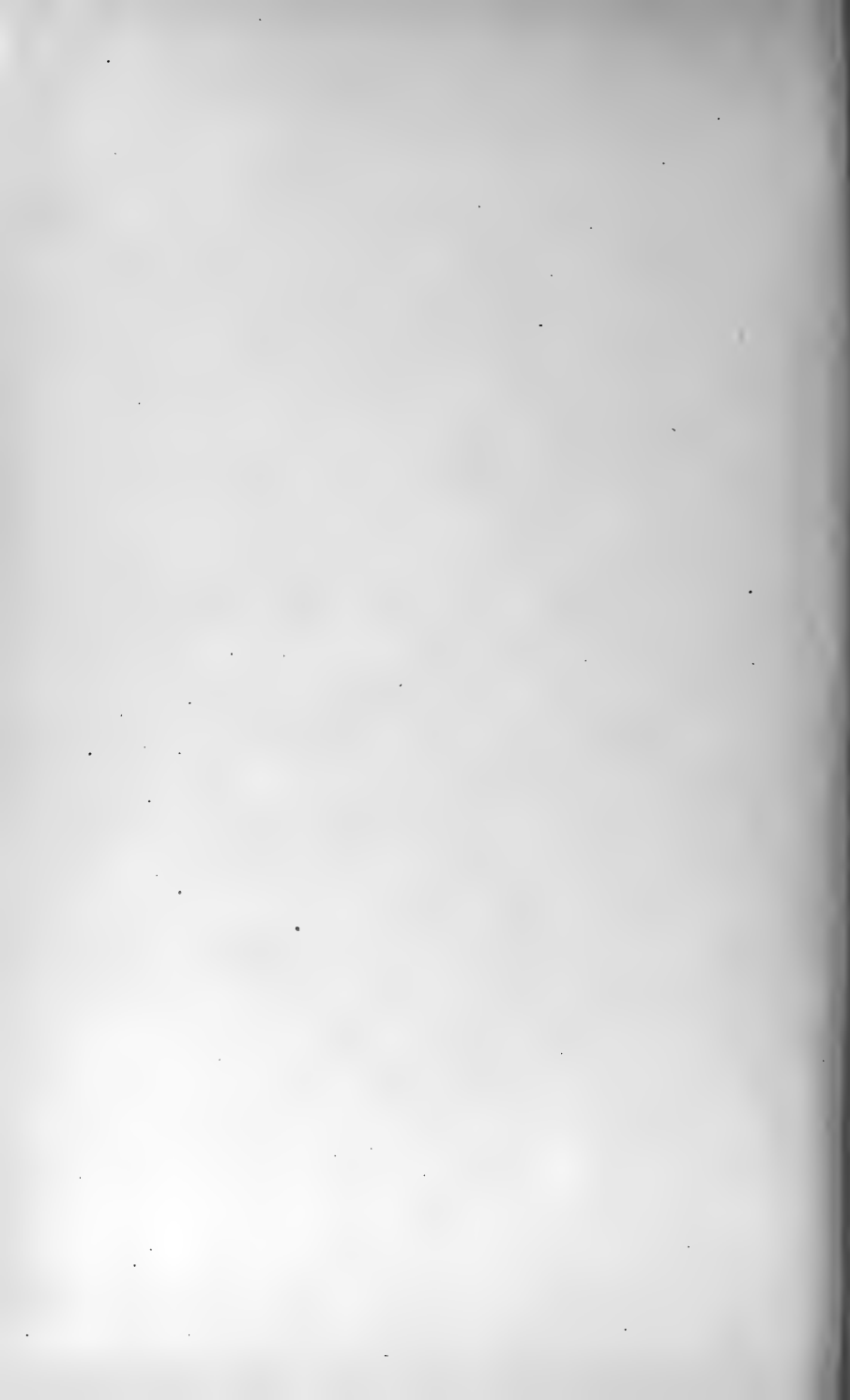
DESCRIPTION OF BOUNDARIES AND LANDMARKS AND  
REPORT OF WORK OF UNITED STATES COAST  
AND GEODETIC SURVEY IN COOPERATION  
WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND  
SHELL FISH COMMISSION

By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1911



## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 6, 1911.*

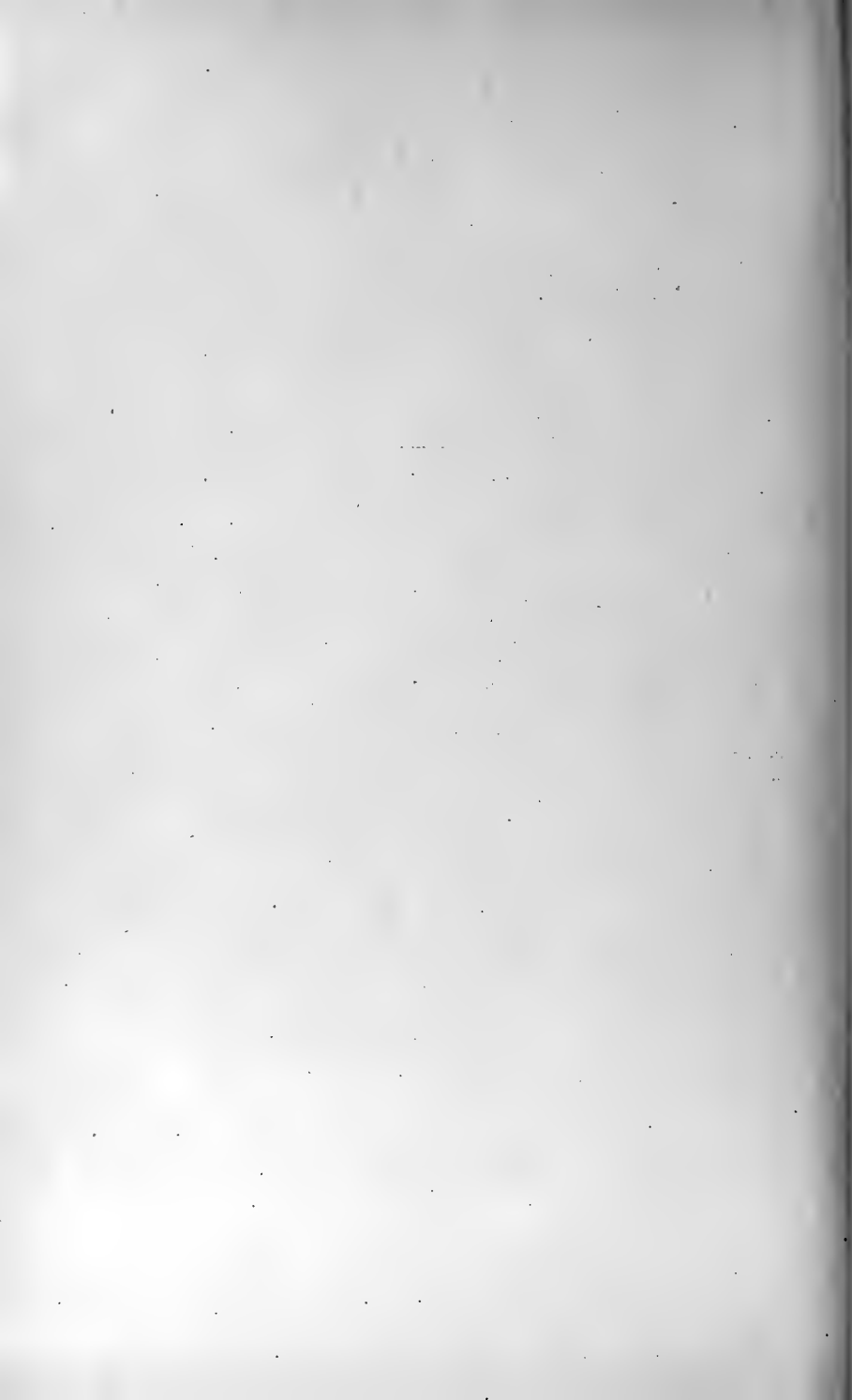
SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, together with certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shell fish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, 1909, 1910, and 1911.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To HON. CHARLES NAGEL,  
*Secretary of Commerce and Labor.*



## CERTIFICATION.

---

BALTIMORE, MD., *July 5, 1911.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in St. Marys County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,  
*Chief of Coast and Geodetic Survey Party,*  
*Assistant, Coast and Geodetic Survey.*

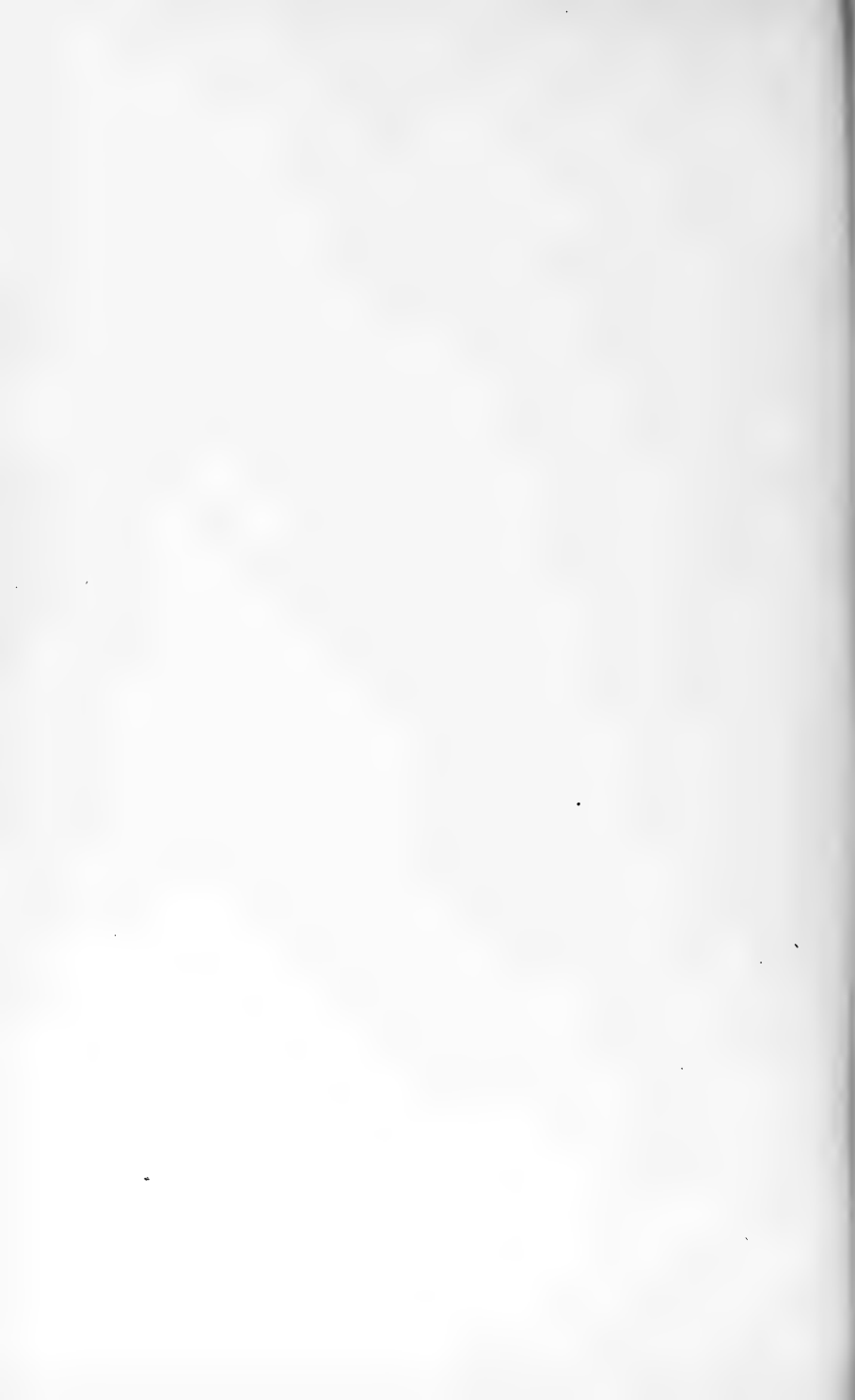
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Examined and certified to be correct.

BALTIMORE, MD., *July 5, 1911.*

WALTER J. MITCHELL,  
CASWELL GRAVE,  
BENJAMIN K. GREEN,  
*Maryland Shell Fish Commission.*  
SWEPSON EARLE,  
*Hydrographic Engineer.*

NOTE.—Certified copies of this publication and of the charts of the natural oyster bars of St. Marys County were filed in the office of the clerk of the circuit court of St. Marys County and in the office of the board of shell fish commissioners on July 6, 1911.





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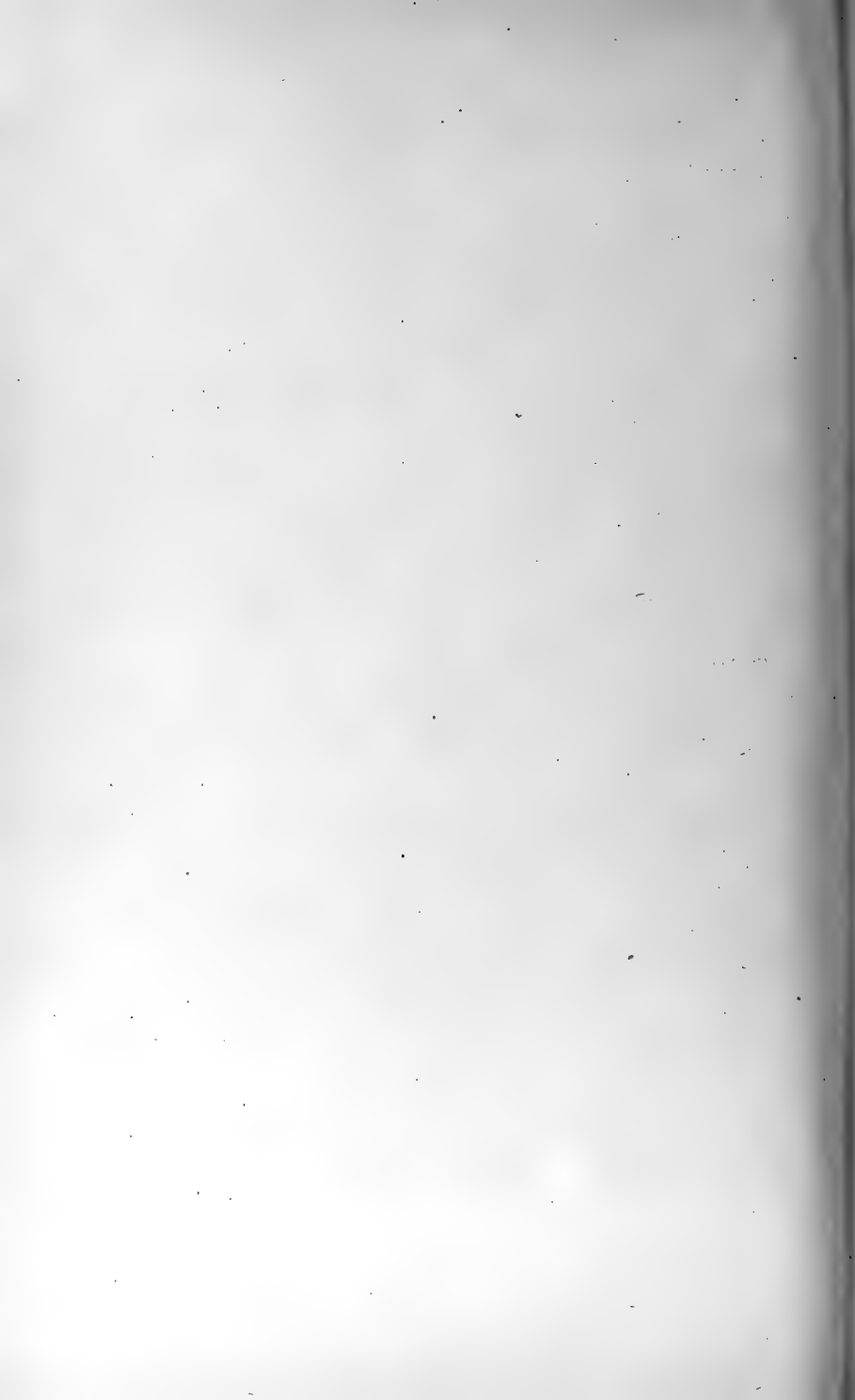
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# SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws<sup>1</sup> authorizing the work and the natural division of the surveying operations<sup>2</sup> of the cooperating forces.

The publications prepared and issued by the Government, under the direction of the Superintendent of the Coast and Geodetic Survey, consist of a series of charts and a technical report for each county surveyed.<sup>3</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey in charge of the work of that service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.<sup>4</sup>

The publications prepared and issued by the State under the direction of the Shell Fish Commission consist of annual reports<sup>5</sup> of all the operations of the Commission performed under the provisions of the laws of Maryland,<sup>6</sup> including results of biological

<sup>1</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>2</sup> See Appendix C for a summary of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland.

<sup>3</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C. The publications now ready for issue are those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, and St. Marys counties.

<sup>4</sup> The technical records and charts for each county are published separately on account of the requirements of the oyster-culture laws of the State and the practical considerations which make it desirable to have each county "opened up" for oyster culture as soon as practicable after the completion of its survey. For these reasons and the fact that these reports are each arranged for distribution and use in one county only without reference to other published records, much of the text of this publication is of necessity identical with similar previous publications for other counties.

<sup>5</sup> These reports can be obtained by application to the shell fish commission, Marine Bank Building, Baltimore, Md. They are issued annually in October, and the first and second reports are now available for distribution.

<sup>6</sup> See Appendix B for an extract from the Second Report of the Maryland Shell Fish Commission, giving a concise summary of the "Haman Oyster Culture Law."

and economic oyster investigations, methods and results of the hydrographic survey of the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.<sup>1</sup>

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential as a foundation for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>2</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the Bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL STATEMENT OF WORK OF COAST AND GEODETIC SURVEY.<sup>3</sup>

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need very little other summary than is indicated by the published Charts of Natural Oyster Bars and the index of hydrographic projections and triangulation stations shown on the county progress maps attached to each report.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, assistant, Bureau of Fisheries.

<sup>3</sup> For a detail statement of the very large amount of excellent oyster survey work of the Maryland Shell Fish Commission see the annual reports of the Maryland Shell Fish Commission.

The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the Descriptions of Triangulation Stations of permanent value, not only to the State of Maryland in the survey of her oyster bars, but also to the Government for any future work it may do in the regions covered by the oyster-survey operations.

The hydrographic projections and published charts are prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various shell-fish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to and permanently fixed by published technical descriptions which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way, and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County."

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last 65 years.

REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY IN  
ST. MARYS COUNTY.

INSTRUCTIONS.

The following letters, together with the laws<sup>1</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the survey at Washington, have proved very beneficial to the work and are greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

His Excellency HON. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

LAWRENCE O. MURRAY, *Assistant Secretary.*

---

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the Commissioners, prepare a program of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

Capt. C. C. YATES,  
*United States Coast and Geodetic Survey Steamer Endeavor, Baltimore, Md.*

O. H. TITTMANN, *Superintendent.*

ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides

<sup>1</sup> For these laws see Appendix A.

the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the field and the preparation for publication of oyster charts and technical records in the office at Washington.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house-boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster*, the Coast and Geodetic Survey party has had the constant use of the large steam launch *Inspector* and several other boats furnished by its own service, and the occasional use of the Bureau of Fisheries launch *Canvasback*<sup>1</sup> and the steamer *Governor McLane*<sup>2</sup> of the State fishery force.

The greater part of the equipment of instruments for the operations of both the Government and State has been furnished by the Coast and Geodetic Survey and consists of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

#### CHRONOLOGICAL STATEMENT OF WORK.

The field work of the Coast and Geodetic Survey in St. Marys County<sup>3</sup> dates from May 2, 1908, when the house-boat *Oyster* left Baltimore for an anchorage in the Patuxent River, inside of Solomons Island. She remained in this harbor for three months, it practically being the only suitable anchorage for the work of the oyster survey for a large part of the Chesapeake Bay shore of both St. Marys and Calvert counties, as well as for the lower Patuxent River. During this period there was a great amount of windy weather and consequent rough seas, which prevented work in the open bay, and in general the triangulation foundation for the oyster survey made very slow progress.

On August 4, 1908, the part of the work necessarily done from the mouth of the Patuxent River was completed, and the *Oyster* was moved about 7 miles up the river to St. Leonards Creek.

On August 18, 1908, the headquarters for the field work was again changed by moving the house-boat *Oyster* 8 miles still farther up the river to an anchorage in Battle Creek, where she remained until the completion of that part of the field work which naturally included all the Patuxent River work of Charles and Calvert counties as well as that of St. Marys County, although the results are published separately.

On September 3, 1908, the house-boat finally left the Patuxent River for Smiths Creek, which is one of the tributaries of Potomac River. From this station there was completed all the remaining work of the Chesapeake Bay shore of St. Marys County as well as that of Smiths Creek and the mouth of St. Marys River.

During the stay at Smiths Creek the work was greatly delayed by smoky atmosphere, especially that portion in the open Chesapeake Bay just north of the mouth of Potomac River, where some of the triangulation sides were necessarily comparatively long.

<sup>1</sup> By courtesy of Dr. H. F. Moore, U. S. Bureau of Fisheries.

<sup>2</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>3</sup> The field work of St. Marys, Calvert, and Charles counties was so intermixed in the Patuxent River that the chronological statement of work for any one of these counties necessarily includes a considerable part of the work of the other two counties.

On October 7, 1908, the house-boat *Oyster* was towed to an anchorage at the upper end of St. Marys River off the site of the monument marking Calvert's first settlement in Maryland. From this point the remaining work in St. Marys River, St. Inigoes Creek, and St. Georges River was quickly finished on account of very good weather.

On October 28, 1908, the State steamer *Governor McLane* towed the *Oyster* to an anchorage off Rock Point, in the mouth of Wicomico River. From this location there was done all the oyster survey work of both St. Marys and Charles Counties in Wicomico River, St. Catherine Sound, and adjacent waters.

On November 25, 1908, the four launches of the combined oyster-survey parties towed the house-boat *Oyster* to harbor off the city of Leonardtown, at the head of Breton Bay. From this station all the oyster-survey work was completed in both Bretons Bay and St. Clements Bay.

On December 18 and 19, 1908, the *McLane* towed the house-boat *Oyster* and launches to their winter quarters in Baltimore.

On December 2, 1909, it was found necessary to obtain additional triangulation information for the publication of the technical report for Calvert County, which incidentally involved new work required for the report for Charles and St. Marys counties, and field work was carried on for that purpose from that date to December 8, 1909.

Again, from July 20 to August 11, 1910, while the house-boat *Oyster* was anchored in the mouth of the Patuxent River for the purpose of carrying on the oyster survey operations in the bay-shore waters of Dorchester County, a number of days when work could not be done in the open bay were employed in checking up deficiencies in the description of stations required for the publications of both Charles and St. Marys Counties.

The large amount of office work connected with the "oyster survey" of St. Marys County, including computations and drafting necessary for the preparation for publication of the oyster charts and the technical records, was continued intermittently with the office work of other counties from the beginning of the fieldwork in St. Marys County to the time of filing of the certified oyster charts and the technical reports in the archives of the Commission and with the clerk of the circuit court of St. Marys County on July 6, 1911.

#### STATISTICS.<sup>1</sup>

Landmarks and triangulation signals erected . . . . .	204
Monuments planted to mark triangulation stations . . . . .	204
Triangulation stations occupied for observations of horizontal angles . . . . .	186
Old triangulation stations recovered . . . . .	33
New triangulation stations established . . . . .	205
Total old and new triangulation stations marked and described . . . . .	238
Linear miles of shore line covered by triangulation (approximate) . . . . .	160
Square miles covered by triangulation (approximate) . . . . .	180
Hydrographic projections prepared and completed as records of oyster boundaries . . . . .	15
Triangles computed . . . . .	443
Geographic positions computed . . . . .	210
Corners of oyster boundaries established by computation . . . . .	603

<sup>1</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of St. Marys County, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the Commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland. See Appendix D of this publication for "Statistics of results of combined operations of the Government and the State."



Back azimuths and distances computed from corners of boundaries to triangulation stations . . .	1,809
Descriptions of triangulation stations prepared for publication . . . . .	238
Descriptions of oyster boundaries prepared for publication . . . . .	124
Charts of Natural Oyster Bars prepared for publication . . . . .	8
Progress map prepared for publication . . . . .	1

## GENERAL REMARKS.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore, of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unflinching tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the commission, who, as editor of the commission's annual report and commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Mr. Benjamin K. Green, treasurer of the commission, who has looked after the equipment and commissary of the house-boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Mr. Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

To Mr. Thomas H. Robinson, counsel to the Commission, for courteously furnishing valuable information relating to county boundaries.

And to the many others connected with the Commission or who, as residents in the locality where the work was being carried on, have greatly assisted by furnishing important information or willing services.

## CHARTS AND MAPS.

### CHARTS OF NATURAL OYSTER BARS.

The charts<sup>1</sup> of the natural oyster bars of St. Marys County, published by the Coast and Geodetic Survey from results of surveys of the Government in cooperation with the Maryland Shell Fish Commission, consist of eight sheets covering all the waters of St. Marys County in Patuxent River, Chesapeake Bay, Smiths Creek, St. Marys River, and tributaries, Bretons Bay, St. Clement Bay, and Wicomico River.<sup>2</sup> They are published on a scale of 1 part in 20,000 (approximately  $3\frac{1}{8}$  inches to a statute mile) and are constructed on polyconic projections and based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars and other boundaries established by the Commission and are certified for the purpose of filing in the office of the clerk of the Circuit Court of Charles County and in the office of the Commission at Annapolis, as required by the oyster laws of Maryland.

In addition to the oyster bar and other boundaries, the charts show the location and name of all landmarks (United States Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography<sup>3</sup> necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the heading "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a particular

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> The open waters of the Potomac River, although within the accepted boundaries of the State of Maryland, are under the joint jurisdiction of both Maryland and Virginia as to fisheries, and therefore the natural oyster bars of the Potomac River were not surveyed or are they shown in any way on the oyster charts of the adjacent counties of St. Marys and Charles.

<sup>3</sup> Much of the detail of the inshore topography was obtained from the excellent map of St. Marys County, prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the U. S. Geological Survey.

oyster bar or landmark which is only known by name, consult the "Contents" and the desired chart and general location will be indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shellfish industries. The 1-fathom contour (6 feet) and the 5-fathom curve (30 feet) correspond in a general way to the inner and outer limits of all the oyster bars surveyed. The 3-fathom contour (18 feet) furnishes the curve of about the average depth of water on the oyster bars and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" and the boundaries of the "waters contiguous to the county" opened up for the leasing with St. Marys County are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart within the boundaries of the different shellfish bottoms.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of St. Marys County, like those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, and Charles counties, have been prepared under the direction of the hydrographic engineer of the Commission. These charts are constructed on polyconic projections and are based on the United States standard datum of the Coast and Geodetic Survey. They are made on the scales of 1 part in 5,000 or 1 part in 10,000, as the needs of oyster culture may require. Anne Arundel County required 13 leasing charts; Somerset County, 12 charts; Wicomico County, 2 charts; Worcester County, 3 charts; Calvert County, 5 charts; Charles County, 2 charts; and St. Marys County, 8 charts to cover their oyster bottoms.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts

have been divided by parallels of latitude and meridians of longitude into small rectangles of 1 acre or 5 acres, as may be best suited to the area under consideration, and prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as possible.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in the Marine Bank Building at Baltimore.

#### PROJECTIONS.

The polyconic projections<sup>1</sup> covering St. Marys County waters are 15 in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, but the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission were plotted by the draftsman of the Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the archives of the Shell Fish Commission.

#### PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the United States Coast and Geodetic Survey in St. Marys County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress maps<sup>2</sup> accompanying the first and second annual reports of the Maryland Shell Fish Commission were prepared under the direction of the hydrographic engineer of the Commission. They are on the scale of 1 part in 400,000, and show the outline of the tidewater counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey.

<sup>1</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>2</sup> These maps and reports can be obtained by application to Maryland Shell Fish Commission, Marine Bank Building, Baltimore, Md.

BOUNDARIES OF THE COUNTY WATERS.<sup>1</sup>

## WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>2</sup> between the waters "within the territorial limits" of St. Marys County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the "oyster charts" and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:

*Patuxent River waters of St. Marys County.*—Following the boundary line between St. Marys County and Charles County along the middle of Indian Creek as laid down on Chart No. 19, Natural Oyster Bars, Maryland, to a point defined by the intersection of this boundary line with the boundary line in the Patuxent River between Calvert County on one side and Charles and St. Marys counties on the other side as laid down on Chart No. 19, Natural Oyster Bars, Maryland; thence down the channel of Patuxent River following the channel boundary line between St. Marys and Calvert counties as laid down on Charts Nos. 19 and 20, Natural Oyster Bars, Maryland, to a point in the mouth of Patuxent River defined by the intersection of this boundary line with a straight line connecting a point defined by latitude  $38^{\circ} 19' 09.8''$  and longitude  $76^{\circ} 25' 21.0''$ <sup>3</sup> situated on Drum Point and a point defined by latitude  $38^{\circ} 18' 35.9''$  and longitude  $76^{\circ} 23' 59.8''$  situated on Hog Point; thence along a straight line ending at a point defined by latitude  $38^{\circ} 18' 35.9''$  and longitude  $76^{\circ} 23' 59.8''$  situated on Hog Point on the southern side of the entrance to Patuxent River.

*Chesapeake Bay waters of St. Marys County.*—Commencing at a point defined by latitude  $38^{\circ} 18' 35.9''$  and longitude  $76^{\circ} 23' 59.8''$  situated on Hog Point on the southern side of the entrance to Patuxent River; thence along the mean low water line of the Chesapeake Bay shore of St. Marys County across the mouth of all inlets less than 100 yards in width, around Cedar Point and Point No Point, across the mouth of St. Jerome Creek, and around Point Look-in to a point defined by latitude  $38^{\circ} 02' 11.0''$  and longitude  $76^{\circ} 19' 20.8''$  situated on Point Lookout on the northern side of the mouth of Potomac River.

*Potomac River waters of St. Marys County.*—Commencing at a point defined by latitude  $38^{\circ} 02' 11.0''$  and longitude  $76^{\circ} 19' 20.8''$  situated on Point Lookout on the northern side of the mouth of Potomac River; thence along the mean low-water line of the Potomac River shore of St. Marys County across the mouth of all inlets less than 100 yards in width, around Cornfield Harbor and Cornfield Point to a point defined by latitude  $38^{\circ} 04' 53.4''$  and longitude  $76^{\circ} 22' 24.2''$  situated on a point on the south side of the entrance to Briscoe Creek; thence in a straight line across the mouth of Briscoe Creek to a point defined by latitude  $38^{\circ} 05' 05.4''$  and longitude  $76^{\circ} 22' 35.3''$  situated on a point on the north side of Briscoe Creek; thence along the mean low-water line of the Potomac River shore of St. Marys County across the mouth of all inlets less than 100 yards in width, to a point defined by latitude  $38^{\circ} 05' 14.6''$  and longitude  $76^{\circ} 22' 47.8''$  situated on the southeastern side of the entrance to Harry James Creek; thence in a straight line across the mouth of Harry James Creek to a point defined by latitude  $38^{\circ} 05' 27.6''$  and longitude  $76^{\circ} 23' 16.5''$  situated on the northwestern side of the entrance to Harry James Creek; thence along the mean low-water line of the Potomac River shore of St. Marys County across the mouth of all inlets less than 100 yards in width, to a point defined by latitude  $38^{\circ} 05' 37.8''$  and longitude  $76^{\circ} 23' 33.2''$  situated on Grays Point on the eastern side of Calvert Bay entrance to Smiths Creek;

<sup>1</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>2</sup> See Charts of Natural Oyster Bars, published by the Coast and Geodetic Survey, and the progress map at the end of this publication.

<sup>3</sup> Latitudes and longitudes based on the United States standard datum of the U. S. Coast and Geodetic Survey.

thence in a straight line across the mouth of Smiths Creek to a point defined by latitude  $38^{\circ} 06' 12.8''$  and longitude  $76^{\circ} 25' 05.0''$  situated on Kitts Point on the western side of the entrance to Smiths Creek; thence along the mean low-water line of the Potomac River shore of St. Marys County across the mouth of all inlets less than 100 yards in width, to a point defined by latitude  $38^{\circ} 06' 18.0''$  and longitude  $76^{\circ} 25' 18.4''$  situated on Kitts Point on the eastern side of the entrance to St. Marys River; thence in a straight line across the mouth of St. Marys River to a point defined by latitude  $38^{\circ} 06' 18.8''$  and longitude  $76^{\circ} 27' 53.9''$  situated on a point on the southeast side of St. Georges Island on the western side of the entrance to St. Marys River; thence along the mean low-water line of the Potomac River shore of St. Marys County across the mouth of Island Creek and other inlets less than 100 yards in width, to a point defined by latitude  $38^{\circ} 08' 04.2''$  and longitude  $76^{\circ} 29' 58.6''$  on the southeastern side of the Potomac River entrance to the straits between St. Georges Island and the mainland leading into St. Georges River; thence in a straight line across the straits separating St. Georges Island from the mainland to a point defined by latitude  $38^{\circ} 08' 15.9''$  and longitude  $76^{\circ} 30' 07.2''$  situated on the northwestern side of the Potomac River entrance to the straits between St. Georges Island and the mainland leading into St. Georges River; thence along the mean low-water line of the Potomac River shore of St. Marys County around Piney Point and across the mouth of Herring Creek, Blake Creek, Poplar Hill Creek, and other inlets less than 100 yards in width, to a point defined by latitude  $38^{\circ} 13' 58.3''$  and longitude  $76^{\circ} 41' 13.3''$  situated on Higgins Point on the eastern side of the entrance to Bretons and St. Clement bays; thence in a straight line across the Heron Island Sound entrance to Bretons and St. Clement bays to a point defined by latitude  $38^{\circ} 12' 54.7''$  and longitude  $76^{\circ} 43' 12.0''$  situated on the eastern extremity of the sand bar known as Heron Island; thence in a straight line along the center of Heron Island to a point defined by latitude  $38^{\circ} 13' 07.7''$  and longitude  $76^{\circ} 43' 51.7''$  situated on the western extremity of the sand bar known as Heron Island; thence in a straight line across the Heron Island Sound entrance to St. Clement and Bretons bays to a point defined by latitude  $38^{\circ} 12' 30.7''$  and longitude  $76^{\circ} 44' 34.8''$  situated on the southeastern end of Blakistone Island; thence along the mean low-water line of the Potomac River shore of Blakistone Island of St. Marys County around Blakistone Island Light and across all inlets less than 100 yards in width to a point defined by latitude  $38^{\circ} 12' 50.8''$  and longitude  $76^{\circ} 44' 59.0''$  situated on the northwestern end of Blakistone Island on the southeastern side of Dukehart Channel; thence in a straight line across the Dukehart Channel entrance to St. Clement and Bretons bays to a point defined by latitude  $38^{\circ} 13' 10.8''$  and longitude  $76^{\circ} 45' 09.9''$  situated on the mainland on the northwest side of Dukehart Channel; thence along the mean low-water line of the Potomac River shore of St. Marys County across the mouth of Dukehart Creek and other inlets less than 100 yards in width to a point defined by latitude  $38^{\circ} 13' 39.7''$  and longitude  $76^{\circ} 46' 39.9''$  situated on the eastern side of the eastern St. Catherine Sound entrance to Wicomico River.

*Wicomico River waters of St. Marys County.*—Commencing at a point defined by latitude  $38^{\circ} 13' 39.7''$  and longitude  $76^{\circ} 46' 39.9''$  situated on the eastern side of the eastern St. Catherine Sound entrance to Wicomico River; thence in a straight line across the eastern St. Catherine Sound entrance to Wicomico River to a point defined by latitude  $38^{\circ} 13' 42.2''$  and longitude  $76^{\circ} 47' 17.5''$  situated on the extreme southeast end of the sand bar making out from the southeast end of St. Catherine Island; thence along a line on the center of the sand bar making out from the southeast end of St. Catherine Island as laid down on Chart No. 26, Natural Oyster Bars, Maryland, to a point defined by latitude  $38^{\circ} 14' 02.6''$  and longitude  $76^{\circ} 47' 32.6''$  situated on the southeastern end of St. Catherine Island; thence along the mean low-water line of the Potomac River shore of St. Catherine Island of St. Marys County across all inlets less than 100 yards in width to a point defined by latitude  $38^{\circ} 14' 28.9''$  and longitude  $76^{\circ} 48' 10.9''$  situated on the northwestern end of St. Catherine Island; thence in a straight line to a point in the mouth of Wicomico River defined by the intersection of the boundary line down the middle of Wicomico River between St. Marys and Charles counties as laid down on "Chart No. 26, Natural Oyster Bars, Maryland," and a straight line between a point on the northwestern end of St. Catherine Island defined by latitude  $38^{\circ} 14' 28.9''$  and longitude  $76^{\circ} 48' 10.9''$  and the center point of Cobb Point Bar Light defined by latitude  $38^{\circ} 14' 33.3''$  and longitude  $76^{\circ} 49' 36.9''$ ; thence following the boundary line between St. Marys County and Charles County along the middle of Wicomico River as laid down on "Chart No. 26, Natural Oyster Bars, Maryland," to the end of the water boundary between St. Marys County and Charles County on the northeastern side of the upper Wicomico River as laid down on "Chart No. 26, Natural Oyster Bars, Maryland."

## WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the United States Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county and the waters contiguous to but not within the territorial limits of adjacent counties.

This boundary line has been delineated on the "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and is technically described and defined as follows:

Commencing at a point located at the mouth and near the middle of Patuxent River defined by the intersection of Patuxent River channel boundary line between Calvert County and St. Marys County as laid down on Chart No. 20, Natural Oyster Bars, Maryland, and the straight line between a point situated on Hog Point on the southern side of the entrance to Patuxent River defined by latitude  $38^{\circ} 18' 35.9''$  and longitude  $76^{\circ} 23' 59.8''$ <sup>1</sup> and a point situated on Drum Point on the northern side of the entrance to Patuxent River defined by latitude  $38^{\circ} 19' 09.8''$  and longitude  $76^{\circ} 25' 21.0''$ ; thence along the Chesapeake Bay boundary between Calvert and St. Marys counties as laid down on "Chart No. 20, Natural Oyster Bars, Maryland," to a point defined by latitude  $38^{\circ} 19' 37.7''$  and longitude  $76^{\circ} 19' 19.0''$  situated about  $5\frac{1}{4}$  miles southeast of Cove Point Light and  $5\frac{1}{4}$  miles east by north of Drum Point Light; thence along the Chesapeake Bay boundary between St. Marys and Dorchester counties as laid down on "Chart No. 20, Natural Oyster Bars, Maryland," to a point defined by latitude  $38^{\circ} 17' 58.0''$  and longitude  $76^{\circ} 18' 59.7''$  situated about  $2\frac{3}{4}$  miles east of Cedar Point Light; thence along the Chesapeake Bay boundary between St. Marys and Dorchester counties as laid down on "Charts Nos. 20, 21, and 22, Natural Oyster Bars, Maryland," to a point defined by latitude  $38^{\circ} 04' 34.8''$  and longitude  $76^{\circ} 12' 01.0''$  situated near the middle of Chesapeake Bay near a shoal marked by a red buoy of the U. S. Bureau of Lighthouses, which is about  $5\frac{3}{8}$  miles west by north of Holland Island Bar Light and  $7\frac{1}{8}$  miles east by north of Point Lookout Light; thence with the waters of Chesapeake Bay in a straight line between Somerset County and St. Marys County as laid down on "Charts Nos. 22 and 23, Natural Oyster Bars, Maryland," to a point on Smith Point defined by the intersection of the straight line Maryland-Virginia boundary across Chesapeake Bay and the mean low-water line of the southern shore of Potomac River; thence in a straight line across the mouth of Potomac River along the line dividing the "waters of the Potomac River under the joint jurisdiction of Maryland and Virginia as to fisheries" from the waters of St. Marys County in Chesapeake Bay, as laid down on "Chart No. 23, Natural Oyster Bars, Maryland," to a point defined by latitude  $38^{\circ} 02' 11.0''$  and longitude  $76^{\circ} 19' 20.8''$  situated on Point Lookout on the northern side of the mouth of Potomac River.<sup>2</sup>

<sup>1</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.

<sup>2</sup> The waters of the Potomac River, although belonging to the State of Maryland, are under the joint jurisdiction of Maryland and Virginia as to fisheries, and for this reason the Maryland Shell Fish Commission did not consider it necessary to define the "waters contiguous to St. Marys County" lying in the Potomac River.

## LANDMARKS (UNITED STATES COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION.

The oyster laws of Maryland authorizing the survey to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of location and character of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking a landmark has only an indefinite idea of its location. They gradually proceed from description of the general locality of a landmark to the descriptions of its immediate surroundings. This is followed by specific details of the character of the center and reference marks and a "round" of reference angles and distances which in themselves frequently contain enough information to furnish an independent and reliable location of the triangulation station.

### METHOD OF DESCRIBING TRIANGULATION STATIONS.

*The separate descriptions of triangulation stations should not be used without reading the following explanation of the method of describing the triangulation stations, as it contains certain details that are common to all the landmarks described in this publication and which are omitted in the separate descriptions as being needless repetitions:*

*Name.*—The title at the top of each separate description is the name by which the landmark or triangulation station is known and designated in all work and published oyster records or oyster charts of both the Government and State. The selection of the name is usually left to the triangulator establishing the station, and it may or may not have geographic or other significance in reference to the locality.

*General locality.*—Under this heading is given the general locality of the landmark in reference to well-known and prominent natural or artificial features, such as the



nearest body of water, town, river, steamer wharf, well-defined point of land, church, or any other feature that is likely to remain both permanent and prominent.

This heading also covers a reference to the published chart or map which shows the location of the station most clearly. Nearly all the triangulation stations described in this publication are plainly indicated by name and a triangulation symbol on the published charts of oyster bars of Maryland. In this case they are referred to by serial number only, the words "charts of oyster bars of Maryland" being omitted to avoid needless repetition. These published oyster charts are on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{8}$  inches to a statute mile) and show the location of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

*Immediate locality.*—Under this heading is given the description of the "observed station" in reference to its immediate surroundings. This is supposed to include a statement of the station's estimated elevation above high water or some other well-defined level of the locality, such as a road or house; the character of the ground on which it is located, such as marsh land, sand beach, cultivated field, or meadow; estimated bearings in points of the compass and estimated distances in yards *from* (not *to*) easily recognized features, such as extreme end of point, edge of bluff, bank of creek, line of telephone poles, shore line, barn, house, fence, ditch, trees, or any other definite detail, such as being on range with the tangent of an island and a church; and so forth.

When a standard monument has been established near the station as a "reference station," this heading also covers a statement of the true bearing of the monument in degrees and minutes and its measured distance in meters, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached and might be mistaken for the center mark of the "observed station" unless special attention is called to it.

The distinction between the "observed station" and "reference station" should be carefully noted by anyone making use of the description of stations for any future surveying operations.

The "observed station" is located at the particular triangulation point covered by the description of stations, and is the one whose geographic position is first computed, as it is the point which was "occupied" and "observed on" for horizontal angles. However, in spite of the primary importance of the location of the "observed station," it will be noted from the description of stations that frequently it is not marked as well as the "reference station," and in many instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate "observed stations" on edges of banks and ends of points of land, which in the tidewater section of Maryland generally means they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the great need of "reference stations," if the frequent reestablishment of a new framework of triangulation is to be avoided.

The chief reason and need for the establishment of the "reference station," or secondary station, as it might be well named, is explained in the preceding paragraph, but in several instances other reasons, such as the location of the "observed station" on an unstable sand dune, in a cultivated field, in front of a residence, or other places

objectionable to the landowner, have led to establishment of "reference stations." The location of the "reference station" in relation to the "observed station" is fixed for plotting on charts or for computation of its geographic position by checked measurements of its distances and azimuth from the "observed station."<sup>1</sup>

*Marks.*—Under this heading is given a description of the character of the permanent monuments or other marks of the location of the "observed station," and of the "reference station" where one has been established.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground, unless otherwise stated.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

*References.*—Under this heading are given the "rounds" of directions and distances to all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described, this, if possible, being a lighthouse, church spire, or other permanent and prominent point. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>2</sup> of the initial object is always given in parentheses alongside its name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by horizontal angles or for the relocation of corner buoys of oyster-bar boundaries by the method of compass directions described in this publication under the heading of "Boundaries of oyster bars."

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may be considered only as rough estimates. The "yards" are more accurate, but must be

<sup>1</sup> Geographic coordinates (latitude, longitude, distance, and azimuth) relating to any of the "observed stations" or of the "reference stations" described in this publication can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> The mean magnetic variation for St. Marys County was  $5^{\circ} 25'$  west of north in 1910 and increasing at the rate of  $4'$  yearly.

looked on as results generally obtained by pacing or careful estimating. The "meters," however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner the accuracy of the directions are indicated by the refinement of angular measure with which they are recorded.

## DESCRIPTIONS OF TRIANGULATION STATIONS.

## PRINCE.

*General locality.*—Western shore of Patuxent River about one-fourth of a mile north of mouth of Swanson Creek. (See chart No. 19.)

*Immediate locality.*—Observed station is in pasture about 20 feet above high water, 15 yards northwest of edge of bank, 75 yards northeast of a grove of trees and 100 yards southwest of another grove of trees. Locust trees form a fringe along edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Leitch" (S. 85° 01' E.).....	0	00	00	¾ mile.
Square chimney on house.....	0	02		¾ mile.
Chimney on store at Buena Vista.....	19	15		1¾ miles.
Chimney of Dr. Huggins house at Buena Vista.....	21	07		1¾ miles.
Nearest chimney on Gourley house on Hal- lowing Point.....	55	16		2½ miles.
Nail in blaze in locust tree (3 inches diam- eter).....	79	38	30	15.94 meters.
Nail in blaze in locust tree (4 inches diam- eter).....	110	13	30	14.55 meters.
Outside chimney on large house on hill. ....	150	45		¾ mile.
Near end of peak of roof.....	226	02		¾ mile.
Middle of clump of trees.....	273	00		100 yards.
Chimney of house.....	311	04		1¾ miles.
Nail in blaze in crotch of locust tree (6 inches diameter).....	350	39	10	19.27 meters.

## LEITCH.

*General locality.*—Eastern shore of Patuxent River on prominent point opposite mouth of Swanson Creek given on chart as Gods Grace Point but known locally as Leitchs Point. (See chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass land about 1 foot above high water and 3 yards north of straight line connecting two round points. It is about 13 yards northwest of the lower of these two points and 9 yards east of upper point. A creek 3 feet wide has its mouth about 19 yards east by south of the station. There are no permanent objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Prince" (N. 83° 00' W.).....	0	00	00	¾ mile.
Near end of corner peak of roof of large house on hill.....	25	02		1¾ miles.
Near end of peak of wharf-house roof.....	77	46		¼ mile.
Right chimney of house.....	183	32		½ mile.
Right chimney of Gourley house.....	253	58		2 miles.
Canning-house stack.....	277	22	00	2 miles.
"Catholic Church Cross".....	281	35	30	2 miles.
Chimney of small house.....	308	52		1 mile.
Right outside chimney of old house.....	328	43		1¾ miles.
Right outside chimney of old house.....	343	05		1½ miles.

## FODDER.

*General locality.*—Western shore of Patuxent River on the southern side of the mouth of Swanson Creek, about 1 mile west-southwest of Leitch Wharf and three-fourths of a mile west-northwest of Point Judith (locally known as Teague Point). (See chart No. 19.)

*Immediate locality.*—Observed station is on the edge of cultivated land about 10 feet above high-water mark, 4 yards west of edge of bank, and 9 yards north of another edge. Cement monument marking reference station is 15.21 meters S 60° 52' W of observed station.

*Marks.*—Observed station is center point of triangle on standard cement monument with a top 9 inches square and 8 inches above surface of ground. Reference station is center point of triangle on standard cement monument with a top about 8 inches square and 5 inches above surface of ground.

*References.*—

	o	'	"	
"Prince" (N. 25° 00' E.).....	0	00	00	1/2 mile.
Near peak of large house on bluff.....	17	55	..	2 miles.
Right corner of house.....	24	08	..	1 3/4 miles.
Near peak of Leitch Wharf house.....	35	11	..	1 1/4 miles.
Left peak of Leitch house.....	48	37	..	1 1/4 miles.
Front peak of house at Buena Vista.....	75	00	..	1 1/4 miles.
Chimney outside left end of house on hill....	87	16	..	2 miles.
Near peak of small house.....	101	33	..	3/8 mile.
Large chimney on small house.....	174	43	..	1 mile.
Left side of left chimney outside Bowling house.....	211	47	..	3/4 mile.
REFERENCE STATION.....	215	52	30	15.21 meters.
Left corner of house on top of hill.....	318	27	..	1 mile.

## BUENA.

*General locality.*—Eastern shore of Patuxent River, about 1 1/4 miles northeast of Benedict, at place known as Buena Vista. (See chart No. 19.)

*Immediate locality.*—Observed station is in a field on land adjoining house owned by S. V. Smith and occupied by Dr. Huggins. It is about 10 feet above high water, 8 yards east of edge of bank, and 12 yards south of a rail fence. Cement monument marking reference station is 11.11 meters N. 5° 42' E. of observed station and near fence.

*Marks.*—Observed station is nail in stub with top 2 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Hallowing" (S. 27° 22' W.).....	0	00	00	1 1/2 miles.
Center of red roof on square house near Benedict.....	18	05	..	2 miles.
Canning-house stack.....	21	30	..	1 3/4 miles.
"Catholic Church Cross".....	29	04	10	1 3/4 miles.
Nail in blaze in locust tree (4 inches diam- eter).....	31	48	40	8.58 meters.
Left chimney of old house.....	66	15	..	3 miles.
Left chimney of old house.....	72	52	..	3 miles.
Nail in blaze on cherry tree (2 inches diam- eter).....	99	05	..	9.70 meters.
Peak of roof of large house.....	99	15	..	4 miles.
Chimney of house near Leitch Wharf.....	108	52	..	1 mile.
Nail in blaze on fence post.....	143	33	50	11.18 meters.
REFERENCE STATION.....	158	20	20	11.11 meters.
Near corner of house.....	159	44	..	25 yards.
Cherry tree on fence line (15 inches diameter). .....	221	25	..	35 yards.
Double apple tree (30 inches diameter).....	290	54	..	59 yards.

TEAGUE.

*General locality.*—Western shore of Patuxent River, on point on southern side of entrance to Swan-son Creek, locally known as Teague Point, and given on chart as Point Judith. (See chart No. 19.)

*Immediate locality.*—Observed station is on gravel and grass land about 3 feet above high water, about 11 yards from south side, 16 yards from north-northeast side, and 75 yards west by north of extreme end of point. Bushes stand between station and north side of point. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Buena" (N. 85° 24' E.).....	0	00	00	1½ miles.
Tangent of Teague Point.....	20	00	..	75 yards.
Near corner of right chimney of Gourley house, near Hallowing Point.....	65	45	..	1¼ miles.
Canning-house stack.....	106	18	00	1¼ miles.
Near end of peak of hotel.....	108	12	..	1¼ miles.
Left one of two ivy-covered chimneys.....	110	25	..	1 mile.
"Catholic Church Cross".....	114	11	10	1 mile.
Chimney on Slye House.....	130	30	..	2 miles.
Left chimney of house on hill.....	144	57	..	2 miles.
Tangent of high-water mark.....	168	00	..	75 yards.
Near end of peak of roof.....	223	41	..	1 mile.
Chimney on large house on hill.....	243	20	..	3 miles.
Left chimney on house.....	301	17	..	1 mile.
Near end of peak of roof on store at Buena Vista.....	355	59	..	1¼ miles.

CATHOLIC CHURCH CROSS (BENEDICT).

*General locality.*—Western shore of upper Patuxent River, in the town of Benedict. (See chart No. 19.)

*Immediate locality.*—Observed station is on Catholic Church, located on the main street of the town of Benedict, about one-fourth mile from the wharf.

*Marks.*—Observed station is center point of cross on church.

*References.*—None necessary.

CITY.

*General locality.*—Western shore of Patuxent River, on Town Point, about one-fourth mile north-northeast of Benedict steamboat wharf. (See chart No. 19.)

*Immediate locality.*—Observed station is on gravel and shell point, about 4 feet above high water, 12 yards northwest of the shore, 63 yards west-southwest of a shanty, about 100 yards west-southwest of extreme end of point, and 11 yards southeast of a slough. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Hallowing" (S. 51° 21' E.).....	0	00	00	1½ mile.
Windmill near Sheridan Point.....	21	39	..	3½ miles.
Two middle chimneys at Dowells.....	21	39	..	3½ miles.
Left tangent of peak of wharf-house roof.....	81	34	..	¼ mile.
Center of roof of square house.....	84	36	..	½ mile.
Canning-house stack.....	95	22	..	¼ mile.
Nearest ivy-covered chimney of old house.....	130	14	..	½ mile.
"Catholic Church Cross".....	142	58	50	¼ mile.
Left square chimney of house.....	245	42	..	1¾ miles.
Near end of peak of roof of Huggins house.....	280	54	..	1½ miles.
Near corner of shanty.....	300	44	..	63 yards.
Right chimney of Gourley house.....	339	20	..	¾ mile.
Chimney of old building behind wharf.....	352	01	..	¾ mile.

## HALLOWING.

*General locality.*—Eastern shore of Patuxent River on point opposite Benedict known locally as Holland Point, but given on charts as Hallowing Point. (See chart No. 19.)

*Immediate locality.*—Observed station is on a rounded gravel and grass point about 250 yards south of wharf on Holland Point, about 2 feet above high water, 10 yards north of shore, 8 yards east of shore, and 15 yards outside of a group of locust trees, sugar-berry trees, and bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"City" (N. 51° 21' W.).....	0	00	00	¾ mile.
Left end of peak of roof of wharf house on Holland Point.....	23	15	..	250 yards.
Chimney of store at Buena Vista.....	77	27	..	1¾ miles.
Nail in blaze in nearest one of group of four sugar-berry trees (each 8 inches diameter). ..	92	24	..	12.88 meters.
Nail in blaze in sugar-berry tree (10 inches diameter).....	109	58	50	15.74 meters.
Nail in blaze in locust tree (4 inches diameter).....	167	55	40	11.90 meters.
Smokepipe on Trent Hall Wharf building... ..	227	35	..	2¾ miles.
Outside chimney of detached house at Sothorons.....	309	54	..	1½ miles.
Center of roof on square house.....	314	15	..	¾ mile.
Canning-house stack.....	333	16	..	½ mile.
"Catholic Church Cross".....	347	44	20	¾ mile.

## INDIAN.

*General locality.*—Western shore of Patuxent River on north side of entrance to Indian Creek and about one-fourth mile below Benedict steamboat wharf. (See chart No. 19.)

*Immediate locality.*—Observed station is about 3 feet above high water, 7 yards west of shore, 16 yards northeast of a fence and a line of trees, 13 yards southwest of a lone locust tree, about 250 yards to the south-southeast of a large square house, and 125 yards east-northeast of another house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sothoron" (S. 23° 11' E.).....	0	00	00	1 mile.
Nail in blaze in locust tree near fence (5 inches diameter).....	33	48	50	15.57 meters.
Nail in blaze in middle branch of locust tree (6 inches diameter).....	66	24	50	19.13 meters.
Square chimney on old house.....	137	23	..	1¾ miles.
Right chimney of square house.....	188	30	..	⅛ mile.
Near end of peak of roof of hotel.....	206	26	..	¼ mile.
Canning-house stack.....	213	22	10	¼ mile.
Right tangent of Benedict Wharf.....	228	10	..	½ mile.
Chimney of house near "Buena Vista".....	245	58	..	2¾ miles.
Chimney of Gourley house.....	270	28	..	1 mile.
Windmill at Dowell's on Sheridan Point.....	344	48	..	4¼ miles.
Left of right chimney on Dowell house.....	344	48	..	4¼ miles.
Nail in blaze in left branch of locust tree (5 inches diameter).....	225	28	..	12.90 meters.

DWARF.

*General locality.*—Eastern shore of Patuxent River about 2 miles north-northwest of Sheridan Point and about 1½ miles southeast of Benedict, on a point of land opposite the mouth of Indian Creek. (See chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass land about 1 foot above high-water mark, 6 yards northeast from extreme end of point, 4 yards east of one edge of shore and 6 yards north of another edge of shore. Point on which station is located has a sugar-berry tree, several small locust trees and water bushes, and a pond behind bushes and trees about 100 yards to the east.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sothoron" (S. 42° 05' W.).....	0	00	00	¾ mile.
Nearest corner of top of nearest chimney on tenant house.....	80	31	..	2 miles.
Center of roof of square house.....	83	16	..	1 mile.
Nail in blaze in locust tree (4 inches diameter).....	93	38	30	4.22 meters.
Canning-house stack.....	95	03	33	1¼ miles.
"Catholic Church Cross".....	99	03	10	1¼ miles.
Left tangent of wharf.....	124	19	..	¾ mile.
Nail in sugar-berry tree (10 inches diameter). ..	152	38	30	8.94 meters.
Nail in blaze in locust tree (3 inches diameter).....	196	22	20	2.68 meters.
Chimney on small house.....	258	48	..	2 miles.
Left point of peak of roof of Dowell's.....	287	30	..	2¼ miles.
Left end of peak of roof of Trent Hall Wharf. ..	315	35	..	1½ miles.
Middle cupola on stable.....	321	12	20	1½ miles.
Right pillar on Sothoron house porch.....	359	21	..	1 mile.

SOTHORON.

*General locality.*—Western shore of Patuxent River on Long Point between entrances to Indian and Trent Hall creeks. (See chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass lowland about 1 foot above high-water mark among cedar trees, about 24 yards west by north of extreme end of point, 12 yards north of one edge of shore and 30 yards southwest of another edge of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Hallowing" (N. 13° 51' E.).....	0	00	00	1¼ miles.
Nearest chimney on Gourley house.....	3	55	..	1¼ miles.
Nail in blaze in locust tree (4 inches diameter).....	30	49	..	3.35 meters.
Left end of peak of roof of Dowell house.....	120	35	..	2¼ miles.
Middle cupola on Trent Hall stable.....	150	25	00	1¼ miles.
Point of middle attic window on John Bullinger house.....	187	42	*	1 mile.
Left pillar of porch of Sothoron house.....	206	23	..	½ mile.
Nail in blaze in cedar tree (12 inches diameter).....	242	51	50	8.12 meters.
Near corner of nearest chimney on Slye house.....	291	05	20	2 miles.
Nail in blaze in locust tree (4 inches diameter). ..	302	29	40	10.83 meters.
Right one of two outside chimneys on old house on hill on property of A. B. Slye.....	307	31	..	2 miles.
Center of roof on square house.....	323	39	..	1 mile.
Nail in blaze in locust tree (6 inches diameter). ..	350	24	10	12.81 meters.

## BUZZ.

*General locality.*—Northeast shore of Patuxent River on southwest side of Buzzards Island near mouth of Buzzards Island Creek. (See chart No. 19.)

*Immediate locality.*—Observed station is on marsh, clay, and grass land on wooded island about 2 feet above high water, 5 yards northeast of river shore and 40 yards northwest of extreme point of island. Cement monument marking reference station is 8.97 meters N.  $42^{\circ} 23'$  E. of observed station.

*Marks.*—Observed station is nail in stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Morsel" (S. $25^{\circ} 23'$ E.)	0	00	00	$\frac{3}{4}$ mile.
Smoke pipe on roof of storehouse	39	11	..	2 miles.
Near corner of near chimney	40	36	..	2 miles.
Chimney of Trent Hall	50	48	..	$1\frac{1}{4}$ miles.
Nearest of three cupolas on stable	54	36	50	$1\frac{1}{4}$ miles.
Left piazza post at Sothorons	102	41	..	$1\frac{1}{4}$ miles.
Center of roof of square house	155	15	..	$1\frac{3}{4}$ miles.
"Catholic Church Cross"	164	56	..	2 miles.
Nail in blaze in oak tree (18 inches diameter)	172	14	..	4.55 meters.
Nail in blaze in oak tree (18 inches diameter)	198	36	40	13.16 meters.
Nail in blaze in oak tree (24 inches diameter)	235	08	30	9.62 meters.
REFERENCE STATION	252	45	45	8.97 meters.
Nail in blaze in pine tree (5 inches diameter)	255	43	..	6.52 meters.
Chimney on house across creek	313	23	..	$\frac{1}{4}$ mile.

## BILLIARD.

*General locality.*—Southwest shore of Patuxent River about one-fourth of a mile southeast of entrance to Trent Hall Creek. (See chart No. 19.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high-water mark, 6 yards west of shore, 70 yards north of curve in shore and about 100 to 150 yards north to northwest of a fence which runs to water's edge. No permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Trent" (S. $32^{\circ} 53'$ E.)	0	00	00	$\frac{3}{8}$ mile.
Middle cupola on Trent Hall stable	16	36	..	$\frac{1}{2}$ mile.
Chimney on Trent Hall	18	41	..	$\frac{1}{2}$ mile.
Two trees	31	47	..	200 yards.
Tangent of curve in water line	33	00	..	71 yards.
Chimney of $2\frac{1}{2}$ -story house	81	59	..	2 miles.
Right corner of Sothoron house	162	34	..	$\frac{1}{2}$ mile.
Near corner of chimney on Slye house	171	09	..	2 miles.
Right tangent of wharf	213	11	..	2 miles.
Middle of three chimneys on Gourley house	228	53	..	2 miles.
Chimney on house among trees	293	41	..	$1\frac{1}{2}$ miles.
Nearest end of peak roof of Dowell house at				
Dukes Wharf	333	42	..	$1\frac{3}{4}$ miles.
Right tangent of Sheridan Point	341	34	..	$1\frac{1}{2}$ miles.
Left tangent Trent Hall Wharf	348	49	..	$\frac{3}{8}$ mile.
Smoke pipe on house at land end of Trent				
Hall Wharf	350	53	..	$\frac{3}{8}$ mile.



MORSEL.

*General locality.*—Northeast shore of Patuxent River about 1 mile north by west of Sheridan Point. (See chart No. 19.)

*Immediate locality.*—Observed station is in a wheat field on a cliff about 60 feet above high water, about 5 yards northeast of edge of bank, 110 yards north northwest of rail fence at woods, 103 yards southwest of woods, and 167 yards west northwest of corner of field at creek and woods. Trees grow out of face of cliff below station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sheridan" (S. 5° 27' E.)	0	00	00	7/8 mile.
Near corner of near chimney on brick end of Dowell house	37	12		2 miles.
Chimney beyond weeping willow at Trent Hall	62	58		1 mile.
Nearest chimney on Slye house	128	11		3 miles.
"Catholic Church Cross"	148	44	00	2 3/4 miles.
Chimney on house with tin roof ell	172	17		1 mile.
Oak tree near creek (4 feet diameter)	297	27		167 yards.
Large white-oak tree	330	50		110 yards.

TRENT.

*General locality.*—Southwest shore of Patuxent River on White Point about 50 yards west of Trent Hall Wharf. (See chart No. 19.)

*Immediate locality.*—Observed station is 1 foot above high-water mark on sand and grass land between river and marsh, about 47 yards west of small house on land end of Trent Hall Wharf, about 64 yards northwest of extreme end of White Point, 5 yards southwest of high-water mark, about 428 yards north of Trent Hall and 105 yards south by east of mouth of creek. Cement monument marking reference station is 17.18 meters S. 69° 40' W. of observed station.

*Marks.*—Observed station is nail in stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sheridan" (S. 57° 31' E.)	0	00	00	1 1/8 miles.
Tangent of point	32	17		1/2 mile.
Large lone tree	50	15		1/2 mile.
Right corner of Trent Hall	74	08		428 yards.
Right cupola of three on Trent Hall stable	99	40		300 yards.
Large lone tree	113	51		150 yards.
REFERENCE STATION	127	10	30	17.18 meters.
"Catholic Church Cross"	219	22	20	2 3/4 miles.
Right end of peak of roof of Holland Point Wharf	233	05		2 1/4 miles.
Right chimney of smaller of two houses among trees	284	01		2 miles.
Right chimney of house	300	35		5 1/2 miles.
Right corner of shanty	300	36		47 yards.

COLLINS.

*General locality.*—Southwest shore of Patuxent River about one-fourth of a mile northwest of entrance to Washington Creek on point opposite Sheridan Point. (See chart No. 19.)

*Immediate locality.*—Observed station is on marsh land about 1 foot above high-water mark, 16 yards west of shore, 20 yards northwest of shore, 21 yards southwest of shore, 300 yards northeast of a tall lone tree, and 300 yards southeast of house known as Trent Hall.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	°	'	''	
"Sheridan" (S. 80° 59' E.).....	0	00	00	¾ mile.
Left end of peak of roof of De La Brooke Pier.	52	12	..	2¼ miles.
Right side of right chimney of large painted brick house.....	60	23	..	2¼ miles.
Near corner of Thomas house (Cremona).....	73	22	..	1 mile.
Smoke pipe in chimney on store.....	98	28	..	½ mile.
Large lone tree.....	129	07	..	300 yards.
Small lone tree.....	175	10	..	130 yards.
Near corner of Trent Hall Wharf house.....	244	37	..	½ mile.
Chimney on end of roof of house among trees.	287	41	..	2¼ miles.
Left corner of left chimney of Dowell house..	354	11	..	1 mile.

## SHERIDAN.

General locality.—Northeast shore of Patuxent River on Sheridan Point. (See chart No. 19.)

Immediate locality.—Observed station is on sand and grass point near edge of the grass, about 2 feet above high-water mark, 6 yards east of extreme edge of grass on point, 8 yards north of grass edge and 7 yards south of grass edge. Cement monument marking reference station is 14.13 meters N. 49° 56' E. of observed station.

Marks.—Observed station is nail in stub with top 6 inches above ground. Reference station is center point of triangle on standard cement monument.

References.—	°	'	''	
"Kitt" (S. 66° 05' E.).....	0	00	00	1¼ miles.
Right tangent of brick house.....	10	41	..	6 miles.
Left end of peak of roof of De La Brooke Pier.	56	13	..	1¾ miles.
Left corner of left chimney of Thomas house (Cremona).....	102	38	..	1¼ miles.
Smoke pipe on several gable house.....	124	25	..	1¼ miles.
Right tangent of Trent Hall Wharf.....	192	00	..	1 mile.
Catholic Church at Benedict.....	216	56	..	3½ miles.
REFERENCE STATION.....	296	01	00	14.13 meters.
Near chimney of Dowell house.....	325	23	..	¾ mile.

## CREMONA.

General locality.—Southwest shore of Patuxent River about halfway between Cremona and Persimmon creeks. (See chart No. 19.)

Immediate locality.—Observed station is in orchard on farm known as Cremona, about 6 feet above high-water mark, 10 yards south of edge of river bank, 7 yards south of rail fence which runs west and east to dooryard fence, 36 yards east of rail fence of cornfield, 75 yards north of rail fence at cornfield, and 53 yards west of picket fence. Several mountain dwarf cherry trees stand between fence and river-bank edge.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	°	'	''	
"Kitt" (N. 84° 13' E.).....	0	00	00	2 miles.
Near end of peak of roof of Young Hance house.....	16	26	..	3 miles.
Nail in blaze in apple tree (24 inches diameter).	37	38	20	24.55 meters.
Nail in blaze in apple tree (16 inches diameter).....	62	43	30	13.12 meters.
Nail in blaze in apple tree (15 inches diameter).....	100	33	30	16.11 meters.
Corner of field.....	181	55	..	87 yards.
Corner of field.....	233	32	..	38 yards.

KITT.

*General locality.*—Northeast shore of Patuxent River on Kitts Marsh Point, which is about half-way between Battle Creek and Sheridan Point. (See chart No. 19.)

*Immediate locality.*—Observed station is on the point of a long marsh neck, about 15 yards north-east of extreme end of point, 13 yards north of edge of marsh, and 13 yards east of edge of marsh. There are no permanent reference objects near station. Cement monument marking reference station is 15.84 meters N. 10° 23' E. of observed station.

*Marks.*—Observed station is nail in stub flush with surface of marsh. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Battle" (S. 39° 02' E.)	0	00	00	1½ miles..
Right tangent of Long Marsh	7	53		2 miles.
Near end of peak of roof of De La Brooke Pier	73	52		1½ miles.
Near corner of near chimney of Thomas house	83	31		1¾ miles.
Large house	167	38		1 mile.
Square chimney of large house	185	23		¼ mile.
REFERENCE STATION	229	24	40	15.84 meters.
Left chimney of house	243	56		2½ miles.
Hance house	299	13		2 miles.
Right chimney of house among trees on hill	327	24		4 miles.
Left chimney of house	336	59		4 miles.

OPPKIT.

*General locality.*—Southwest shore of Patuxent River on Marsh Point. (See chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass ridge between sand beach and marsh, about 1 foot above high water, 3 yards southwest of high-water mark, 60 yards west-northwest of one point of the beach, 64 yards south of another point of the beach, and 85 yards north-northwest of an oyster watch house on piles. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Kitt" (N. 56° 31' E.)	0	00	00	1½ miles.
Near end of peak of roof of Williams Wharf house	36	46		2½ miles.
Left corner of watch house	87	27		85 yards.
Left point of peak of roof of De La Brooke Pier	94	09		1 mile.
Right corner of right chimney of brick house	126	42		½ mile.
Chimney on house near trees	232	43		¾ mile.
Highest chimney on Cremona House	254	49		7⁄8 mile.
Point of roof of Dukes Wharf	310	09		1½ miles.
Chimney on house with ell	330	49		1½ miles.
Large square brick chimney on house with ell	334	08		1½ miles.
Nearest chimney of pair on end of house	353	00		1½ miles.

## BATTLE.

*General locality.*—Northeast shore of Patuxent River on west side of entrance to Battle Creek on Prison Point. (See chart No. 19.)

*Immediate locality.*—Observed station is on sand and grass land between marsh and river, about 1 foot above high water, 85 yards south of a field, 6 yards northeast of shore, 20 yards southwest of edge of a pool, 100 yards southwest by west of a lone tree, 200 yards west of a small house among trees, and 100 yards west to northwest of several dwarf trees between house and beach.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Forr" (S. 3° 17' E.).....	0	00	00	2¼ miles.
Chimney on middle of roof of house.....	1	52	..	2¼ miles.
Left corner of left chimney of very large house.....	8	36	..	2¼ miles.
Right chimney of large 2½-story brick house.	82	00	..	1½ miles.
Tangent to Sheridan Point.....	129	20	..	2½ miles.
Right end of peak of roof of 2½-story house..	139	50	..	2¼ miles.
Chimney of 2½-story house on hill.....	155	19	..	2 miles.
Lone tree.....	254	41	..	80 yards.
Outside chimney of house on hill.....	264	11	..	3 miles.
House among trees.....	282	15	..	100 yards.
Tangent of Long Marsh.....	341	45	..	1½ miles.
Left chimney of 2½-story house.....	348	38	..	3 miles.
Chimney of 2½-story house.....	352	57	..	2 miles.
Right tangent of Forrest Wharf.....	357	59	..	1½ miles.

## PHOTO.

*General locality.*—Northeast side of Patuxent River on east side of entrance to Jacks Bay. (See chart No. 19.)

*Immediate locality.*—Observed station is in a cultivated field, about 150 yards north-northeast of a marshy point, 10 feet above high-water mark, 49 yards east of shore, 110 yards north-northwest of shore, and 68 yards northeast of right end of clump of trees at edge of field and beginning of marsh point.

*Marks.*—Observed station is nail in stub with top 2 inches above surface of ground. Subsurface mark is center point of triangle on standard cement monument with top 12 inches below surface.

*References.*—

	°	'	"	
"Slim" (S. 52° 03' E.).....	0	00	00	1¼ miles.
Chimney on old house.....	51	21	..	2 miles.
Cedar trees.....	60	00	..	85 yards.
Left corner of house.....	73	03	..	2 miles.
Smoke pipe on house behind trees.....	78	08	00	2 miles.
Left tangent of Forrest Wharf.....	81	00	20	2¼ miles.
Tree.....	90	10	..	70 yards.
Watch house on point.....	118	52	..	½ mile.
Right chimney on 2½-story brick house.....	150	37	..	5 miles.
Locust tree (20 inches diameter).....	241	23	..	135 yards.
Left chimney of house.....	222	45	..	½ mile.
Willow tree.....	331	27	..	140 yards.

## FIGHT.

*General locality.*—Southwest shore of Patuxent River opposite mouth of Battle Creek on a prominent low point. (See chart No. 19.)

*Immediate locality.*—Observed station is on land known as Horsehead Marsh, about 1 foot above ordinary high-water mark, 12 yards south-southwest of extreme end of point, 15 yards west-northwest of shore at small creek, 40 yards northeast of woods, and 110 yards east-southeast of a bluff 50 feet high.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	/	//	
"Battle" (N. 50° 45' E.).....	o	oo	oo	1¾ miles.
Outside chimney in center of group of buildings.....	13	3o	..	2¼ miles.
Left chimney of house on top of hill.....	23	44	..	3¾ miles.
Left tangent of Forrest Wharf.....	82	o6	1o	2 miles.
Near end of peak of roof of 2½-story building.....	83	47	..	1¾ miles.
Large square chimney on large building.....	91	19	..	1 mile.
Left corner of left chimney of large house.....	262	4o	..	1 mile.
Dowells windmill.....	3oo	28	..	2½ miles.
Left chimney on small house adjoining large house.....	321	41	..	2¼ miles.
Chimney of small house.....	325	38	..	2 miles.

SLIM.

*General locality.*—Northeast shore of Patuxent River about half way between Battle and Island creeks and one-half mile west-northwest of Parkers Wharf. (See chart No. 19.)

*Immediate locality.*—Observed station is in a field on a sand bluff, about 40 feet above high water, 13 yards northeast of edge of bluff, 90 yards southeast of a point of woods at top of a ravine, about 180 yards southwest of another point of woods, 150 yards west-northwest of a rail fence, and 71 yards north-west by west of a large sycamore tree.

*Marks.*—Observed station is nail in round chestnut stub with top about 6 inches above the surface of the ground. Subsurface mark is center point of triangle on standard cement monument with top 10 inches below the surface of the ground.

*References.*—

	o	/	//	
"Island" (S. 59° 31' E.).....	o	oo	oo	2½ miles.
Cedar in field.....	2	38	5o	2oo yards.
Large sycamore tree.....	29	2o	..	71 yards.
Near end of peak of roof of Jones Wharf house.....	53	27	..	2½ miles.
Chimney on middle of roof of a long house.....	1o9	34	..	1¾ miles.
Outside chimney of house near Forrest Wharf.....	125	26	..	2 miles.
Nearest chimney on Thomas large brick house.....	166	16	..	4 miles.
Tangent of Long Point marsh.....	171	24	..	1½ miles.
Left tree on point.....	191	o6	..	9o yards.
Two high trees close together near right edge of point of woods.....	284	27	..	18o yards.
Large walnut tree.....	298	2o	..	¼ mile.
Near end of peak of roof of barn.....	3o4	23	..	½ mile.

FORR.

*General locality.*—Southwest shore of Patuxent River just below Forrest Wharf. (See chart No. 19.)

*Immediate locality.*—Observed station is about 1 foot above high-water mark on sand and grass land, 7 yards south from extreme high-water mark, 45 yards southeast of land end of Forrest Wharf, 70 yards east by south of an old 2½-story building, and 65 yards northeast of a saloon.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—	°	'	"	
"Cole" (S. 50° 07' E.).....	0	00	00	1 3/8 miles.
Near corner of house on hillside.....	9	59		180 yards.
Near corner of saloon.....	101	52		65 yards.
Outside chimney on house on hill.....	115	22		1/8 mile.
Curve in road up hill.....	131	25		200 yards.
West corner of old 2 1/2-story building.....	139	52		70 yards.
Land end of wharf.....	169	15		45 yards.
Windmill.....	182	59	40	2 3/4 miles.
Left corner of left chimney brick house.....	183	05		3 miles.
Right tangent of Dukes Wharf.....	187	07		4 1/4 miles.
Near end of peak of roof of Forrest Wharf house.....	257	17		1/8 mile.
Chimney of house.....	272	35		3 or 4 miles.
Right tangent of roof.....	304	23		2 1/2 miles.
Tangent of trees.....	347	46		3 miles.

## SWEEP.

*General locality.*—Northeast shore of Patuxent River on northwest side of mouth of Island Creek near inner end of neck of land joining Broome Island to the mainland. (See chart No. 19.)

*Immediate locality.*—Observed station is in a field about 4 feet above high water, 4 feet northwest of a wire fence, 24 yards south by west of a stable, 60 yards south-southwest of a house, and 100 yards south-southeast of a pine grove. Cement monument marking reference station is 21.70 meters N. 59° 39' E. of station and near fence line.

*Marks.*—Observed station is the center of an oblong wooden box 4 inches square with top 4 inches above the ground. Reference station is center point of triangle on a standard cement monument.

References.—	°	'	"	
"Bars" (S. 15° 10' E.).....	0	00	00	2 miles.
Right chimney of house.....	14	48		3 miles.
Peak of roof of Gadden house.....	25	34	20	1 5/8 miles.
Tangent of Broome Island Point.....	43	21		1/2 mile.
Chimney on house on hill.....	51	57		3 miles.
Gilt ball on lightning rod.....	62	03		3/8 mile.
Chimney on house.....	96	06		1/4 mile.
Cut in woods.....	135	40		1 7/8 miles.
Chimney of house.....	186	34		150 yards.
Tile smoke pipe on house.....	203	24		140 yards.
Near corner of house.....	230	35		60 yards.
Near corner of barn.....	237	32		24 yards.
REFERENCE STATION.....	254	49	20	21.70 meters.
Right chimney of four on house.....	279	25		1/4 mile.
Top of tower of house.....	301	54		2 1/2 miles.

## ISLAND.

*General locality.*—Northeast shore of Patuxent River on the extreme southeast point of land about one-half mile to the east of the mouth of Island Creek. (See chart No. 19.)

*Immediate locality.*—Observed station is on a marshy point at about extreme high-water mark, 30 yards north of extreme end of point, 25 yards east of one side of point, and 20 yards west of another side of point. Old tile pipe used as a reference station is 16.98 meters N. 12° 39' E. and cement monument marking new reference station is 30.93 meters N. 2° 40' E. of observed station.

*Marks.*—Observed station is nail in stub with top flush with marsh. Old reference station is center of 4-inch tile pipe set in cement with top projecting about 10 inches above ground. New reference station is center point of triangle on standard cement monument.

References.—	°	'	''	
"Wheat" (S. 53° 15' E.).....	0	00	00	2 miles.
Left end of peak of roof of Sotterly Wharf house.....	46	07	..	2 miles.
Pinnacle of large house in trees.....	60	49	..	2 miles.
Left chimney of large house back on hill....	67	54	..	2 miles.
Chimney on middle of large 2½-story house...	109	59	..	1½ miles.
Middle of railing on top of roof of 2½-story house.....	120	00	..	3 miles.
Chimney of Broome house.....	143	41	..	¾ mile.
Weather vane on Broome house.....	148	33	30	¾ mile.
Right chimney of house.....	178	21	..	3 miles.
Right chimney of house.....	193	27	..	2 miles.
REFERENCE STATION (cement monument)....	235	55	00	30.93 meters.
REFERENCE STATION (tile pipe).....	245	54	20	16.08 meters.
Smoke pipe of watchhouse.....	333	29	..	1 mile.
Tower of Peterson house.....	356	08	..	2 miles.

PEAK.

*General locality.*—Northeast shore of Patuxent River, about in middle of inner shore of a large bay between St. Leonard and Island creeks. (See chart No. 19.)

*Immediate locality.*—Observed station is on Parran house, located near shore at extreme end of a road leading to Wallville.

*Marks.*—Observed station is ball on tip of tower.

*References.*—None necessary.

COLE.

*General locality.*—Southwest shore of Patuxent River, about one-fourth mile northwest of Cole Creek. (See chart No. 19.)

*Immediate locality.*—Observed station is about 35 feet above high-water mark on a grass peninsula, 3 yards south-southwest of edge of a bluff which is washing rapidly, 8 yards west of extreme edge of bluff, where it turns inland and is not washing, but slopes gradually to the water, 8 yards north of another edge of the bluff, 10 yards northwest of trees on slope of bank, and 20 yards west of a cherry tree 2 feet in diameter. Cement monument marking reference station is 13.53 meters S. 83° 10' W. of observed station and nearly on line with large cherry tree.

*Marks.*—Observed station is nail in stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

References.—	°	'	''	
"Hutchins" (S. 67° 12' E.).....	0	00	00	2 miles.
Left end of peak of roof on Jones Wharf house.....	6	25	..	1½ miles.
Nail in blaze on limb of oak tree (4 inches diameter).....	22	05	..	10.80 meters.
Screw in blaze in crotch of oak tree (15 inches diameter at base).....	38	18	..	12.67 meters.
Nail in blaze of cedar tree (6 inches diameter).....	63	40	40	8.43 meters.
Nail in blaze on cherry tree (24 inches diameter).....	147	11	..	18.65 meters.
REFERENCE STATION.....	150	22	00	13.53 meters.
Right chimney of house.....	179	11	..	¾ mile.
Right end of peak of roof of Forrest Wharf house.....	202	21	..	1½ mile.
Right end of house.....	251	05	..	3 miles.
Left end of peak of house.....	280	23	..	3 miles.
Gilt ball on Broome house.....	321	30	30	2 miles.
Right tangent of Broome Island.....	334	17	..	1¾ miles.

## HUTCHINS.

*General locality.*—Southwest shore of Patuxent River opposite Broome Island on Captain Point, about one-fourth mile northwest of mouth of Cole Creek. (See chart No. 19.)

*Immediate locality.*—Observed station is in garden on point of a bluff 50 feet high on Hutchins estate near house occupied by Mr. Gadden, about 6 yards south by east of extreme point of bluff, 2 yards southwest of edge of bluff, 4 yards southeast of edge of bluff, 30 yards north by west from house, 30 yards west of a wire fence running north and south, and 15 yards east of another north-and-south wire fence. Cement monument marking reference station is 7.57 meters S. 59° 39' W. of observed station.

*Marks.*—Observed station is nail in a stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Bars" (S. 68° 07' E.)	0	00	00	7/8 mile.
Left corner of extension of Gadden house	58	17	..	30.90 meters.
Right front corner of Gadden house	84	56	..	28.57 meters.
Near corner of well house	102	15	..	30.44 meters.
Near corner of shed	119	43	..	45 yards.
REFERENCE STATION	127	46	..	7.57 meters.
Nail in blaze in apple tree (22 inches diameter)	148	06	20	9.35 meters.
Right tangent of Parkers Wharf	228	12	..	2 1/2 miles.
Gilt ball on Broome house on Broome Island	249	55	..	1 1/2 miles.
Near end of peak of house	263	17	..	4 miles.
Tip of tower on Peterson house	332	52	..	2 1/2 miles.

## WHEAT.

*General locality.*—Northeast shore of Patuxent River on westerly side of mouth of St. Leonard Creek. (See charts Nos. 19 and 20.)

*Immediate locality.*—Observed station is on a bluff about 40 feet above high water, about 5 yards west of edge of bank, 7 yards south of another edge, and three-eighths mile west of Peterson house. Cement monument marking reference station is 12.80 meters N. 61° 55' E. of observed station and on line to Peterson house.

*Marks.*—Observed station is center of a 4-inch tile pipe set in cement with top projecting about 4 inches above ground. Reference station is center point of triangle on standard cement monument with top 6 inches below the surface.

*References.*—

	o	'	"	
"Stump" (S. 36° 23' E.)	0	00	00	2 1/4 miles.
Left chimney of Judge Crane house	10	07	..	4 3/4 miles.
Near end of peak of roof of Marburger house	15	05	..	4 1/4 miles.
Left end of roof of St. Cuthbert Wharf	24	09	..	2 1/4 miles.
Chimney on roof of house	60	05	..	1 1/2 miles.
Chimney on store at Sotterly	93	41	..	1 1/2 miles.
Left end of barn roof	193	27	..	2 miles.
REFERENCE STATION	278	17	30	12.80 meters.
Center chimney of Peterson house	281	22	..	1/4 mile.
Chimney of house	298	03	..	1/8 mile.
Chimney on house on Breeden estate	340	04	..	2 miles.

## MACKALL.

*General locality.*—Northwest shore of Patuxent River on west side of entrance to St. Leonard Creek on first point inside of Peterson Point. (See charts Nos. 19 and 20.)

*Immediate locality.*—Observed station is about 50 feet above high water, 9 feet northwest of edge of bluff, 7 yards northeast of bushes, and 3 yards southwest of other bushes. Cement monument marking reference station is 3.80 meters N. 35° 08' W. of observed station.

*Marks.*—Observed station is the center of an oblong wooden box 4 inches square with top 3 inches above the ground. Reference station is center point of triangle on standard cement monument.



References.—

	°	'	"	
"Stock" (S. 34° 38' W.).....	0	00	00	1 3/4 miles.
Peak of front gable of Bond house.....	0	39	10	1 3/4 miles.
Chimney on negro house.....	54	31	..	3/8 mile.
Chimney on Peterson house.....	66	25	..	1/4 mile.
REFERENCE STATION.....	110	13	50	3.80 meters.
Chimney on negro house.....	135	49	..	3/8 mile.
Chimney on ell of house on hill.....	153	46	..	1/2 mile.
Chimney on small house back of Sollers Wharf.....	229	40	..	1 mile.
Nearest outside chimney on 1 1/2-story house..	236	08	..	2 miles.
Large chimney on Sollers house.....	237	02	..	3/4 mile.
Large chimney on Taylor house.....	285	27	..	1/2 mile.
Front peak of Briscoe house.....	334	30	..	2 1/8 miles.

SOLLERS.

*General locality.*—Northeast shore of Patuxent River on east side of entrance to St. Leonard Creek. (See charts Nos. 19 and 20.)

*Immediate locality.*—Observed station is about 50 feet above high water, 6 feet east of edge of bank, 20 yards north-northeast of a clump of trees, 14 yards and 8 yards south-southwest of other trees, and 75 yards north-northwest of a rail fence. Cement monument marking reference station is 13.68 meters S. 44° 00' E. of observed station with top buried 12 inches below surface.

*Marks.*—Observed station is the center of an oblong wooden box 5 inches square with top 3 inches above ground. Reference station is center point of triangle on standard cement monument with top 12 inches below surface.

References.—

	°	'	"	
"Stock" (S. 44° 24' W.).....	0	00	00	1 5/8 miles.
Middle of front gable of Bond house.....	0	34	..	1 3/4 miles.
Chimney of store at Sotterly Wharf.....	26	58	..	2 1/8 miles.
Near corner of outside chimney on house....	27	18	..	2 1/2 miles.
Chimney on top of Gadden house.....	46	14	..	2 3/8 miles.
Near corner of top chimney on Peterson house.....	78	27	..	1/2 mile.
Right end of peak of roof of Mackall house..	150	16	..	1/4 mile.
REFERENCE STATION.....	271	35	30	13.68 meters.
Near corner of large chimney on Taylor house.....	372	35	..	1/8 mile.
Top of front gable on Briscoe house.....	331	36	..	1 3/4 miles.

BARS.

*General locality.*—Southwest shore of Patuxent River on Sotterly Point about one-fourth mile north-west of Sotterly Wharf. (See chart No. 19.)

*Immediate locality.*—Observed station is on a bluff about 30 feet above high water, 5 yards south of edge of bank at rail fence, and 2 yards east of this same fence. Cement monument marking reference station is 14.53 meters S. 9° 54' W. of observed station and near fence line.

*Marks.*—Observed station is center of a 3-inch tile pipe set in cement. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Wheat" (N. 72° 06' E.).....	0	00	00	1 1/2 miles.
Chimney on middle of 2 1/2-story house.....	17	29	..	6 miles.
Windmill.....	23	23	..	3 miles.
Chimney of house.....	41	50	..	4 miles.
REFERENCE STATION.....	117	48	00	14.53 meters.
Smoke pipe on right end of house.....	157	37	..	1/4 mile.
Tangent of point of land.....	250	47	..	1 1/2 miles.
Peterson house chimney.....	359	22	..	1 3/4 miles.

## LEND.

*General locality.*—Northeast shore of Patuxent River on a narrow strip of land or peninsula in mouth of Mears Creek about one-half mile southeast of St. Leonard Creek. (See charts Nos. 19 and 20.)

*Immediate locality.*—Observed station is in the midst of many cherry, oak, and locust trees about 15 feet above high-water mark, 15 yards east-northeast of high ground, 5 yards west of edge and 17 yards north of extreme point of top of peninsula.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Wheat" (N. 50° 51' W.).....	0	00	00	1¼ miles.
Nail in blaze in cherry tree (4 inches diameter).....	118	28	30	3.58 meters.
Right chimney of house across creek.....	139	51	..	¼ mile.
Nail in blaze in oak tree (8 inches diameter)..	229	51	..	6.68 meters.
Outside chimney on left end of Briscoe house.	265	61	..	1½ miles.
Near peak of Bond house.....	297	57	..	1½ miles.
Chimney on storehouse at Sotterly.....	318	19	..	2¼ miles.
Near end of peak of roof of Sotterly Wharf house.....	319	07	..	2¼ miles.
Chimney on Gadden house.....	330	47	..	3¼ miles.
Nail in blaze in cherry tree (6 inches diameter).....	345	24	..	3.64 meters.

## STOCK.

*General locality.*—Southwest shore of Patuxent River about 1 mile southeast of Sotterly Point. (See chart No. 20.)

*Immediate locality.*—Observed station is on a bluff, about 20 feet above high water, 3 yards southwest of edge of bluff, about 50 yards east by north of front door of the house of Mr. Bond, 30 yards west-northwest of extreme end of point of bluff, 35 yards northeast of detached house, and about 43 yards east by south of yard fence at edge of bluff.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Lend" (N. 66° 48' E.).....	0	00	00	1½ miles.
Right chimney of house on Dickson place....	1	35	..	1¾ miles.
Right chimney of old 1½-story house.....	19	00	..	2 miles.
Tangent of bluff.....	58	00	..	1 mile.
Chimney on house on point.....	59	03	..	1 mile.
Nail in blaze in locust tree (4 inches diameter).....	99	48	30	2.18 meters.
Nearest corner of outhouse, corner farthest from house.....	161	29	30	34.30 meters.
Left corner of house.....	180	31	30	31.13 meters.
Nail in blaze in cherry tree 1 foot above ground (4 feet diameter).....	183	39	30	20.58 meters.
Right corner of house.....	205	29	40	45.79 meters.
Locust tree (4 inches diameter).....	210	31	40	8.83 meters.
End of yard fence.....	230	31	..	43 yards.
Tree near edge of bank (no nail or blaze)....	237	39	20	34.27 meters.

## STUMP.

*General locality.*—Northeast shore of Patuxent River about one-half mile northwest of Hellen Creek. (See chart No. 20.)

*Immediate locality.*—Observed station is on a bank about 20 feet above high water, 10 yards north-northeast of edge of bank at extreme end of point, about 20 yards southeast of edge of bank, and about 150 yards northwest of a clump of cedar and locust trees at edge of bank. Cement monument marking first reference station is 11.29 meters N. 61° 51' E. of observed station with top 10 inches below surface of field. Cement monument marking second reference station is 2.62 meters N. 60° 42' E. of observed station on line with first reference station.

*Marks.*—Observed station is center of 4-inch tile pipe set in cement with top flush with ground. First reference station is center point of triangle on standard cement monument with top 10 inches below the surface of ground. Second reference station is center point of triangle on standard cement monument with top 6 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Wheat" (N. 36° 23' W.).....	0	00	00	2½ miles.
Chimney in center of house.....	15	09	..	¾ mile.
SECOND REFERENCE STATION.....	97	43	35	2.62 meters.
FIRST REFERENCE STATION.....	98	52	30	11.29 meters.
Apple tree.....	152	00	..	200 yards.
Left chimney of house.....	180	19	..	¾ mile.
Near end of peak of roof of Marburger house..	209	27	..	2¼ miles.
Left chimney of house.....	269	21	..	1¼ miles.
Nail in blaze in stump (30 inches diameter)..	250	49	..	5.01 meters.
Nail in blaze in tree (8 inches diameter)....	352	30	..	17.52 meters.

BRISCOE.

*General locality.*—Southeast shore of Patuxent River about one-fourth mile northwest of St. Cuthbert Wharf. (See chart No. 20.)

*Immediate locality.*—Observed station is in a cultivated field, about 20 feet above high water, 80 yards southwest of trees on bank, 50 yards southeast of a creek bed, 46 yards northwest of a clump of trees, 105 yards east of a corner of fence on road, and about 300 yards northeast of another fence with woods back of it. Cement monument marking reference station is 12.52 meters N. 79° 35' W. of observed station.

*Marks.*—Observed station is a nail in a stub with top flush with ground and a subsurface mark of a standard cement monument with top buried 11 inches below the surface. Reference station is center of triangle on standard cement monument with top 5 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Hellen" (S. 71° 37' E.).....	0	00	00	1½ miles.
Near corner of house.....	45	11	..	¾ mile.
Left end of peak of roof of barn.....	57	18	..	¾ mile.
Large two-forked tree.....	129	17	..	130 yards.
Corner of rail fence and tree.....	136	34	..	105 yards.
REFERENCE STATION.....	172	01	40	12.52 meters.
Large cherry tree other side of creek.....	195	00	..	68 yards.
Left chimney of house on opposite side with three dormer windows.....	304	54	..	1½ miles.
Cedar tree.....	308	59	..	80 yards.

HELLEN.

*General locality.*—Northeast shore of Patuxent River on east side of mouth of Hellen Creek. (See chart No. 20.)

*Immediate locality.*—Observed station is at high-water mark on edge of grass and bushes, about 16 yards west-southwest of a bluff 15 feet high, and about 40 yards north-northwest of bluff at edge of water. Cement monument marking reference station is 12.45 meters N. 75° 14' E. of observed station.

*Marks.*—Observed station was the center of a tile pipe with a subsurface mark of a green yeast-powder bottle, but at date of publication these marks are reported to have been washed away. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Stump" (N. 25° 42' W.).....	0	00	00	7/8 mile.
Left chimney of Barrett house.....	8	54	..	3/4 mile.
Nail in blaze in tree.....	100	01	40	14.74 meters.
REFERENCE STATION.....	100	56	20	12.45 meters.
Near end of peak of roof of Marburger house..	209	54	..	1 1/2 miles.
Mouth of Cuckold Creek.....	261	00	..	1 1/2 miles.
Chimney of Peterson house.....	355	14	..	3 miles.

## NAT.

*General locality.*—Southwest shore of Patuxent River about one-half mile above mouth of Cuckold Creek. (See chart No. 20.)

*Immediate locality.*—Observed station is near edge of a cultivated field on a bluff of sand and gravel about 20 feet above high water, 4 feet east of edge of bluff, and 150 yards north of a rail fence. Cement monument marking reference station is 18.44 meters S. 29° 47' W. of observed station with top 8 inches below surface of ground.

*Marks.*—Observed station is center of 3-inch tile pipe embedded in cement. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Hellen" (N. 69° 29' E.).....	0	00	00	1 1/4 miles.
Near end of peak of roof of Marburger house on Point Patience.....	68	01	..	1 1/2 miles.
REFERENCE STATION.....	140	18	00	18.44 meters.
Large chimney on house.....	281	58	..	3 miles.
Right chimney of house with two gable roofs.....	309	01	..	2 miles.

## TON.

*General locality.*—Eastern shore of Patuxent River about 1 mile northeast of Point Patience. (See chart No. 20.)

*Immediate locality.*—Observed station is on a bluff about 15 feet above high water, 10 yards east from edge of bluff, 50 yards south-southwest of edge of a gully and a clump of trees, and about 220 yards west-northwest of a cherry tree 3 1/2 feet in diameter. Cement monument marking reference station is 13.64 meters S. 62° 29' E. of observed station.

*Marks.*—Observed station is a spike set in cement. Reference station is center point of triangle on standard cement monument buried below surface 10 inches.

*References.*—

	°	'	''	
"Mill" (N. 65° 00' W.).....	0	00	00	1 1/4 miles.
Chimney on far end of Wallace house.....	53	28	..	1 3/4 miles.
Chimney on middle of roof on McCorry store.....	60	09	..	2 miles.
Near end of peak of St. Cuthbert Wharf house.....	62	10	..	2 miles.
Near end of peak of roof of Parran oyster watch house.....	83	03	..	5 1/2 miles.
Chimney on Peterson house.....	85	39	..	3 3/4 miles.
Cemented chimney on near end of George old house.....	94	59	..	1 mile.
Left chimney of Costen house.....	117	59	..	1/2 mile.
Nail in blaze in tree.....	137	35	20	47.60 meters.
REFERENCE STATION.....	232	31	00	13.64 meters.
Left chimney of Marburger house.....	329	11	..	3/4 mile.

MILL.

*General locality.*—Southwest shore of Patuxent River about one-half mile southeast of mouth of Cuckold Creek and one-half mile northwest of Point Patience. (See chart No. 20.)

*Immediate locality.*—Observed station is on a sand bluff about 20 feet above high water, 7 yards southwest of the edge of the bluff, 40 yards southeast of a fence and a line of cedar trees, and about 100 yards northwest of another fence at bottom of hill. Cement monument marking reference station is 13.76 meters S. 28° 14' W. of observed station.

*Marks.*—Observed station is center point of 3-inch tile pipe embedded in cement. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	''	
"Ton" (N. 64° 59' E.).....	0	00	00	1¼ miles.
Nearest chimney of Marburger house on Point Patience.....	39	01	..	¾ mile.
"Catholic Church Cross".....	43	03	40	2 miles.
"Methodist Episcopal Church Spire".....	49	23	30	2 miles.
Middle of portico of Judge Crane house.....	82	22	..	1 mile.
Windmill near Dent house.....	136	47	..	½ mile.
REFERENCE STATION.....	143	14	40	13.76 meters.
Chimney on house among farm buildings.....	293	28	40	4¼ miles.
Left chimney on house with piazza.....	304	02	..	2¾ miles.
End of peak of roof of 2½-story house.....	323	31	..	1¾ miles.
Nearest chimney of cottage.....	338	17	..	2 miles.
Left chimney of house.....	340	19	..	2 miles.

BUR.

*General locality.*—East shore of Patuxent River, on northwest side of Point Patience, about one-fourth mile northeast of its extreme end. (See chart No. 20.)

*Immediate locality.*—Observed station is on sand and grass land, about 1 foot above high water, 12 yards southeast of high-water mark on one side of point, 36 yards northwest of high-water mark on other side of point, and about 300 yards northeast of extreme end of point. Cement monument marking reference station is 12.15 meters N. 85° 20' E. of observed station.

*Marks.*—Observed station is a 3-inch tile pipe set in cement with top about 1 inch above the surface of the ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	''	
"Ton" (N. 37° 56' E.).....	0	00	00	1 mile.
Left chimney of Marburger house.....	16	08	..	¾ mile.
REFERENCE STATION.....	47	24	30	12.15 meters.
"Methodist Episcopal Church Spire".....	75	32	10	1¾ miles.
Middle gable of Judge Crane house.....	139	09	..	½ mile.
Nail in blaze in pine tree (8 inches diameter).....	162	40	10	25.04 meters.
Square chimney on Dent house.....	228	30	..	¾ mile.
Chimney on house.....	268	52	..	1¾ miles.
Left chimney of house.....	346	39	..	1½ miles.
Right chimney of house.....	358	31	..	1½ miles.

NEW.

*General locality.*—Northeast side of Patuxent River, about three-fourths mile east of Point Patience and about 1¼ miles northwest of Sandy Point. (See chart No. 20.)

*Immediate locality.*—Observed station is about 20 feet above high-water mark in the middle of a cultivated field on Stratmore farm, about 230 yards northeast of shore of Patuxent River, about 82 yards southeast of a creek, about 162 yards northwest of a small creek or ditch, 230 yards northeast of a large oak tree, and 250 yards north of another large oak tree.

*Marks.*—Observed station is center point of triangle on standard cement monument with top 11 inches below the surface of the ground.

*References.*—

	°	'	"	
"Ben" (S. 2° 10' E.)	0	00	00	2 miles.
Chimney on flat-roof house	6	59		1¾ miles.
Chimney on main part of a house on Town Creek	27	11		1¼ miles.
Oak tree about 18 inches diameter on edge of field	43	54		227 yards.
Right tangent of Spencers Wharf	56	04		1 mile.
Corner of field	67	00		310 yards.
Exposed chimney on left of house	67	36		1½ miles.
Left chimney on house	88	57		1¼ miles.
Corner of field	206	00		240 yards.
Corner of field	258	00		300 yards.
Silver-tipped tower on Philip Vale house	307	08	20	½ mile.
Oak at edge of field	343	35		300 yards.

#### CATHOLIC CHURCH CROSS.

*General locality.*—Southeast side of Patuxent River, about halfway to Back Creek and three-fourths mile northwest of Solomons Wharf. (See chart No. 20.)

*Immediate locality.*—Observed station is on Catholic Church, known as St. Marys Star of the Sea, located in small village of Johnstown, on mainland near Solomons Island, and about 250 yards north of causeway to Solomons Island.

*Marks.*—Observed station is center of cross on bell cupola.

*References.*—None necessary.

#### CABLE.

*General locality.*—Southwest shore of Patuxent River, on east side of entrance to Kings Creek, and about three-fourths mile west of Town Point. (See chart No. 20.)

*Immediate locality.*—Observed station is on pasture land near the end of high land at the beginning of a long, low peninsula which almost closes the mouth of Kings Creek, about 30 feet above high-water mark, about 20 yards south of edge of bank on river side, about 15 yards east northeast of edge of bank on creek side, 38 yards southeast of extreme edge of top of bank, and 30 yards west of a persimmon tree.

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 10 inches below the surface of ground.

*References.*—

	°	'	"	
"Bur" (N. 35° 17' E.)	0	00	00	¾ mile.
Left chimney of Marburger house near Point Patience	3	25		¾ mile.
"Catholic Church Cross"	43	59		1¾ miles.
"Methodist Episcopal Church Spire"	52	29		1¾ miles.
Left chimney of Judge Crane house	55	44		½ mile.
Nail in blaze of tree (18 inches diameter)	179	22	20	19.24 meters.
Nail in blaze in red cedar tree (3 inches diameter)	236	25		16.80 meters.
Nail in blaze in persimmon tree	283	52	10	26.22 meters.
Right chimney on Fenner Lee house	284	14		¾ mile.
Left chimney of house	302	24		½ mile.

#### TOWN.

*General locality.*—Southwestern shore of Patuxent River, on Town Point, about three-fourths mile southeast of Point Patience. (See chart No. 20.)

*Immediate locality.*—Observed station is about 20 feet above high-water mark, 9 yards west of edge of bluff, 3 yards south of edge of bluff, 10 yards southeast of extreme edge of high land, 3 yards south of a rail fence, and 2 yards north of cultivated land.

*Marks.*—Observed station is center point of triangle on standard cement monument.

<i>References.</i> —	o	/	''	
"Back" .....	0	00	00	½ mile.
"Catholic Church Cross" .....	8	58	20	1 mile.
"Methodist Church spire" .....	25	41	20	¾ mile.
Cupola on Files store .....	29	11		¾ mile.
Nearest chimney on Webster house .....	43	06		1¼ miles.
Right end of roof of 2½-story building at Pearsons .....	67	56		3 miles.
Near corner of tower on Hodgdon house .....	93	01		2¾ miles.
Chimney on old house .....	108	18		1¾ miles.
Chimney on house .....	142	53		1 mile.
Left chimney on Lee house .....	227	04		1½ miles.
Marburger house .....	281	00		¾ mile.

CRANE.

*General locality.*—Southwest side of Patuxent River, on northeast side of Town Creek, about one-fourth mile southwest of Town Point. (See chart No. 20.)

*Immediate locality.*—Observed station is in a cultivated field on Judge Crane farm, about 8 feet above high-water mark, 58 yards east-northeast of Town Creek, 105 yards west of a fence, 115 yards west-northwest of a large cherry tree, 200 yards southeast of several detached buildings, and 20 yards east of top of ravine.

*Marks.*—Observed station is center point of triangle on standard cement monument with top 10 inches below ground.

<i>References.</i> —	o	/	''	
"New" (N. 36° 51' E.) .....	0	00	00	1 mile.
"Catholic Church Cross" .....	29	25		1¼ miles.
Stack on ice plant .....	37	25		1¼ miles.
Methodist Episcopal Church tower .....	42	15		1¼ miles.
Cherry tree (4 feet diameter) .....	71	26		115 yards.
Canning-house stack .....	157	27		½ mile.
House on point .....	185	20		¼ mile.
Chimney on house .....	244	30		¾ mile.
Lightning rod on cupola of Judge Crane barn .....	277	01	30	¼ mile.
Right tangent to St. Cuthbert wharf .....	300	08		2¾ miles.
Near end of peak of roof of Marburger house .....	320	49		¾ mile.
Middle of gateway .....	355	23		½ mile.
Oak tree on opposite shore of Patuxent River .....	359	16	50	1 mile.

METHODIST EPISCOPAL CHURCH (SOLOMONS).

*General locality.*—Northeastern shore of Patuxent River, on upper end of Solomons Island, about one-half mile northwest of Sandy Point. (See chart No. 20.)

*Immediate locality.*—Observed station is on Methodist Church at upper end of Solomons Island near beginning of causeway to mainland.

*Marks.*—Observed station is tip of pyramidal tower on Methodist Church.

*References.*—None necessary.

KNIGHTS OF PYTHIAS FLAGSTAFF (SOLOMONS).

*General locality.*—Northeastern side of Patuxent River, on Solomons Island, in the town of Solomons. (See chart No. 20.)

*Immediate locality.*—Observed station is on flagstaff in front of Knights of Pythias Building.

*Marks.*—Observed station is center of flagstaff at about the same height as roof of the Knights of Pythias hall.

*References.*—None necessary.

## SAND.

*General locality.*—Northeastern side of Patuxent River on Sandy Point on extreme southern point of Solomons Island. (See chart No. 20.)

*Immediate locality.*—Observed station is on pasture land about 5 feet above high water, 30 yards north of extreme point of planking protecting the shore from washing, 15 yards northeast of the extreme edge of sand and grass line, and about 13 yards east of top of bank. Cement monument marking reference station is 13.64 meters N.  $2^{\circ} 19' E.$  of observed station.

*Marks.*—Observed station is nail in southwest side of a 6-inch pile driven into ground with top 6 inches above the surface. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Drum Point Light" (N. $83^{\circ} 57' E.$ ).....	0	00	00	2 miles.
Right tangent of woods on Hog Point.....	14	36	..	3 miles.
Left end of peak of roof on $2\frac{1}{2}$ -story building at Pearsons.....	51	03	..	2 miles.
Chimney on storehouse at Millstone.....	74	18	..	$1\frac{3}{4}$ miles.
Near point of gable of Hodgdon large house with square tower.....	93	54	..	$1\frac{1}{2}$ miles.
Near end of peak of roof of Marburger house..	225	22	..	$1\frac{3}{4}$ miles.
Warren house opposite Johnson store.....	261	22	..	$\frac{1}{4}$ mile.
REFERENCE STATION.....	278	22	10	13.64 meters.
"Knights of Pythias flagstaff".....	291	58	..	$\frac{1}{4}$ mile.
Right chimney of Dr. Marsh house.....	320	38	..	$\frac{1}{8}$ mile.
"Bareda House Cupola".....	347	48	30	$1\frac{1}{2}$ miles.

## FISHSTACK.

*General locality.*—Northeastern side of Patuxent River on northeastern side of entrance to Mill and Back creeks. (See chart No. 20.)

*Immediate locality.*—Observed station is on mainland on fish fertilizer factory located on opposite side of creek from Solomons Island.

*Marks.*—Observed station is center of smokestack on fish factory.

*References.*—None necessary.

## BON.

*General locality.*—North shore of Patuxent River about  $1\frac{1}{4}$  miles west-northwest of Drum Point Light and about  $\frac{1}{2}$  mile east-northeast of Solomons Island. (See chart No. 20.)

*Immediate locality.*—Observed station is on cultivated land, about 5 feet above high water, about 7 yards north of shore, about 90 yards southeast of a  $1\frac{1}{2}$ -story house on land 10 feet higher than station, and about 75 yards south of a  $1\frac{1}{2}$ -story brick house. Cement monument marking reference station is 0.67 meter N.  $45^{\circ} 29' E.$  of observed station.

*Marks.*—Observed station is an inverted nail in center of cement in a 6-inch tile pipe with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Drum Point Light" (S. $73^{\circ} 43' E.$ ).....	0	00	00	$1\frac{1}{4}$ miles.
Smoke pipe on oyster watch house.....	33	32	..	$\frac{1}{2}$ mile.
Left end of peak of roof on $2\frac{1}{2}$ -story building at Pearsons.....	52	06	..	$2\frac{1}{4}$ miles.
Left end of peak of roof on house with piazza.	82	29	..	$2\frac{1}{2}$ miles.
Near point of roof of Hodgdon house with square tower.....	89	14	..	$2\frac{1}{4}$ miles.
Chimney on end of house.....	133	57	..	$\frac{3}{4}$ mile.
Left chimney on Weems house.....	159	37	..	$\frac{1}{4}$ mile.



References—Continued.

	°	'	''	
Right chimney on wooden house.....	224	01	..	90 yards.
Left side of chimney on brick house.....	249	54	..	75 yards.
REFERENCE STATION.....	299	12	00	0.67 meters.
Near end of peak of house on bluff between trees.....	336	50	..	½ mile.
"Bareda House cupola".....	347	06	..	¾ mile.

BAREDA HOUSE CUPOLA.

*General locality.*—North side of Patuxent River about one-half mile northwest of Drum Point Light. (See chart No. 20.)

*Immediate locality.*—Observed station is on Bareda House which is a large 3-story square mansion with square cupola with three windows on each side and a porch all around ground floor, located about 100 yards back from shore on high land.

*Marks.*—Observed station is center of ornamental design of four brackets on center of cupola.

*References.*—None necessary.

DRUM POINT LIGHT.

*General locality.*—Northeastern side of entrance of Patuxent River and a short distance off shore from Drum Point. (See chart No. 20.)

*Immediate locality.*—Observed station is on a screw pile structure known as Drum Point Lighthouse.

*Marks.*—Observed station is center of black lantern on Drum Point Lighthouse.

*Reference.*—

	°	'	''	
"Cedar Point Light" (S. 64° 33' E.).....	0	00	00	..... ¾ miles.

BEN.

*General locality.*—Southwestern shore of Patuxent River about 1 mile south-southwest of Sandy Point and 1¼ miles south-southeast of Town Point. (See chart No. 20.)

*Immediate locality.*—Observed station is on a clay and sand bluff in a cultivated field, about 20 feet above high-water mark, about 10 feet west of edge of bank, 3 feet south of point covered with scrub pines, about 15 yards northeast of one edge of plateau, 10 yards southeast of another edge of plateau, about 65 yards north of point of woods, and 10 yards south of cut in bank which is washing rapidly. Cement monument marking reference station is 8.42 meters S. 56° 15' W. of station.

*Marks.*—Observed station is nail in cement in 6-inch tile pipe with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Drum Point Light" (N. 68° 07' E.).....	0	00	00	..... 2¾ miles.
Left tangent of trees on Hog Point.....	16	21	..	..... 3¾ miles.
Near end of peak of roof of large 2½-story building at Pearsons.....	39	36	..	..... 2¼ miles.
Near piazza post of Millstone Hotel.....	56	11	..	..... 1¾ miles.
Chimney of Craddock house.....	60	28	..	..... 1¼ miles.
Chimney on end of cabin.....	97	24	..	..... 200 yards.
Tall pine tree.....	138	35	..	..... 50 yards.
REFERENCE STATION.....	168	08	00	..... 8.42 meters.
Nail in blaze in pine tree (4 inches diameter).....	176	33	50	..... 7.79 meters.
Nail in blaze in pine tree (4 inches diameter).....	223	40	40	..... 8.77 meters.
Nail in blaze in pine tree (4 inches diameter).....	236	39	..	..... 2.07 meters.
Near end of peak of roof of Marburger house.....	272	12	..	..... 2 miles.
"Catholic Church Cross".....	304	54	40	..... 1½ miles.
"Bareda House Cupola".....	350	34	40	..... 2½ miles.

## CRADDOCK.

*General locality.*—Southern shore of Patuxent River, about  $2\frac{3}{8}$  miles south-southeast of Drum Point Light and  $\frac{1}{4}$  mile west of Millstone Landing. (See chart No. 20.)

*Immediate locality.*—Observed station is on lawn about 15 feet above high-water mark, about 10 yards south from top edge of bank, 15 yards from bottom edge of bank and fence, 30 yards east of extreme edge of point, 30 yards northeast of trees along shore of pond, about 110 yards northwest of Craddock house and several outbuildings among poplar trees, 50 yards east of fence, and 70 yards west of driveway to house.

*Marks.*—Observed station is center point of triangle on standard cement monument, with top flush with lawn.

*References.*—

	°	'	"	
"Drum Point Light" (N. $37^{\circ} 15'$ E.).....	0	00	00	..... $2\frac{1}{2}$ miles.
Left tangent of woods on Carroll Point.....	21	52	..	..... $1\frac{3}{4}$ miles.
Near end of peak of roof of $2\frac{1}{2}$ -story building at Pearsons.....	42	25	..	..... $1\frac{1}{4}$ miles.
Chimney on hotel at Millstone.....	64	56	..	..... $\frac{1}{2}$ mile.
Cottonwood tree (14 inches diameter).....	68	54	..	..... 80 yards.
Chimney on roof of Craddock $2\frac{1}{2}$ -story house.....	95	27	..	..... 110 yards.
Nail in stump (14 inches diameter).....	309	25	50	..... 5.35 meters.
"Fishstack".....	317	30	50	..... 2 miles.

## CARROLL 2.

*General locality.*—South side of Patuxent River, about 1 mile south-southwest of Hog Point and about 1 mile south of Drum Point Light. (See chart No. 20.)

*Immediate locality.*—Observed station is on a sandy clay bluff in a cultivated field, about 50 feet above high-water mark, 4 feet south of top edge of bluff, 180 yards east of trees and ravine beyond cultivated field, 60 yards west of trees and ravine beyond cultivated field, 300 yards north of large square chimney on old-fashioned farmhouse, and 250 yards north of large tree to right of farmhouse. Cement monument marking reference station is 13.32 meters S.  $54^{\circ} 30'$  W. of observed station. Another reference station is a nail in the east side of cement in a 6-inch tile pipe 14.64 meters S.  $13^{\circ} 20'$  E. of observed station and on range with Drum Point Light.

*Marks.*—Observed station is center of 5-inch tile pipe with top 8 inches below surface of ground. Reference station is nail in cement on east side of a 6-inch tile pipe with top 6 inches below surface of ground. Another reference station is center point of triangle on standard cement monument with top 9 inches below surface of ground.

*References.*—

	°	'	"	
"Drum Point Light" (N. $13^{\circ} 20'$ W.).....	0	00	00	..... 1 mile.
Left tree on Hog Point.....	81	59	40	..... 1 mile.
Right of bushes at edge of ravine.....	142	00	..	..... 75 yards.
Tree (12 inches diameter).....	164	48	..	..... $\frac{1}{8}$ mile.
REFERENCE STATION (tile).....	179	59	45	..... 14.64 meters.
Tree (20 inches diameter).....	183	25	..	..... $\frac{1}{8}$ mile.
Chimney of Susquehanna farmhouse.....	192	10	..	..... 300 yards.
Large tree.....	199	08	..	..... 250 yards.
REFERENCE STATION (monument).....	247	50	00	..... 13.32 meters.
Right chimney of Fenner Lee house.....	302	45	..	..... $4\frac{1}{2}$ miles.
Center of four-sided roof on Dr. Marsh house.....	307	58	..	..... $2\frac{1}{4}$ miles.
"Catholic Church Cross".....	315	32	00	..... $2\frac{3}{4}$ miles.
Silver tip on tower of Vale house.....	316	15	30	..... 3 miles.
Chimney of Bowen house.....	327	16	..	..... 2 miles.
"Bareda House Cupola".....	348	44	00	..... $1\frac{1}{2}$ miles.

## HOG 2.

*General locality.*—Southern shore of entrance to Patuxent River on Hog Point, about  $1\frac{3}{8}$  miles west-northwest of Cedar Point Light. (See chart No. 20.)

*Immediate locality.*—Observed station is on a sand beach at high-water mark, 30 yards northwest of point of woods, and 200 yards north-northeast of nearest shore of Parsons Creek. Cement monument marking reference station is 33.35 meters S. 42° 22' E. of observed station on a point of high land.

*Marks.*—Observed station is nail set in cement in a 6-inch tile pipe, with top 1 foot below the surface. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Drum Point Light" (N. 60° 44' W.).....	0	00	00	1¼ miles.
"Bareda House Cupola" .....	2	44	50	1½ miles.
Chimney of cabin on opposite shore.....	22	20	..	1½ miles.
Tangent of Little Cove Point.....	71	56	..	3½ miles.
"Cedar Point Light" .....	173	31	40	2 miles.
REFERENCE STATION.....	198	21	50	33.35 meters.
Nail in blaze in pine tree.....	201	03	..	29.58 meters.
Cabin on opposite side of Parsons Creek.....	243	05	..	¾ mile.
Chimney on Susquehanna farmhouse.....	301	04	..	1 mile.
"Methodist Episcopal Church" (Solomons).....	346	16	40	3½ miles.
Steeple of Vale house at Avondale.....	350	55	..	3½ miles.

## PAT.

*General locality.*—Western shore of Chesapeake Bay on Little Cove Point, about 1¾ miles south by west of Cove Point Light. (See chart No. 20.)

*Immediate locality.*—Observed station is on the highest point of a thickly wooded bluff, about 75 feet above high-water mark, 4 yards west of edge of bluff, and 15 yards southwest of extreme point. Cement monument marking reference station is 24.57 meters S. 71° 26' W. of observed station.

*Marks.*—Observed station is a 3-inch round stake set in cement, with top about 4 inches above surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Cedar Point Light" (S. 13° 54' E.).....	0	00	00	4½ miles.
Near piazza post of house.....	14	52	..	4 miles.
REFERENCE STATION.....	85	20	00	24.57 meters.
Spike in blaze in tree (5 inches diameter)...	94	51	..	6.54 meters.
Spike in blaze in tree (5 inches diameter)...	114	10	..	3.42 meters.
Spike in blaze in tree (17 inches diameter)...	138	54	..	12.26 meters.
Spike in blaze in tree (13 inches diameter)...	181	46	..	5.50 meters.
"Cove Point Light".....	203	25	30	1¾ miles.
"Hoopers Island Light".....	327	58	10	10¼ miles.

## WHITE HOUSE (NORTHEAST CHIMNEY).

*General locality.*—Western shore of Chesapeake Bay about 1 mile southwest of Cove Point Light and ¼ mile southwest of Cove Point Landing. (See chart No. 20.)

*Immediate locality.*—Observed station is a chimney standing alone about 300 yards southwest of Cove Point Landing which was formerly the more northeasterly of two chimneys on a house that was destroyed by fire. This chimney is near a white house which was built to replace the destroyed house.

*Marks.*—A chimney standing apart from a small white house owned by Mrs. Hagland.

*References.*—

	°	'	''	
"Cove Point Light" (N. 39° 54' E.).....	0	00	00	1 mile.

## COVE POINT LIGHT.

*General locality.*—Western shore of Chesapeake Bay on Cove Point, which is about 5 miles to northward of entrance to Patuxent River. (See chart No. 20.)

*Immediate locality.*—Observed station is on white tower known as Cove Point Light, which is near white detached dwelling and white detached fog-signal house.

*Marks.*—Observed station is center point of black lantern on white tower.

*References.*—

	°	'	''	
"Cedar Point Light" (S. 7° 16' E.).....	0	00	00	6 miles.

## CEDAR POINT LIGHT.

*General locality.*—Western shore of Chesapeake Bay on Cedar Point,  $3\frac{3}{4}$  miles east-southeast of Drum Point Light and 6 miles south by east of Cove Point Light. (See chart No. 20.)

*Immediate locality.*—Observed station is on a brick dwelling known as Cedar Point Lighthouse.

*Marks.*—Observed station is center point of lantern on Cedar Point Lighthouse.

*Reference.*—

“Cove Point Light” (N.  $7^{\circ}$  16' W.)..... 0 00 00 ..... 6 miles.

## CAIN.

*General locality.*—Western shore of Chesapeake Bay, about  $1\frac{5}{8}$  miles southwest of Cedar Point Light. (See charts Nos. 20 and 21.)

*Immediate locality.*—Observed station is on a bank about 5 feet above high-water mark, about 20 yards northwest of ordinary high water, 5 yards northwest of extreme high water, 100 yards southwest of old-fashioned house among several large trees, and about 250 yards below small wharf and canning house. Cement monument marking reference station is 6.45 meters N.  $16^{\circ}$  56' E. of observed station.

*Marks.*—Observed station is a nail set in cement in a 3-inch pipe with top about 2 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

“Cedar Point Light” (N. $46^{\circ}$ 45' E.).....	0	00	00	.....	$1\frac{5}{8}$ miles.
Steeple on church.....	28	26	..	.....	$9\frac{1}{2}$ miles.
“Hooper Island Light”.....	56	28	40	.....	$7\frac{3}{4}$ miles.
“Point No Point Light”.....	106	05	..	.....	$11\frac{3}{4}$ miles.
Right chimney on Tarleton house.....	135	12	..	.....	$3\frac{1}{4}$ miles.
Near end of peak of 2-story house.....	148	41	..	.....	$1\frac{3}{4}$ miles.
REFERENCE STATION.....	330	10	40	.....	6.45 meters.
Near corner of house.....	335	13	..	.....	100 yards.
Aspen tree in house yard.....	339	35	50	.....	100 yards.

## DESERT.

*General locality.*—Western shore of Chesapeake Bay, about 3 miles south-southwest of Cedar Point Light. (See charts Nos. 20 and 21.)

*Immediate locality.*—Observed station is on sand and grass land, about 25 yards west from ordinary high-water mark, about at level of extreme high-water mark, 40 yards south of a fence, 10 yards east of a fence, 45 yards south of a creek, about 50 yards north of point of pine woods, and about 300 yards east of woods across marsh. Cement monument marking reference station is 5.29 meters N.  $31^{\circ}$  24' W. of observed station.

*Marks.*—Observed station is a 4-inch tile pipe projecting about 2 inches above surface of sand. Reference station is center point of triangle on standard cement monument.

*References.*—

“Cedar Point Light” (N. $34^{\circ}$ 05' E.).....	0	00	00	.....	3 miles.
Steeple on church.....	34	19	40	.....	$10\frac{1}{2}$ miles.
“Hooper Island Light”.....	59	08	40	.....	8 miles.
“Point No Point Light”.....	113	27	30	.....	11 miles.
Near end of peak of roof of Tarleton house... ..	135	09	..	.....	2 miles.
Point of woods.....	146	00	..	.....	50 yards.
Nail in blaze in pine tree (14 inches diameter)	204	30	40	.....	7.62 meters.
REFERENCE STATION.....	204	30	40	.....	5.29 meters.
Chimney on near end of house.....	336	38	..	.....	$\frac{1}{2}$ mile. .
Large square chimney on larger of two houses.....	344	48	..	.....	1 mile.

## HOOPER ISLAND LIGHT.

*General locality.*—Eastern side of Chesapeake Bay off shore about  $3\frac{1}{2}$  miles west of Hooper Island and 4 miles south of Barren Island. (See chart No. 21.)

*Immediate locality.*—Observed station is on Hooper Island Lighthouse.

*Marks.*—Observed station is center point of lantern on conical tower on cylindrical foundation known as Hooper Island Lighthouse.

*References.*—

	°	'	''	
"Cedar Point Light" (N. $65^{\circ} 04'$ W.).....	0	00	00	7 miles.

## FORD.

*General locality.*—Western shore of Chesapeake Bay about  $13\frac{3}{4}$  miles south of entrance to Pine Hill Run and  $7\frac{3}{4}$  miles west of Hooper Island Light. (See chart No. 21.)

*Immediate locality.*—Observed station is in a garden about 25 feet above high water, 32 yards west of edge of bank, 40 yards northeast of near corner of a house, 4 yards north of a wire fence, 33 yards north of a paling fence, and 38 yards south of another paling fence.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Cedar Point Light" (N. $17^{\circ} 01'$ E.).....	0	00	00	$4\frac{1}{2}$ miles.
"Hooper Island Light".....	62	59	20	$7\frac{3}{4}$ miles.
OLD REFERENCE MARK (nail in tile pipe)....	112	28	05	30.26 meters.
"Point No Point Light".....	126	25	50	10 miles.
Nail in damson tree (5 inches diameter)....	203	25	30	4.76 meters.
Chimney of Ford house.....	238	00	..	42 yards.
Peak of barn.....	292	11	..	76 yards.
Near peak of barn.....	331	37	..	2 miles.
Left chimney of house.....	339	20	..	3 miles.
Chimney on end of house.....	345	10	..	$3\frac{1}{2}$ miles.
Near peak of barn.....	353	00	..	4 miles.

## REED.

*General locality.*—Western shore of Chesapeake Bay about  $6\frac{1}{2}$  miles south of Cedar Point Light,  $6\frac{3}{4}$  miles northwest of Point No Point Light, and  $7\frac{5}{8}$  miles west-southwest of Hooper Island Light. (See chart No. 21.)

*Immediate locality.*—Observed station is about 10 feet above high water, 7 yards west of edge of bluff, 65 yards north-northeast of a house, 35 yards south of a fence, 45 yards north of another fence, 45 yards northwest of a large cedar tree on edge of bluff, and 35 yards north of a line of fruit trees. Cement monument marking reference station is on a line of fruit trees  $34.13$  meters S.  $10^{\circ} 11'$  E. of observed station.

*Marks.*—Observed station is a cement block with gray iron core and nail in top. Block was formerly square, but has been broken off by plow. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Cedar Point Light" (N. $2^{\circ} 25'$ E.).....	0	00	00	$6\frac{1}{2}$ miles.
"Hooper Island Light".....	59	18	10	$7\frac{5}{8}$ miles.
"Point No Point Light".....	136	59	10	$6\frac{3}{4}$ miles.
Cedar tree (2 feet diameter).....	140	30	..	45 yards.
Pear tree.....	163	59	..	35 yards.
REFERENCE STATION.....	167	23	40	34.13 meters.
Cherry tree.....	202	11	..	50 yards.
Near corner of house.....	207	16	..	65 yards.
Near peak of roof of house.....	289	35	..	200 yards.
Right chimney of Tarleton house.....	331	54	..	$2\frac{3}{8}$ miles.
Near chimney of $1\frac{1}{2}$ -story house.....	336	36	..	4 miles.
Near peak of Fenwick house.....	347	09	..	$5\frac{1}{2}$ miles.

## POINT AGIN.

*General locality.*—Western shore of Chesapeake Bay about  $4\frac{5}{8}$  miles northwest of Point No Point Light,  $8\frac{3}{4}$  miles south of Cedar Point Light, and  $7\frac{3}{4}$  miles southwest of Hooper Island Light. (See chart No. 21.)

*Immediate locality.*—Observed station is near edge of dense pine woods about 5 feet above high water, 6 yards southwest of edge of bank, 10 yards south of point of curve of bank, 400 yards south of road across marsh, and 425 yards south of mouth of a sand-blocked creek. Cement monument marking reference station is 18.67 meters S.  $49^{\circ} 25'$  W. of observed station.

*Marks.*—Observed station is nail in stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cedar Point Light" (N. $6^{\circ} 25'$ W.).....	0	00	00	..... $8\frac{3}{8}$ miles.
"Hooper Island Light" .....	50	53	45	..... $7\frac{3}{4}$ miles.
"Point No Point Light" .....	141	42	30	..... $4\frac{5}{8}$ miles.
Nail in blaze in pine tree.....	215	51	30	..... 17.72 meters.
REFERENCE STATION.....	235	50	00	..... 18.67 meters.
Nail in blaze in pine tree.....	255	27	00	..... 12.02 meters.
Nail in blaze in pine tree.....	281	58	30	..... 11.74 meters.

## POINT NO POINT.

*General locality.*—Western shore of Chesapeake Bay about one-eighth mile northwest of Point No Point, 2 miles northwest of Point No Point Light, and 2 miles north-northeast of entrance to St. Jerome Creek. (See chart No. 22.)

*Immediate locality.*—Observed station is partly hidden by pine and cedar trees about 10 feet above high water, 50 yards west of shore, 65 yards southwest of point where fence and shore meet, 35 yards south of a fence, 30 yards south of edge of a graveyard, and 250 yards south by east of a house. Standard cement monument marking new reference station is 5.17 meters S.  $77^{\circ} 43'$  W. of observed station. Stone monument marking old reference station is 2.44 meters north of observed station. Stone monument marking old reference station is 1.90 meters east of observed station. Stone monument marking old reference station is 1.29 meters south of observed station.

*Marks.*—Observed station is a stone cone with top 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument. Three other reference stations are square stone pillars with crosses cut in their tops which are just above surface of ground.

*References.*—

	°	'	"	
"Point No Point Light" (S. $61^{\circ} 29'$ E.)....	0	00	00	..... 2 miles.
Nail in blaze in tree.....	7	48	30	..... 106 feet.
Nail in blaze in tree (24 inches diameter)...	118	03	00	..... 30.00 meters.
Chimney of house.....	146	17	..	..... 250 yards.
Near peak of roof on house showing through trees.....	184	06	..	..... $\frac{1}{2}$ mile.
Tangent to fence and graveyard.....	225	00	..	..... 30 yards.
Two nails in blaze in cedar trees (22 inches diameter).....	251	50	00	..... 11.40 meters.
Junction of fence and water.....	279	00	..	..... 65 yards.
NEW REFERENCE STATION (cement monument).....	139	11	30	..... 5.17 meters.
OLD REFERENCE STATION (stone monument) North .....				..... 2.44 meters.
OLD REFERENCE STATION (stone monument) East .....				..... 1.90 meters.
OLD REFERENCE STATION (stone monument) South .....				..... 1.29 meters.

## POINT NO POINT LIGHT.

*General locality.*—Western side of Chesapeake Bay off shore about  $1\frac{7}{8}$  miles southeast of Point No Point and  $6\frac{3}{8}$  miles north-northeast of Point Lookout. (See chart No. 22.)

*Immediate locality.*—Observed station is on Point No Point Lighthouse.

*Marks.*—Observed station is center point of lantern on brick dwelling on a cylindrical foundation known as Point No Point Lighthouse.

*References.*—  
 "Cedar Point Light" (N. 19° 35' W.)..... 0 00 00 ..... 12 miles.

ST. JEROME.

*General locality.*—Western shore of Chesapeake Bay on St. Jerome Point at north side of entrance to St. Jerome Creek about 2½ miles west-southwest of Point No Point Light. (See chart No. 22.)

*Immediate locality.*—Observed station is about 3 feet above high water, 6 yards northwest by west of shore, 75 yards south of a large pond, and 120 yards north of a house. Cement monument marking reference station is 19.57 meters N. 44° 49' W. of observed station.

*Marks.*—Observed station is nail in stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—  
 "Point No Point Light" (N. 78° 16' E.)..... 0 00 00 ..... 2½ miles.  
 Left tangent of woods..... 89 42 .. ..... 1½ miles.  
 Near corner of house..... 142 45 .. ..... 119 yards.  
 Near chimney of house..... 165 30 .. ..... ½ mile.  
 Chimney of oyster house..... 173 56 .. ..... ½ mile.  
 "St. Michael Catholic Church Spire"..... 194 12 20 ..... 1½ miles.  
 Right chimney of house..... 217 16 .. ..... 1½ miles.  
 REFERENCE STATION..... 236 55 25 ..... 19.57 meters.  
 Large chimney of house..... 248 03 .. ..... 150 yards.  
 Chimney outside of house..... 282 50 .. ..... ½ mile.  
 Right tangent of woods on Point No Point... 317 21 .. ..... 1½ miles.

ST. MICHAEL CATHOLIC CHURCH SPIRE.

*General locality.*—Western shore of Chesapeake Bay about one-half mile west of western and inner shore of St. Jerome Creek. (See chart No. 22.)

*Immediate locality.*—Observed station is on Catholic Church located on the east side of the main road running to Point Lookout near the village called Ridge or Friendship.

*Marks.*—Observed station is center point of spire on church.

*References.*—None necessary.

POINT LOOK-IN.

*General locality.*—Western shore of Chesapeake Bay on Point Look-in about 1¾ miles south-south-east of entrance to St. Jerome Creek and 3 miles southwest of Point No Point Light. (See chart No. 22.)

*Immediate locality.*—Observed station is on sand dune about 3 feet above high water, 8 yards west of shore, 4 yards east of slough, 56 yards southeast of point of woods, and 90 yards north of another point of woods. Cement monument marking reference station is in woods across slough 44.04 meters N. 51° 59' W. of observed station.

*Marks.*—Observed station is nail in stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—  
 "Point No Point Light" (N. 47° 51' E.)..... 0 00 00 ..... 3 miles.  
 "Holland Island Bar Light"..... 51 24 10 ..... 13 miles.  
 Left tangent of woods on Point Lookout..... 122 16 .. ..... 3¾ miles.  
 Point of woods..... 135 52 .. ..... 90 yards.  
 Nail in blaze in oak tree (8 inches diameter)... 250 40 30 ..... 36.68 meters.  
 REFERENCE STATION..... 260 09 45 ..... 44.04 meters.  
 Nail in blaze in oak tree (14 inches diameter). 262 25 30 ..... 41.08 meters.  
 Nail in blaze in cedar tree (5 inches diameter). 271 36 00 ..... 46.78 meters.  
 Near peak of roof on old barn..... 271 48 .. ..... ¾ mile.  
 Point of woods..... 272 26 .. ..... 56 yards.  
 Near chimney of small house..... 286 35 .. ..... 7⁄8 mile.  
 Two chimneys of old house..... 291 29 .. ..... 2½ miles.  
 Near peak of roof of house on point..... 297 37 .. ..... 1½ miles.  
 Right tangent of woods on Point No Point... 322 42 .. ..... 2¾ miles.

## POTOMAC.

*General locality.*—Western shore of Chesapeake Bay about three-fourths mile north of extreme end of Point Lookout and one-half mile north-northeast of Point Lookout Light. (See charts Nos. 22 and 23.)

*Immediate locality.*—Observed station is at upper end of pine woods about 2 feet above high water, 12 yards west by south of shore, 15 yards east-southeast of woods and edge of marsh, and 100 yards north of large pine trees. Cement monument marking reference station is 10.72 meters S.  $23^{\circ} 34'$  W. of observed station.

*Marks.*—Observed station is nail in stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Point No Point Light" (N. $15^{\circ} 30'$ E.).....	0	00	00	5 $\frac{7}{8}$ miles.
"Holland Island Bar Light".....	67	11	30	12 $\frac{3}{4}$ miles.
"Smith Point Light".....	131	41	30	13 $\frac{1}{2}$ miles.
Nail in blaze in pine tree (3 inches diameter).	160	10	40	6.56 meters.
REFERENCE STATION.....	188	04	10	10.72 meters.
Chimney of house.....	230	58	..	7 miles.
Nail in blaze in pine tree (3 inches diameter).	260	21	10	10.62 meters.
First tree on Cornfield Point.....	268	48	..	2 miles.
Nail in blaze in pine tree (3 inches diameter).	323	22	00	6.56 meters.
First tree on Point Look-in.....	334	26	..	3 $\frac{1}{2}$ miles.
First tree on Point No Point.....	343	30	..	6 $\frac{1}{4}$ miles.
"Hooper Island Light".....	359	04	30	14 $\frac{1}{4}$ miles.

## POINT LOOKOUT LIGHT.

*General locality.*—Western side of Chesapeake Bay on Point Lookout at northern side of entrance to Potomac River. (See charts Nos. 22 and 23.)

*Immediate locality.*—Observed station is on Point Lookout Lighthouse, which is a dwelling on shore near a fog-bell tower.

*Marks.*—Observed station is center point of a lantern on a dwelling known as Point Lookout Lighthouse.

*References.*—

	°	'	"	
"Smith Point Light" (S. $34^{\circ} 37'$ E.).....	0	00	00	13 miles.

## HALL.

*General locality.*—Northeastern shore of Potomac River about five-eighths mile northwest of Cornfield Point and 2 $\frac{3}{4}$  miles northwest of Point Lookout. (See chart No. 22.)

*Immediate locality.*—Observed station is about 5 feet above high water, 7 yards east of edge of bank, 6 yards south-southeast of a paling fence, and 150 yards south of a large house with two-story porch. Cement monument marking reference station is 17.82 meters N.  $45^{\circ} 59'$  E. of observed station. Cemented tile pipe marking another reference station is 23.24 meters N.  $47^{\circ} 55'$  E. of observed station.

*Marks.*—Observed station is nail in 4-inch cemented tile pipe with top flush with surface of ground. One reference station is center point of triangle on standard cement monument. The other reference station is a tile pipe set in cement with top flush with surface of ground.

*References.*—

	°	'	"	
"Day" (N. $46^{\circ} 23'$ W.).....	0	00	00	4 $\frac{1}{2}$ miles.
Near peak of roof of Hall house.....	40	51	30	150 yards.
REFERENCE STATION (cement monument)...	92	22	50	17.82 meters.
REFERENCE STATION (tile).....	94	17	40	23.24 meters.
Chimney of grain house.....	96	24	..	70 yards.



HALL HOUSE (MIDDLE CHIMNEY).

*General locality.*—Northeastern shore of Potomac River about five-eighths mile northwest of Cornfield Point and 2¼ miles northwest of Point Lookout. (See chart No. 22.)

*Immediate locality.*—Observed station is on a large wooden house about 150 yards inshore from the bank of river.

*Marks.*—Observed station is middle point of middle chimney on large house belonging to Mr. Hall.

*References.*—None necessary.

SIG.

*General locality.*—Northeastern shore of Potomac River on eastern side of Calvert Bay on Gray Point. (See charts Nos. 22 and 24.)

*Immediate locality.*—Observed station is in edge of a scrub growth about 15 feet above high water, and 3 feet east of edge of bank. Cement monument marking reference station is 12.75 meters N. 58° 17' E. of observed station.

*Marks.*—Observed station is nail in northern one of two stumps 2½ inches in diameter. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Day" (N. 64° 13' W.)	0	00	00	1¾ miles.
Tall pine tree on Kitts Point	2	18	..	1¾ miles.
Chimney of house on Kitts Point	4	11	..	1½ miles.
"Red Beacon"	9	07	40	1 mile.
Large chimney of Lewis house	28	06	..	1¼ miles.
Left chimney of Collison house	45	38	..	¾ mile.
Near peak of house	60	29	..	1¾ miles.
Nail in blaze in holly tree (3 inches diameter)	98	16	30	4.57 meters.
REFERENCE STATION	122	29	40	12.75 meters.
Nail in blaze in gum tree (3 inches diameter)	138	28	40	5.16 meters.
Nail in blaze in pine tree (4 inches diameter)	196	52	30	6.75 meters.
Chimney of 1½-story house	353	44	..	4¾ miles.
Near peak of roof of large house	357	54	..	4¾ miles.

SMITH POINT LIGHT.

*General locality.*—Western side of Chesapeake Bay on southern side of entrance to Potomac River offshore about 3 miles east of Smith Point. (See chart No. 23.)

*Immediate locality.*—Observed station is on a square brick tower on an octagonal brick building with a cylindrical foundation.

*Marks.*—Observed station is center point of lantern on structure known as Smith Point Lighthouse.

*References.*—

	°	'	"	
"Point Lookout Light" (N. 34° 32' W.)	0	00	00	13 miles.

RED BEACON (1908).

*General locality.*—Northeastern side of Potomac River offshore in the mouth of Smiths Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on a triangular pile structure.

*Marks.*—Observed station is center point of a small lantern on pile structure known as Smiths Creek Red Beacon.

*References.*—None necessary.

## DAGO.

*General locality.*—Eastern side of entrance to Smith Creek about one-half mile south-southwest of Millers Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is in a small garden about 6 feet above high water, 40 yards north of an old hotel, 65 yards east of shore, and 165 yards southeast of a lumber wharf. Cement monument marking reference station is on a fence line 29.41 meters N. 78° 13' W. of observed station.

*Marks.*—Observed station is tile pipe set in cement with top broken off about 9 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"In" (N. 1° 39' E.).....	0	00	00	5/8 mile.
"Pipe" (taller stack of canning house).....	25	21	30	1/2 mile.
Near corner of house.....	29	26	..	160 yards.
Near corner of barn.....	29	26	..	100 yards.
Northeast corner of old hotel.....	165	22	..	51.97 meters.
Northwest corner of old hotel.....	218	21	..	37.67 meters.
Tree (8 inches diameter).....	261	55	..	42 yards.
REFERENCE STATION.....	280	07	30	29.41 meters.
Chimney of house across creek.....	307	19	..	5/8 mile.

## TAB.

*General locality.*—Western shore of Smith Creek on second prominent point from entrance to creek about three-fourths mile west-southwest of Millers Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is about 5 feet above high water, 2 yards north of edge of bank, 5 feet south of edge of bank, 14 yards southwest of a low point, 16 yards north of another low point, 31 yards southeast of still another point, and 58 yards east of a wild-cherry tree. Cement monument marking reference station is 14.53 meters S. 61° 14' W. of observed station. Reference tile pipe filled with cement is 47.93 meters S. 61° 25' W. of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe filled with cement with top flush with surface of ground. One reference station is center point of triangle on standard cement monument. Another reference station is center of cemented tile pipe flush with surface of ground.

*References.*—

	°	'	''	
"In" (N. 48° 08' E.).....	0	00	00	5/8 mile.
Near peak of roof of Dunbar house.....	14	00	..	1 1/4 miles.
Gilt ball on center of roof of building.....	16	41	..	2 3/4 miles.
"Pipe" (taller stack of canning house).....	20	20	40	3/4 mile.
Left chimney of house with ell.....	36	27	..	1/2 mile.
Left chimney of house.....	55	07	..	1/2 mile.
Near peak of roof of old hotel.....	69	41	..	1/2 mile.
"Red Beacon".....	105	29	10	5/8 mile.
Right one of two cedar trees.....	150	24	..	55 yards.
REFERENCE STATION (monument).....	193	06	10	14.53 meters.
REFERENCE STATION (tile).....	193	17	00	47.93 meters.
Wild-cherry tree.....	235	22	..	31 yards.
Near peak of large house.....	300	01	..	1/4 mile.

## PIER.

*General locality.*—Eastern shore of Smith Creek at steamboat landing known as Millers Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is on snubbing post on north corner of Millers Wharf, 1.46 meters from northeast side of wharf and 0.79 meters from northwest side.

*Marks.*—None mark point where spindle was fastened to snubbing post.

*References.*—None necessary.

PIPE.

*General locality.*—Eastern shore of Smith Creek at Millers Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is on a building used for packing oysters and tomatoes near wharf at Wynne.

*Marks.*—Observed station is center of the taller and more southerly of two smoke pipes on canning house at Millers Wharf.

*References.*—None necessary.

ENOUGH.

*General locality.*—Southeastern shore of northeastern branch of Smith Creek about one-fourth mile east-northeast of Millers Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is on a lightly wooded bank about 12 feet above high water, 5 yards back from edge of bank, 40 yards southwest of a house, and 45 yards northwest of a barn. Cement monument marking reference station is near fence, 19.75 meters N. 19° 51' E. of observed station.

*Marks.*—Observed station is hole in top of a 3-inch square stub with top about 3 inches above surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"In" (N. 86° 09' W.).....	0	00	00	½ mile.
Chimney of house.....	105	20	..	½ mile.
REFERENCE STATION.....	106	00	00	19.75 meters.
Near gable of Logan Dunbar house.....	118	17	..	40 yards.
West post of small gate.....	139	45	..	28 yards.
North gable of barn.....	215	04	..	45 yards.
North chimney of Fred Dunbar house.....	234	26	..	¼ mile.
East chimney of 2-story house.....	252	32	..	½ mile.
North gable of store at Wynne.....	329	54	..	¼ mile.
"Pipe" (taller stack of canning house).....	330	33	..	¼ mile.

DRUM.

*General locality.*—Northwestern shore of northeastern branch of Smith Creek about ¼ mile north-northeast of Millers Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is on marsh land on a point opposite Millers Wharf about 21 yards north of shore, 22 yards west of shore, 25 yards northeast of shore, and 35 yards southeast of a cultivated field with several cedar trees along its edge.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"In" (S. 77° 10' W.).....	0	00	00	¼ mile.
Large chimney of house.....	151	20	..	¼ mile.
North gable of tobacco barn.....	152	13	..	¾ mile.
Flagstaff on Dunbar pavilion.....	180	14	..	¼ mile.
North gable of house.....	195	00	..	½ mile.
Left chimney of 2½-story house.....	212	55	..	¼ mile.
Left chimney of Moore house.....	215	23	..	¼ mile.
North gable of stable.....	223	36	..	¼ mile.
Left chimney of 2½-story house.....	235	05	..	¾ mile.
Chimney of 1½-story house.....	246	10	..	½ mile.
Cupola of barn.....	272	21	..	¼ mile.
"Pipe" (taller stack of canning house).....	299	56	20	¾ mile.
West gable of old hotel.....	307	31	..	½ mile.

## IN.

*General locality.*—Northern shore of Smith Creek on a point between two main branches of creek about one-fourth mile northwest of Millers Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is on a grass point which is surrounded by small boulders and cobble stones visible at low water about 2 feet above high water, 2 yards east of side of point, 3 yards northwest of side of point, 10 yards north-northeast of extreme end of point, and near three trees. Cement monument marking reference station is 9.32 meters N.  $7^{\circ} 09'$  E. of observed station.

*Marks.*—Observed station is a 2-inch square stick in center of a 4-inch tile pipe filled with and set in cement with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Dago" (S. $1^{\circ} 40'$ W.).....	0	00	00	..... $\frac{5}{8}$ mile.
Right peak of roof of old hotel.....	1	30	..	..... $\frac{5}{8}$ mile.
Left tangent of point of land.....	28	39	..	..... $\frac{3}{8}$ mile.
Right chimney of large house.....	64	15	..	..... $\frac{1}{2}$ mile.
Nail in blaze in cedar tree (7 inches diameter). 160	37	00	.....	2.03 meters.
REFERENCE STATION.....	185	28	45	..... 9.32 meters.
Nail in blaze in cedar tree (14 inches diameter).....	204	13	40	..... 5.33 meters.
Nail in blaze in cedar tree (20 inches diameter).....	213	09	00	..... 11.24 meters.
Cedar tree (24 inches diameter).....	242	18	..	..... 40 yards.
Right peak of Dunbar house.....	255	36	..	..... $\frac{5}{8}$ mile.
Front peak of large house.....	268	57	..	..... $\frac{1}{2}$ mile.
"Pipe" (taller stack of canning house).....	300	57	00	..... $\frac{1}{4}$ mile.
Near peak of roof of house.....	340	21	30	..... $\frac{3}{8}$ mile.

## OAK.

*General locality.*—Western shore of Smith Creek at entrance to northwestern branch of creek about one-half mile west of Millers Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is in a pasture about 6 feet above high water, 15 yards south-southeast of center of a clump of trees, 20 yards south of shore, 28 yards north of shore, and 45 yards west of extreme end of point. Cement monument marking reference station is 14.87 meters N.  $53^{\circ} 12'$  W. of observed station.

*Marks.*—Observed station is a square hole in cement in 4-inch tile pipe set in cement. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"In" (N. $88^{\circ} 51'$ E.).....	0	00	00	..... $\frac{1}{4}$ mile.
Front peak of house.....	1	04	..	..... $\frac{3}{8}$ mile.
"Pipe" (taller stack of canning house).....	15	42	30	..... $\frac{1}{2}$ mile.
Near peak of roof of small 2-story house.....	40	58	..	..... $\frac{1}{2}$ mile.
Middle chimney of T-shaped house.....	58	33	..	..... $\frac{5}{8}$ mile.
Near corner of old hotel.....	67	52	..	..... $\frac{5}{8}$ mile.
"Red Beacon".....	82	15	10	..... 1 mile.
Near peak of roof of large barn.....	140	38	..	..... $\frac{1}{4}$ mile.
Large cherry tree.....	172	38	..	..... 157 yards.
REFERENCE STATION.....	217	56	45	..... 14.87 meters.
Nail in blaze in oak stump (20 inches diameter).....	219	57	50	..... 23.14 meters.
Nail in blaze in hickory tree (8 inches diameter).....	222	51	10	..... 14.58 meters.
Nail in blaze in double oak tree (8 inches diameter).....	248	19	00	..... 13.69 meters.

References—Continued.

Nail in blaze in hickory tree (4 inches diameter).....	267	01	00	.....	7.37 meters.
"Flagpole" (on Jutland farmhouse).....	237	06	..	.....	5/8 mile.
Blaze in oak stump (30 inches diameter)....	340	26	..	.....	2.04 meters.

OUT.

*General locality.*—Eastern shore of northwestern branch of Smith Creek about one-eighth mile north of the main body of Smith Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on a sand and marsh point about 1 foot above high water, 6 yards north of shore, 7 yards southeast of shore, 24 yards east of extreme end of point, and 7 yards west of a cultivated field. Cement monument marking reference station is 6.96 meters N. 82° 50' E. of observed station.

*Marks.*—Observed station is center of a 2-inch pine stub set in cement. Reference station is center point of triangle on standard cement monument.

References.—

	o	'	"		
"Red Beacon" (S. 1° 55' W.).....	0	00	00	.....	1 1/8 miles.
Tangent of Kitts Point.....	20	00	..	.....	3/8 mile.
Left chimney of 2-story house.....	49	34	..	.....	1/2 mile.
East peak of barn.....	53	33	..	.....	1/2 mile.
Chimney of small house on opposite shore... 141	20	..	.....	1 mile.	
Windmill.....	156	17	..	.....	3/8 mile.
Nail in blaze in pine tree.....	203	08	00	.....	8.17 meters.
REFERENCE STATION.....	260	55	15	.....	6.96 meters.
Nail in blaze in holly tree.....	293	38	55	.....	6.27 meters.
Between two chimneys of Morris house.....	345	00	..	.....	1/2 mile.
Chimney of house near old hotel.....	351	11	..	.....	3/4 mile.
West gable of old hotel.....	353	02	..	.....	3/4 mile.

STUNG.

*General locality.*—Southwestern shore of northwestern branch of Smith Creek about three-fourths mile northwest of Millers Wharf and one-fourth mile northwest of main body of Smith Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on solid ground on a point making out just above a small cove about 2 feet above high water, 7 yards south of shore, 9 yards northwest of shore, 15 yards southwest of extreme end of point, and 45 yards from a growth of young pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	o	'	"		
"Flagpole" (N. 22° 40' E.).....	0	00	00	.....	3/8 mile.
Windmill.....	0	36	..	.....	3/8 mile.
Left chimney of 2 1/2-story house.....	83	31	..	.....	1 mile.
"Pipe" (taller stack of canning house).....	99	05	20	.....	3/4 mile.
Left chimney of house at Wynne.....	102	54	..	.....	3/4 mile.
Left chimney of Morris house.....	122	46	..	.....	3/4 mile.
Left chimney of large house.....	127	01	..	.....	3/8 mile.
Nail in blaze in oak tree (5 inches diameter). 184	40	30	.....	6.08 meters.	

JUTLAND.

*General locality.*—Northeastern shore of northwestern branch of Smith Creek about one-half mile north of main body of Smith Creek on a point of land between two coves. (See chart No. 24.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 2 yards north of shore, 4 yards south of shore, 5 yards east of extreme end of point, and 11 yards from bank with large cedar trees on its edge with a peach orchard back of them. Cement monument marking reference station is 10.36 meters N. 86° 27' E. of observed station.

*Marks.*—Observed station is nail in stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Out" (S. 29° 51' E.)	0	00	00	¼ mile.
Two chimneys of Morris house	10	00	..	¾ mile.
Chimney of house near old hotel	16	12	..	1 mile.
West gable of old hotel	17	17	..	1 mile.
"Red Beacon"	25	01	10	1 ½ miles.
East gable of barn	56	18	..	¾ mile.
Southeast gable of small house	139	54	..	¾ mile.
Chimney of small house	169	12	..	¾ mile.
Windmill	201	07	..	¾ mile.
"Flagpole" (on Jutland farmhouse)	204	12	55	¾ mile.
REFERENCE STATION	296	18	35	10.36 meters.
Nail in blaze in cedar tree	299	35	00	11.65 meters.

#### FLAT.

*General locality.*—Western shore of northwestern branch of Smith Creek about three-fourths mile north-northwest of main body of Smith Creek on a point of land between two coves. (See chart No. 24.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 5 yards south of shore, 7 yards north of shore, 10 yards west of extreme end of point, and 12 yards from a field 5 feet higher than marsh. Cement monument marking reference station is 10.41 meters S. 65° 00' W. of observed station.

*Marks.*—Observed station is a 2-inch square pine stub with top about 3 inches above surface of marsh. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Jutland" (S. 50° 36' E.)	0	00	00	¼ mile.
"Pipe" (taller stack of canning house)	5	10	..	1 mile.
Between two chimneys on Morris house	22	23	..	1 mile.
Chimney of house near old hotel	29	05	..	1 ¼ miles.
West gable of old hotel	29	44	..	1 ¼ miles.
Blaze in pine tree	107	37	30	14.12 meters.
REFERENCE STATION	115	35	40	10.41 meters.
Chimney of house	140	32	..	¾ mile.
Chimney of small house	200	41	..	¾ mile.
Chimney of house	226	33	..	½ mile.
"Flagpole" (on Jutland farmhouse)	310	56	40	¾ mile.

#### FLAGPOLE.

*General locality.*—Northeastern shore of northwestern branch of Smith Creek, on a house about three-fourths mile north-northwest of main body of Smith Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on east gable on the front of a house on Jutland farm.

*Marks.*—Observed station is flagpole on east gable on the front of residence on Jutland farm.

*References.*—None necessary.

#### RAN 2.

*General locality.*—Eastern shore of northwestern branch of Smith Creek on a point opposite a small cove and about seven-eighths mile north-northwest of main body of Smith Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on a narrow sand and marsh point about 1 foot above high water, 3 yards north of shore, 3 yards south of shore, 11 yards east of extreme end of point and in front of a bank 8 or 9 feet high covered with honeysuckle and several large trees. Cement monument marking reference station is about 10 feet above high water 13.74 meters N. 87° 50' E. of observed station.

*Marks.*—Observed station is hole in stub with top about 6 inches above surface of marsh. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Jutland" (S. 25° 04' E.).....	0	00	00	3½ mile.
Chimney of Morris house.....	3	33	..	1½ miles.
Large chimney of house near old hotel.....	8	29	..	1¾ miles.
West peak of old hotel.....	9	13	..	1¾ miles.
"Red Beacon".....	12	45	10	1½ miles.
East peak of barn.....	93	05	..	½ mile.
Chimney of small house.....	139	10	..	250 yards.
Small blazed apple tree.....	285	00	..	18.88 meters.
REFERENCE STATION.....	292	54	00	13.74 meters.
"Flagpole" (on Jutland farmhouse).....	333	59	10	½ mile.
Windmill.....	342	24	..	½ mile.

DAY.

*General locality.*—Northeastern shore of Potomac River about one-fourth mile northwest of Kitts Point between entrances to St. Marys River and Smith Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on small island of solid ground on a marsh point about 5 feet above high water, 3 yards east of shore, 20 yards northeast of shore, 18 yards north of extreme end of point, and 150 yards south of a large lone dead tree.

*Marks.*—Observed station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Labor" (N. 89° 37' W.).....	0	00	00	2¾ miles.
Near peak of roof of 2½-story house.....	22	23	..	3 miles.
Near peak of roof of brick house.....	48	44	30	3½ miles.
Tall pine on Kitts Point.....	73	48	20	150 yards.
Chimney of old house.....	118	15	..	½ mile.
"Pipe" (taller stack of canning house).....	146	59	00	1¾ miles.
Near peak of roof of tobacco house.....	159	51	..	½ mile.
Near peak of roof between two chimneys.....	181	07	20	¼ mile.
Chimney of Hall house.....	222	41	..	4½ miles.

LABOR.

*General locality.*—Northeastern shore of Potomac River on western side of entrance to St. Marys River on a small island forming the southeastern end of St. George Island. (See chart No. 24.)

*Immediate locality.*—Observed station is on a marsh grass point about on level with high water, 5 yards north of side of point, 5 yards west of side of point, 8 yards northwest of extreme end of point, 65 yards southwest of another point, 65 yards north-northeast of still another point, and 125 yards southeast of a small pine woods across slough. Cement monument marking reference station is 13.56 meters N. 64° 06' W. of observed station.

*Marks.*—Observed station is nail in stub with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Hall" (S. 61° 00' E.).....	0	00	00	6½ miles.
Center of railing around top of Passis house... 117	41	..	..	4¾ miles.
Canning-house stack.....	119	24	..	3½ miles.
Left tangent of woods on St. George Island... 133	31	..	..	½ mile.
Inside corner of Poe house on St. George Island. 150	11	..	..	½ mile.
REFERENCE STATION.....	176	54	00	13.56 meters.
Near peak of roof of Crowder house.....	208	19	..	1 mile.
Center of left tower on Kennedy house.....	261	38	..	4 miles.
Chimney of Taylor house.....	274	58	..	4 miles.
Right chimney of old house.....	331	29	40	2½ miles.

## LYNCH POINT 3 (VIRGINIA).

*General locality.*—Southwestern shore of Potomac River about three-eighths mile northwest of Lynch Point on northwestern side of entrance to Yeocomico River. (See progress map.)

*Immediate locality.*—Observed station is on sand beach near edge of grass about on level with high water, 50 yards southeast of edge of dense pine woods and a wire fence, 90 yards northwest of another dense pine woods, and northeast of a slough with about a dozen trees on opposite side. One reference tile set in cement is at edge of woods 55.68 meters on a continuation inshore of line from Point Lookout Light. Another reference tile set in cement is in woods 85.53 meters in same direction as the nearer reference station.

*Marks.*—Observed station is center one of four nails in top of a post 5 inches below surface of ground. Reference stations are tiles set in cement with tops about 2 inches above surface of ground.

*References.*—

	°	'	"	
"Piney Point Light" (N. 4° 02' W.).....	0	00	00	6 miles.
Steeple on church.....	29	29	..	5¼ miles.
Tall pine tree on Kitts Point.....	58	30	..	6¾ miles.
"St. Michaels Catholic Church Spire".....	63	41	30	9¾ miles.
White tower on building.....	80	54	..	85½ miles.
Tangent of woods.....	142	48	..	3½ miles.
Chimney of house.....	208	48	..	1¾ miles.
REFERENCE STATION (tile).....	278	00	30	55.68 meters.
REFERENCE STATION (tile).....	278	00	30	85.53 meters.
Near peak of roof between two chimneys....	357	13	..	7 miles.

## BETWEEN.

*General locality.*—Eastern shore of St. Marys River about 1¼ miles northwest of Kitts Point at entrance to river. (See chart No. 24.)

*Immediate locality.*—Observed station is in a pasture about 3 feet above high water, 5 yards northeast of edge of bank, 5 yards southeast of a rail fence, 12 yards southwest of shore of a creek, and 7 to 10 yards west to northwest of persimmon trees. Cement monument marking reference station is at edge of high land 14.42 meters S. 56° 22' E. of observed station.

*Marks.*—Observed station is nail in stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Day" (S. 27° 01' E.).....	0	00	00	1½ miles.
Chimney of house at edge of woods.....	90	45	..	2½ miles.
Chimney of house beyond middle of woods..	96	16	..	2¼ miles.
Chimney of large house with ell.....	103	50	..	2¾ miles.
Chimney of 2½-story house.....	126	32	..	3½ miles.
"Piney Point Light".....	128	35	30	5½ miles.
Near peak of roof of brick house between two chimneys.....	160	32	..	2¼ miles.
Nail in blaze in persimmon tree (4 inches diameter).....	172	47	00	5.87 meters.
"Water Tower" (near Portobello).....	188	38	30	4 miles.
Nail in blaze in persimmon tree (4 inches diameter).....	200	28	20	6.94 meters.
Nail in blaze in persimmon tree (5 inches diameter).....	306	27	10	9.34 meters.
REFERENCE STATION.....	330	39	00	14.42 meters.
Tall pine on Kitts Point.....	358	55	..	1½ miles.



## FORT.

*General locality.*—Eastern shore of St. Marys River on Fort Point about  $2\frac{1}{4}$  miles north of entrance to river and seven-eighths of a mile south of Priests Point. (See chart No. 24.)

*Immediate locality.*—Observed station is in a cultivated field about 15 feet above high water, 16 yards east of edge of bank, 70 yards west by south of a house, and 34 yards south-southwest of a corner of a fence. Cement monument marking reference station is 32.17 meters N.  $22^{\circ} 20'$  E. of observed station.

*Marks.*—Observed station is nail in stub with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	/	//	
"Rod" (N. $10^{\circ} 16'$ W.) . . . . .	0	00	00	7 $\frac{1}{8}$ mile.
REFERENCE STATION . . . . .	32	35	55	32.17 meters.
Near chimney of Taylor house . . . . .	78	44	..	70 yards.
Chimney of small building . . . . .	106	38	..	250 yards.
Chimney of $2\frac{1}{2}$ -story house with ell . . . . .	246	30	..	$2\frac{1}{8}$ miles.
Canning-house stack . . . . .	314	03	..	$2\frac{1}{2}$ miles.
Near peak of roof of stable . . . . .	342	24	..	$2\frac{1}{8}$ miles.
"Water tower" (near Portobello) . . . . .	351	03	10	$2\frac{3}{4}$ miles.

## POND.

*General locality.*—Western shore of St. Marys River on Pond Point about seven-eighths of a mile north-northeast of Cherryfield Point at entrance to St. George River. (See chart No. 24.)

*Immediate locality.*—Observed station is on marshland at edge of woods about on level with high water, 6 yards west of edge of marsh, 7 yards south of edge of marsh, 25 yards northeast of edge of marsh, and 20 to 30 yards north and east of pine trees. Cement monument marking reference station is 29.59 meters S.  $77^{\circ} 29'$  W. of observed station.

*Marks.*—Observed station is nail in stub. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	/	//	
"Rod" (N. $52^{\circ} 55'$ E.) . . . . .	0	00	00	$1\frac{1}{4}$ miles.
"St. Inigoes Church Cross" . . . . .	15	18	00	2 miles.
Chimney of Taylor house . . . . .	41	46	..	$1\frac{1}{4}$ miles.
Tall pine on Kitts Point . . . . .	85	08	40	3 miles.
Tangent of Cherryfield Point . . . . .	138	25	..	$\frac{3}{4}$ mile.
Nail in blaze in pine tree (12 inches diameter) . . . . .	177	23	50	22.03 meters.
REFERENCE STATION . . . . .	204	33	30	29.59 meters.
Nail in blaze in pine tree (20 inches diameter) . . . . .	214	12	00	25.53 meters.
Nail in blaze in pine tree (18 inches diameter) . . . . .	253	46	30	17.40 meters.
Canning-house stack . . . . .	276	48	..	$1\frac{1}{2}$ miles.
"Water Tower" (near Portobello) . . . . .	311	50	40	$2\frac{1}{2}$ miles.
"Calvert Monument" . . . . .	328	02	20	$3\frac{1}{2}$ miles.
Near peak of house on Bromes Wharf . . . . .	328	46	..	$3\frac{1}{2}$ miles.
Center of left tower on Kennedy house . . . . .	344	45	..	$1\frac{1}{8}$ miles.

## ROD (PRIESTS HOUSE).

*General locality.*—Eastern shore of St. Marys River on Priests Point at south side of entrance to St. Inigoes Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on a small cupola-shaped centerpiece, or ventilator, on middle of roof of a summer residence of the order of Jesuits, sometimes called Priests Villa.

*Marks.*—Observed station is a lightning rod on the center ventilator on middle of roof of Priests Villa.

*References.*—None necessary.

## THOMPSON.

*General locality.*—Western shore of St. Marys River about three-eighths of a mile east-northeast of entrance to Carthagena Creek, five-eighths of a mile southwest of Windmill Point, and 1 mile north of Pond Point. (See chart No. 24.)

*Immediate locality.*—Observed station is in a cultivated field about 20 feet above high water, 5 yards southwest of edge of bank, 6 yards northeast of edge of bank, and 7 yards west of extreme edge of bank. Cement monument marking reference station is buried with top about 10 inches below surface of ground 25.00 meters N.  $36^{\circ} 53'$  W. of observed station.

*Marks.*—Observed station is center of a 3-inch square pine box with top flush with surface of ground. Reference station is center point of triangle on standard cement monument with top about 10 inches below surface of ground.

*References.*—

	°	'	"	
"Pond" (S. $2^{\circ} 06'$ E.) . . . . .	0	00	00	1 mile.
Nail in large dying pine tree . . . . .	18	38	00	7.60 meters.
Chimney outside of small house . . . . .	31	52	..	$\frac{3}{4}$ mile.
Left peak of roof between two chimneys . . . . .	38	38	..	$\frac{3}{4}$ mile.
REFERENCE STATION . . . . .	145	13	10	25.00 meters.
Right peak of roof of house . . . . .	161	05	..	$\frac{1}{4}$ mile.
Right piazza post of Kennedy house . . . . .	251	57	..	$1\frac{1}{4}$ miles.
Left chimney of Raley house . . . . .	274	17	..	$1\frac{1}{2}$ miles.
"St. Inigoes Church Cross" . . . . .	280	17	10	2 miles.
"Rod" (on Priests Villa) . . . . .	286	52	50	$1\frac{1}{8}$ miles.
Near peak of roof of Taylor house . . . . .	314	17	..	$1\frac{7}{8}$ miles.

## RALEY.

*General locality.*—Southeastern side of entrance to St. Inigoes Creek about one-half mile northeast of Priests Point and seven-eighths of a mile east-southeast of Windmill Point. (See chart No. 24.)

*Immediate locality.*—Observed station is in a cultivated field about 15 feet above high water, 40 yards southeast of edge of bank, 40 yards west of edge of ravine, and 135 yards north of a barn.

*Marks.*—Observed station is center point of triangle on standard cement monument with top about 12 inches below surface of ground. Surface mark is center of a 3-inch square wooden box.

*References.*—

	°	'	"	
"Rod" (S. $51^{\circ} 03'$ W.) . . . . .	0	00	00	$\frac{1}{2}$ mile.
Near corner of near chimney of Raley house . . . . .	8	58	..	150 yards.
Large tree . . . . .	32	51	..	100 yards.
Chimney of Kennedy house . . . . .	101	49	..	$\frac{1}{2}$ mile.
Chimney of small house . . . . .	155	22	..	$\frac{1}{2}$ mile.
Near peak of roof of wharf house . . . . .	167	16	..	$\frac{5}{8}$ mile.
Chimney of house among trees . . . . .	177	26	..	$\frac{5}{8}$ mile.
Chimney of small house . . . . .	211	07	..	$\frac{1}{2}$ mile.
"St. Inigoes Church Cross" . . . . .	246	43	00	$\frac{3}{8}$ mile.
Right peak of roof of barn . . . . .	315	14	..	135 yards.
Near peak of cornerib . . . . .	351	33	..	150 yards.

INIGOES.

*General locality.*—Northern side of entrance to St. Inigoes Creek about five-eighths of a mile north of Priests Point and five-eighths of a mile east of Windmill Point. (See chart No. 24.)

*Immediate locality.*—Observed station is offshore in about 4 feet of water, 1½ feet southeast of boat landing, and 45 yards southwest of shore. Cement monument marking reference station is on top of bank about 15 feet high, 50.87 meters N. 39° 25' E. of observed station.

*Marks.*—Observed station is a 3-inch square stub driven into bottom in about 4 feet of water and standing plumb with top about 2 feet above high water. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Rod" (S. 11° 53' W.)	0	00	00	5½ mile.
Left tangent of left chimney of brick house	49	03	..	1¾ miles.
Left peak of roof of carriage house	87	04	..	¾ mile.
Right chimney of Coppage house	106	26	..	1¾ miles.
Chimney of McKay house	139	56	..	1¾ miles.
Center of right tower of Kennedy house	168	07	..	400 yards.
REFERENCE STATION	207	31	30	50.87 meters.
Left chimney of Tyler house	267	42	..	¾ mile.
"St. Inigoes Church Cross"	297	30	40	1 mile.
Large chimney of Raley house	330	38	..	¾ mile.

ST. INIGOES CHURCH CROSS.

*General locality.*—Eastern side of St. Marys River inshore about 1 mile east from Priests Point and three-fourths of a mile south of Grason Wharf on St. Inigoes Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on St. Inigoes Catholic Church.

*Marks.*—Observed station is center of cross on St. Inigoes Catholic Church.

*References.*—None necessary.

CHURCH.

*General locality.*—Southeastern shore of St. Inigoes Creek about five-eighths mile east of St. Marys River and one-fourth mile southwest of Grason Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is about 2 feet above high water on a rounded point of land nearly surrounded by water, 13 yards southeast of shore, 14 yards south of shore, 24 yards west-southwest of shore, and 35 yards north of inlet and cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Grason" (N. 34° 44' E.)	0	00	00	¾ mile.
Near peak of roof of Grason stable	2	52	..	¾ mile.
Between two chimneys on near end of Grason house	9	05	..	¾ mile.
Nail in blaze in cedar tree (6 inches diameter)	63	26	00	12.52 meters.
Nail in blaze in cedar tree (5 inches diameter)	111	22	20	9.95 meters.
Nail in blaze in cedar tree (4 inches diameter)	150	08	00	7.42 meters.
Near peak of roof between two chimneys on Raley house	280	00	10	¾ mile.
Chimney of house	319	57	..	¾ mile.
Left chimney on end of house	333	47	..	1¾ miles.
Near peak of roof of Grason Wharf house	345	46	..	¾ mile.

## COTTAGE.

*General locality.*—Northwestern shore of St. Inigoes Creek about one-half mile east-northeast of St. Marys River and three-eighths mile west-southwest of Grason Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is on sand about 1 foot above high water, 2 yards north-northwest of shore, 20 yards south-southeast of woods, and 120 yards southwest by west of extreme end of point. Cement monument marking reference station is 12.82 meters N.  $18^{\circ} 52'$  W. of observed station.

*Marks.*—Observed station is center of 3-inch square wooden box with top flush with surface of sand. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Rod" (S. $37^{\circ} 46'$ W.)	0	00	00	$\frac{7}{8}$ mile.
REFERENCE STATION	123	22	00	12.82 meters.
Nail in blaze in pine tree (2.4 inches diameter)	124	36	10	26.03 meters.
Chimney of house	174	17	..	$\frac{1}{4}$ mile.
Nail in blaze in double pine tree (5 inches diameter)	187	08	40	30.90 meters.
"Smoke" (west chimney of tenant house)	213	55	..	$\frac{1}{2}$ mile.
Between two chimneys of Grason house	223	01	..	$\frac{3}{8}$ mile.
Nail in blaze in cedar tree (14 inches diameter)	223	21	40	17.93 meters.
Left chimney of old house	254	07	..	$\frac{1}{2}$ mile.
Left peak of roof of Raley barn	342	22	..	$\frac{3}{8}$ mile.
Near peak of roof between two chimneys on Raley house	352	58	..	$\frac{1}{2}$ mile.

## DUSKY.

*General locality.*—Northwestern shore of St. Inigoes Creek on a prominent point between creek and a small cove nearly opposite Grason Wharf and about three-fourths mile northeast of St. Marys River. (See chart No. 24.)

*Immediate locality.*—Observed station is about on level with high water, about 5 yards east of a fence which is on top of a tree-fringed bank 15 feet high. Cement monument marking reference station is near an old creek bed 25.09 meters N.  $2^{\circ} 34'$  E. of observed station.

*Marks.*—Observed station is center of a 3-inch square wooden box. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Smoke" (N. $89^{\circ} 43'$ E.)	0	00	00	$\frac{3}{8}$ mile.
Near end of Grason Wharf	32	53	..	$\frac{1}{8}$ mile.
Right peak of roof of house	70	09	..	$\frac{5}{8}$ mile.
Chimney on outside of small house	79	09	..	$\frac{5}{8}$ mile.
Left peak of roof of Raley barn	115	32	..	$\frac{5}{8}$ mile.
Left corner of Raley house	122	40	..	$\frac{5}{8}$ mile.
Right corner of Priest's Villa	128	30	..	1 mile.
Cedar tree	139	02	..	20 yards.
Corner post of fence	220	15	..	4 yards.
Nail in blaze in locust tree (6 inches diameter)	267	59	10	10.44 meters.
REFERENCE STATION	272	51	10	25.09 meters.

## GRASON.

*General locality.*—Southeastern shore of St. Inigoes Creek near Grason Wharf about  $\frac{3}{8}$  mile north-east of St. Marys River. (See chart No. 24.)

*Immediate locality.*—Observed station is about 15 feet above high water, 7 yards southeast of edge of bank, 13 yards northwest of a stable, and near three trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Cottage" (S. $72^{\circ} 06'$ W.).....	0	00	00	$\frac{3}{8}$ mile.
Near corner of wharf house.....	26	39	..	130 yards.
Chimney of house.....	39	56	..	$\frac{1}{4}$ mile.
Nail in blaze in elm tree.....	93	43	00	13.37 meters.
Chimney of brick house on hill.....	149	12	..	2 miles.
"Smoke" (west chimney of tenant house)...	179	03	20	$\frac{1}{4}$ mile.
Nail in blaze in locust tree (22 inches diam- eter).....	203	09	30	6.40 meters.
Left corner of stable.....	254	37	..	9.19 meters.
Right corner of stable.....	303	28	..	12.05 meters.
Chimney of Raley house.....	333	28	..	$\frac{5}{8}$ mile.
Left tangent of Priest's Villa.....	333	54	..	$1\frac{1}{2}$ miles.
Nail in blaze in cherry tree (18 inches diam- eter).....	352	23	40	12.94 meters.

## ROCK.

*General locality.*—Northwestern shore of St. Inigoes Creek about one-fourth mile north-northwest of Grason Wharf and seven-eighths mile northeast of St. Marys River. (See chart No. 24.)

*Immediate locality.*—Observed station is on the western side of entrance to a small creek with a wooded shore, about 2 feet above high water, 4 yards north-northwest of shore, and 8 yards east-southeast of a small pool with trees beyond. Cement monument marking reference station is 17.09 meters N.  $85^{\circ} 41'$  W. of observed station.

*Marks.*—Observed station is center of 3-inch square wooden box. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Smoke" (S. $61^{\circ} 13'$ E.).....	0	00	00	$\frac{3}{8}$ mile.
Near peak of roof of barn.....	14	37	..	$\frac{5}{8}$ mile.
Near peak of roof of Grason Wharf house....	57	35	..	$\frac{3}{8}$ mile.
Nail in blaze in pine tree (8 inches diameter). 115	28	00	..	9.95 meters.
Nail in blaze in pine tree (6 inches diameter). 150	23	20	..	17.24 meters.
REFERENCE STATION.....	155	32	05	17.09 meters.
Nail in blaze in pine tree (16 inches diameter). 207	52	20	..	27.45 meters.
Chimney on right end of house.....	250	08	..	$\frac{3}{4}$ mile.
Chimney of house.....	333	42	..	$\frac{1}{2}$ mile.

## SMOKE.

*General locality.*—Southeastern shore of St. Inigoes Creek about one-fourth mile east of Grason Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is on a tenant house which is about 15 feet above high water located about one-fourth mile east of Grason Wharf.

*Marks.*—Observed station is center of brick chimney on west end of house.

*References.*—None necessary.

## CHESTNUT.

*General locality.*—Southern shore of Upper St. Inigoes Creek about one-half mile east-northeast of Grason Wharf, near the entrance to an eastern branch of creek, and  $1\frac{1}{4}$  miles northeast of St. Marys River. (See chart No. 24.)

*Immediate locality.*—Observed station is in a cultivated field fringed by tall trees about 20 feet above high water, 18 yards south of edge of bank, 70 yards southwest of corner of field, 80 yards west-southwest of edge of bank, 95 yards northeast of trees at hollow, 110 yards southwest of a point, and 150 yards east by north of point where rail fence meets trees.

*Marks.*—Observed station is center point of triangle on standard cement monument with top about 12 inches below surface of ground. Surface mark is center of 3-inch square wooden box.

*References.*—

	0	'	"	
"Smoke" (S. $68^{\circ} 53'$ W.).....	0	00	00	$\frac{1}{4}$ mile.
Nail in blaze in pine tree (22 inches diameter)	39	06	50	18.53 meters.
Nail in blaze in cedar tree (18 inches diameter).....	68	45	10	16.46 meters.
Nail in blaze in pine tree (14 inches diameter)	105	03	20	21.10 meters.
Tangent of trees.....	271	00	..	100 yards.
Junction of fences.....	318	47	50	150 yards.

## SLEEP.

*General locality.*—Northern shore of Upper St. Inigoes Creek on a point between two forks of creek about  $\frac{1}{2}$  mile northeast of Grason Wharf and  $1\frac{1}{4}$  miles northeast of St. Marys River. (See chart No. 24.)

*Immediate locality.*—Observed station is about 1 foot above high water, 6 yards east of shore, 10 yards north of shore, and on line with persimmon trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Smoke" (S. $11^{\circ} 24'$ W.).....	0	00	00	$\frac{1}{4}$ mile.
Near peak of roof of Grason brick house.....	21	24	20	$\frac{1}{2}$ mile.
Left chimney on higher roof of Raley house .	30	55	..	$1\frac{1}{4}$ miles.
Left peak of roof of wharf house.....	32	37	..	$\frac{3}{8}$ mile.
Tangent of point opposite Grason.....	37	52	..	$\frac{5}{8}$ mile.
Nail in blaze in pine tree (2 inches diameter).	129	34	00	18.25 meters.
Nail in blaze in pine tree (4 inches diameter).	187	28	40	19.89 meters.
Nail in blaze in persimmon tree (9 inches diameter).....	209	56	10	4.45 meters.
Tangent of marsh point.....	244	31	..	150 yards.
Chimney of left ell of house.....	288	26	..	$\frac{5}{8}$ mile.

## GRIND.

*General locality.*—Western side of St. Marys River in water just off Windmill Point and opposite entrance to St. Inigoes Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is in about 4 feet of water, 45 yards east-southeast of extreme end of point and 120 yards northeast of another point. Cement monument marking reference station is among cedar trees 81.36 meters S.  $81^{\circ} 40'$  W. of observed station.

*Marks.*—Observed station is nail in stub in water. Reference station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Rod" (S. $37^{\circ} 47'$ E.).....	0	00	00	$\frac{3}{4}$ mile.
Left peak of roof between two chimneys on brick house.....	87	08	..	$1\frac{1}{2}$ miles.
REFERENCE STATION.....	119	26	50	81.36 meters.
"Water Tower" (near Portobello).....	203	25	20	$1\frac{1}{4}$ miles.
Left corner of left chimney on house at Portobello.....	208	26	..	$1\frac{1}{8}$ miles.

References—Continued.

	°	'	"	
"Calvert Monument" .....	237	55	10	2½ miles.
Near peak of roof of Bromes Wharf house .....	239	10	..	2 miles.
Right piazza post on Kennedy house .....	296	34	..	¾ mile.
"St. Inigoes Church Cross" .....	331	32	30	1½ miles.
Left peak of roof of Raley house .....	334	49	..	¾ mile.

KENNEDY.

*General locality.*—Eastern shore of St. Marys River about one-eighth mile north of entrance to St. Inigoes Creek and five-eighths mile east-northeast of Windmill Point. (See chart No. 24.)

*Immediate locality.*—Observed station is in a garden about 25 feet above high water, 30 yards north-west of edge of bank at wire fence, 65 yards west-southwest of a house, 18 yards south of a fence, and 52 yards south of a paling fence. Cement monument marking reference station is in a garden 20.25 meters N. 37° 05' E. of observed station.

*Marks.*—Observed station is center of a 3-inch square wooden box. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Rod" (S. 7° 45' W.) .....	0	00	00	¾ mile.
Near peak of roof of barn .....	86	25	..	¾ mile.
Near peak of roof of building .....	107	10	..	1½ miles.
Nail in blaze in locust tree (12 inches diameter) .....	137	45	50	13.21 meters.
REFERENCE STATION .....	209	20	10	20.25 meters.
Near corner of shed .....	209	45	..	57 yards.
Left back piazza post .....	250	21	..	60 yards.
Chimney of cabin .....	280	09	..	120 yards.
Chimney on top of Raley house .....	334	04	..	½ mile.

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*General locality.*—Western shore of St. Marys River about one-fourth mile south of entrance to Cooper Creek, and seven-eighths mile northwest of Windmill Point. (See chart No. 24.)

*Immediate locality.*—Observed station is near densely wooded land about 25 feet above high water, 5 yards southwest of edge of bank, 6 yards south of edge of bank, 10 yards west of point with cedar tree, and 200 yards west of remains of a pier. Cement monument marking reference station is 11.50 meters S. 83° 21' W. of observed station.

*Marks.*—Observed station is center of a 3-inch square wooden box with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Bello" (N. 42° 11' E.) .....	0	00	00	¾ mile.
Chimney of St. Marys Seminary .....	2	27	..	2 miles.
Near peak of roof of Bromes Wharf house .....	3	14	..	1½ miles.
Chimney of Brome house .....	10	42	..	1½ miles.
Chimney of house .....	44	40	..	¾ mile.
Chimney of Kennedy house .....	69	22	..	1¼ miles.
Left chimney of Raley house .....	84	09	..	1½ miles.
Chimney of Priest's villa .....	93	06	..	1½ miles.
Chimney .....	96	45	..	½ mile.
Nail in blaze in pine tree (3 inches diameter) .....	185	25	20	7.68 meters.
Nail in blaze in gum tree (3 inches diameter) .....	216	30	30	10.96 meters.
REFERENCE STATION .....	221	09	50	11.50 meters.
Nail in blaze in gum tree (12 inches diameter) .....	290	30	30	7.32 meters.
"Water Tower" (near Portobello) .....	344	16	00	¾ mile.

## CHAN.

*General locality.*—Eastern shore of St. Marys River on Chancellor Point about seven-eighths mile north-northwest of entrance to St. Inigoes Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on a long point about 3 feet above high water, 10 yards north of side of point, 12 yards south of side of point, 17 yards east of extreme end of point, and near cedar trees. Cement monument marking reference station is 14.14 meters S.  $78^{\circ} 09'$  E. of observed station.

*Marks.*—Observed station is center of a 3-inch square wooden box. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Bello" (N. $37^{\circ} 29'$ W.)	0	00	00	$\frac{5}{8}$ mile.
Chimney of house	9	56		1 mile.
Left peak of roof between two chimneys	24	15		$1\frac{1}{8}$ miles.
Left chimney of house on Pagan Point	40	35		$1\frac{1}{2}$ miles.
"Calvert Monument"	56	56	40	$1\frac{3}{8}$ miles.
"Episcopal Church Cross"	58	39	40	$1\frac{3}{8}$ miles.
Near peak of roof of Bromes Wharf house	58	47		$1\frac{3}{8}$ miles.
Nail in blaze in cedar tree (12 inches diameter)	123	55	20	4.47 meters.
Nail in blaze in cedar tree (15 inches diameter)	137	32	20	31.61 meters.
REFERENCE STATION	139	19	50	14.14 meters.
Nail in blaze in cedar tree (18 inches diameter)	157	56	20	13.99 meters.
Weather vane on barn	262	54		$\frac{3}{4}$ mile.
Silo at Portobello	349	29		$\frac{3}{4}$ mile.

## BELLO.

*General locality.*—Western shore of St. Marys River on Portobello Point about five-eighths mile north-northwest of Chancellor Point and  $1\frac{1}{4}$  miles north of Windmill Point. (See chart No. 24.)

*Immediate locality.*—Observed station is on northeast peak of roof on wharf house at Portobello Landing.

*Marks.*—Observed station is a flagpole on northeast peak of wharf house.

*References.*—None necessary.

## WATER TOWER (PORTO BELLO).

*General locality.*—Western side of St. Marys River inshore about one-fourth mile west of Portobello Landing. (See chart No. 24.)

*Immediate locality.*—Observed station is on a detached structure with a water tank on top.

*Marks.*—Observed station is center of water tank.

*References.*—None necessary.



## GRAVEL.

*General locality.*—Eastern shore of St. Marys River about three-eighths mile north-northeast of Chancellor Point, and five-eighths mile east of Portobello Point. (See chart No. 24.)

*Immediate locality.*—Observed station is on gravel washed up between river and slough about on level with high water, 2 yards north of gravel and marsh line, 33 yards east-northeast of outlet of slough, and 65 yards southwest of point where woods and river meet. Cement monument marking reference station is 26.99 meters N.  $86^{\circ} 03'$  E. of observed station.

*Marks.*—Observed station is nail in stub. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	o	/	//	
"Bello" (N. $77^{\circ} 54'$ W.).....	0	00	00	..... $\frac{5}{8}$ mile.
Near peak of roof between two chimneys at Portobello.....	1	58	..	..... $\frac{5}{8}$ mile.
House on Pagan Point.....	71	36	..	..... $1\frac{1}{8}$ miles.
Near peak of roof of Bromes Wharf house....	95	01	..	..... 1 mile.
"Episcopal Church Cross".....	95	12	20	..... 1 mile.
Nail in blaze in pine tree (20 inches diameter).....	141	42	30	..... 30.95 meters.
Nail in blaze in pine tree (18 inches diameter).....	162	19	00	..... 22.75 meters.
REFERENCE STATION.....	163	56	40	..... 26.99 meters.
Nail in blaze in pine tree (20 inches diameter).....	189	00	40	..... 21.11 meters.
Weather vane on barn.....	298	12	..	..... $1\frac{1}{8}$ miles
Between two chimneys on house near Portobello.....	358	20	..	..... $\frac{3}{4}$ mile

## McKAY.

*General locality.*—Western shore of St. Marys River about one-half mile north-northeast of Portobello Point, and five-eighths mile west-southwest of Bromes Wharf. (See chart No. 24.)

*Immediate locality.*—Observed station is about on level with high water, 14 yards south of a fence extending into water, and at edge of woods. Cement monument marking reference station is 8.12 meters S.  $71^{\circ} 35'$  W. of observed station.

*Marks.*—Observed station is center of a 3-inch square wooden box. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	o	/	//	
"Bello" (S. $23^{\circ} 16'$ W.).....	0	00	00	..... $\frac{1}{2}$ mile.
Nail in blaze in locust tree (3 inches diameter).....	26	41	40	..... 6.82 meters.
REFERENCE STATION.....	48	18	55	..... 8.12 meters.
Nail in blaze in gum tree (8 inches diameter).....	119	55	00	..... 3.48 meters.
Nail in blaze in willow tree (8 inches diameter).....	158	35	20	..... 8.25 meters.
"Calvert Monument".....	215	58	30	..... $\frac{3}{4}$ mile.
"Episcopal Church Cross".....	217	55	10	..... $\frac{3}{4}$ mile.
Near peak of roof on Bromes Wharf house....	222	48	..	..... $\frac{5}{8}$ mile.
Weather vane on barn.....	350	55	40	..... $1\frac{1}{2}$ miles.

## BROME.

*General locality.*—Eastern shore of St. Marys River about three-eighths mile south of Bromes Wharf at St. Marys. (See chart No. 24.)

*Immediate locality.*—Observed station is in edge of woods about 6 feet above high water, 2 yards southeast of shore, and 25 yards from foot of a slope. Cement monument marking reference station is in woods 5.65 meters S.  $76^{\circ} 12'$  E. of observed station.

*Marks.*—Observed station is center of a 3-inch square wooden box with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"McKay" (N. $86^{\circ} 29'$ W.).....	0	00	00	3/4 mile.
Peak of roof between two chimneys of McKay house.....	4	08	..	3/4 mile.
Peak of barn.....	46	30	..	3/4 mile.
Right chimney of two-story house.....	47	54	..	3/4 mile.
Chimney of small house.....	60	26	..	1/2 mile.
Stovepipe of small cabin.....	63	27	..	1/2 mile.
Peak of roof of Bromes Wharf house.....	75	30	..	3/8 mile.
"Episcopal Church Cross".....	81	46	..	3/8 mile.
Nail in blaze in chestnut tree.....	157	16	10	4.32 meters.
REFERENCE STATION.....	190	17	20	5.65 meters.
Nail in blaze in cherry tree.....	207	43	30	6.40 meters.
Tangent of Gravelly Point.....	298	00	..	5/8 mile.
Peak of roof between two chimneys of house at Portobello.....	333	45	..	1 mile.

## DEEP.

*General locality.*—Western shore of St. Marys River opposite Bromes Wharf on first prominent point south of Pagan Point. (See chart No. 24.)

*Immediate locality.*—Observed station is about 1 foot above high water, 11 yards southwest of side of point, 12 yards north-northwest of side of point, 17 yards west of extreme end of point, and near several small piles of oyster shells.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Pagan" (N. $0^{\circ} 42'$ W.).....	0	00	00	3/8 mile.
Peak of barn.....	3	05	..	3/8 mile.
Chimney of two-story house.....	8	35	..	3/8 mile.
Outside chimney of house.....	55	06	..	1/2 mile.
Smoke pipe of cabin near monument.....	68	12	..	1/2 mile.
Windmill at St. Marys Seminary.....	72	00	..	1/2 mile.
"Calvert Monument".....	72	10	15	1/2 mile.
"Episcopal Church Cross".....	74	12	00	1/2 mile.
Peak of roof of Bromes Wharf house.....	83	25	..	3/8 mile.
Chimney of small house.....	103	57	..	1/2 mile.
Nail in blaze in cedar tree.....	149	58	35	9.01 meters.
Tangent of Chancellor Point.....	183	00	..	1 1/2 miles.
Peak of roof between two chimneys.....	216	08	..	3/4 mile.
Nail in blaze in cedar tree.....	303	47	20	21.87 meters.

CALVERT MONUMENT.

*General locality.*—Eastern shore of St. Marys River on high prominent point near site of Old St. Marys. (See chart No. 24.)

*Immediate locality.*—Observed station is a tall granite shaft erected in memory of Calvert who founded the first settlement of Maryland near this point.

*Marks.*—Observed station is apex of pyramidal top of shaft of Calvert Monument.

*References.*—None necessary.

EPISCOPAL CHURCH CROSS (OLD ST. MARYS).

*General locality.*—Eastern shore of St. Marys River near site of Old St. Marys. (See chart No. 24.)

*Immediate locality.*—Observed station is on tower of the Episcopal Church at Old St. Marys.

*Marks.*—Observed station is center of cross on tower of the Episcopal Church.

*References.*—None necessary.

PAGAN.

*General locality.*—Western side of upper St. Marys River on Pagan Point opposite site of Old St. Marys. (See chart No. 24.)

*Immediate locality.*—Observed station is about 30 feet above high water, 120 yards southeast of river, 130 yards southwest of river, 26 yards southwest of a corn crib, 6 yards north of a wire fence, 16 yards south of another wire fence, and 19 yards west of still another wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument with top about 10 inches below surface of ground. Surface mark is nail in stub.

*References.*—

	°	'	"	
"Calvert Monument" (S. 67° 16' E.).....	0	00	00	1/2 mile.
Near peak of roof of wharf house.....	8	12	..	1/2 mile.
Near peak of roof of Brome house.....	12	03	..	3/4 mile.
Left side of left chimney of McKay house....	96	31	..	3/4 mile:
Left chimney of large house on hill.....	191	19	..	1 1/2 miles.
Near corner of corn crib.....	290	21	10	23.11 meters.
Left corner of stable.....	333	33	10	27.85 meters.
Near corner of stable.....	348	27	40	24.95 meters.
"Episcopal Church Cross".....	358	26	50	1/2 mile.

BEND.

*General locality.*—Eastern shore of Horseshoe Bend in the upper St. Marys River about five-eighths mile north-northeast of Calvert Monument and 1 mile east of Horseshoe Point. (See chart No. 24.)

*Immediate locality.*—Observed station is in a clear space about 15 feet above high water, 16 yards east of shore, 6 yards east of edge of bank, 7 yards east of a road, 12 yards south of trees, 12 yards west of bushes, 16 yards north of trees, and 23 yards northwest of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Calvert Monument" (S. 31° 22' W.).....	0	00	00	5/8 mile.
Near corner of near chimney of McKay house	19	16	..	1 5/8 miles.
Chimney on middle of house on Pagan Point.	30	50	..	7/8 mile.
End of front peak of Brisco house.....	55	22	..	1 1/2 miles.
Near chimney of large house.....	70	03	..	1 3/8 miles.
Nail in blaze in pine tree (3 inches diameter).	131	21	20	10.53 meters.
Nail in blaze in gum tree (9 inches diameter).	178	39	10	18.70 meters.
Nail in blaze in double cedar tree (3 inches diameter).....	228	54	30	22.24 meters.
Windmill at St. Marys Seminary.....	351	48	30	5/8 mile.
Near peak of roof of Commencement Hall at St. Marys.....	354	57	..	5/8 mile.
"Episcopal Church Cross".....	356	22	00	3/4 mile.

## WEST HOLLOW.

*General locality.*—Western shore of upper St. Marys River opposite Horseshoe Point and between Pagan Point and Short Point. (See chart No. 24.)

*Immediate locality.*—Observed station is in a pasture about 15 feet above high water, 16 yards south-west of edge of bank at shore, 45 yards west by south of extreme end of point, 40 yards northwest of trees in ravine, and 115 yards southeast of trees along edge of field and bank of creek.

*Marks.*—Observed station is center point of triangle on standard cement monument with top about 1 inch above surface of ground.

*References.*—

	°	'	"	
"Brief" (N. 10° 30' E.).....	0	00	00	1/2 mile.
Right chimney of house on hill.....	1	48	..	1 1/2 miles.
Nail in blaze in oak tree (4 inches diameter).....	8	42	20	18.37 meters.
Windmill.....	24	49	..	1 mile.
Chimney of house.....	26	01	..	1 mile.
Near corner of chimney of Freeman house... ..	36	07	..	1 mile.
Windmill at St. Marys Seminary.....	93	50	..	1 1/4 miles.
Near corner of chimney of small house.....	112	30	..	200 yards.
Tile smoke pipe of small house.....	171	20	..	1/4 mile.
Nail in blaze in pine tree (6 inches diameter).....	281	38	00	94.40 meters.
Nail in blaze in oak tree (6 inches diameter).....	324	17	20	32.86 meters.

## HORSESHOE.

*General locality.*—Eastern side of upper St. Marys River about three-eighths mile north-northeast of Horseshoe Point, opposite Short Point, and 1 1/8 miles north-northwest of Calvert Monument. (See chart No. 24.)

*Immediate locality.*—Observed station is in a cultivated field about 25 feet above high water, 175 yards east of shore, 120 yards east of edge of bank, 60 yards northwest of a rail fence and a line of trees, and 165 yards northeast of corner of fence and bank.

*Marks.*—Observed station is center point of triangle on standard cement monument with top about 12 inches below surface of ground. Surface mark is center of 3-inch square wooden box.

*References.*—

	°	'	"	
"Calvert Monument" (S. 28° 20' E.).....	0	00	00	1 1/8 miles.
Nail in blaze in oak tree (14 inches diameter).....	34	20	50	64.12 meters.
Chimney of McCoy house on Lynch Island ..	149	44	30	1 1/2 miles.
Center front peak of Hilton house.....	166	43	..	1 1/2 miles.
Near end of gable.....	239	31	..	1/4 mile.
Near corner of near chimney of Freeman house.....	275	02	..	1/4 mile.
Nail in blaze in cedar tree (5 inches diameter).....	306	29	20	72.41 meters.
Nail in blaze in cedar tree (4 inches diameter).....	354	39	00	51.71 meters.
Right corner of near square pillar at St. Marys Seminary.....	356	20	..	1 1/8 miles.
"Episcopal Church Cross".....	358	08	40	1 1/8 miles.

BRIEF.

*General locality.*—Western shore of upper St. Marys River on Short Point about three-eighths mile northwest of Horseshoe Point and one-half mile south of Martin Point. (See chart No. 24.)

*Immediate locality.*—Observed station is about 10 feet above high water, 17 yards south-southwest of shore, 30 yards south of edge of bank, 45 yards northwest of shore, and 110 yards west of extreme end of point with four cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument with top about 12 inches below surface of ground. Surface mark is center of a 3-inch square wooden box.

*References.*—

	°	'	''		
"Pagan" (S. 37° 41' E.).....	0	00	00	.....	7/8 mile.
Left corner of near chimney of McKay house.	25	14	..	.....	1 1/8 mile.
Nail in blaze in oak tree (7 inches diameter).	30	35	10	.....	29.86 meters.
Near corner of near chimney of Hyatt house.	130	11	..	.....	1/4 mile.
Middle gable of Hilton house.....	189	01	..	.....	1 1/4 miles.
Left peak of roof of Hammett house.....	207	39	..	.....	1 1/4 miles.
Right peak of roof of Sanders house.....	230	54	..	.....	1 1/2 miles.
Nail in blaze in oak tree (6 inches diameter).	238	40	10	.....	15.37 meters.
Left corner of chimney outside of Cox house.	248	42	..	.....	1 1/2 miles.
Near peak of roof between two outside chim-					
neys.....	288	44	..	.....	1 mile.
Nail in blaze in oak tree (5 inches diameter).	314	15	50	.....	37.68 meters.
Windmill at St. Marys Seminary.....	345	07	..	.....	1 1/4 miles.
Chimney on near end of house on Pagan Point.	358	17	..	.....	7/8 mile.

TENUATE.

*General locality.*—Western shore of upper St. Marys River on Long Point about one-fourth mile northwest of Short Point, three-eighths mile south-southwest of Martin Point, and five-eighths mile northwest of Horseshoe Point. (See chart No. 24.)

*Immediate locality.*—Observed station is on a point with two cedar trees about 20 feet above high water, 7 yards southeast of edge of bank, 10 yards west-southwest of edge of bank, 13 yards south-southwest of extreme point of bank, and 30 yards northeast of a small negro house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''		
"Calvert Monument" (S. 47° 35' E.).....	0	00	00	.....	1 1/2 miles.
Outside chimney of Hyatt house.....	26	27	..	.....	1/4 mile.
Nail in blaze in cedar tree (10 inches diam-					
eter).....	68	04	00	.....	13.24 meters.
Left corner of negro house.....	84	17	..	.....	27.06 meters.
Chimney of negro house.....	100	58	..	.....	30 yards.
Right corner of negro house.....	108	12	20	.....	26.15 meters.
Chimney of McCoy house.....	184	49	..	.....	7/8 mile.
Peak of middle gable of Hilton house.....	202	03	..	.....	1 mile.
Left chimney of Hammett house.....	225	37	..	.....	1 mile.
Right chimney of Sanders house.....	254	27	..	.....	1 mile.
Windmill.....	296	09	30	.....	1 mile.
Left chimney outside of Freeman house....	314	07	..	.....	1 mile.
Windmill at St. Marys Seminary.....	356	09	..	.....	1 5/8 miles.

## MARTIN.

*General locality.*—Eastern shore of upper St. Marys River on Martin Point opposite Long Point about one-half mile north of Short Point, and seven-eighths mile north-northwest of Horseshoe Point. (See chart No. 24.)

*Immediate locality.*—Observed station is on a point of land about 3 feet above high water, 4 yards east of shore, 7 yards northwest of shore, 12 yards north of extreme end of point, and 30 yards north of cedar trees standing in water.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Calvert Monument" (S. 35° 21' E.).....	0	00	00	1¾ miles.
Nail in blaze in double cedar tree (14 inches diameter).....	41	45	10	9.56 meters.
Left chimney of Coombs house.....	81	52	..	1 mile.
Chimney of McCoy house on Lynch Island.	149	01	..	¾ mile.
Nail in blaze in cedar tree (9 inches diameter).....	198	33	10	26.99 meters.
Near side peak of roof on Sanders house.....	244	06	..	½ mile.
Chimney of house.....	275	55	..	¾ mile.
Nail in blaze in cedar tree (4 inches diameter).....	306	14	50	3.40 meters.
"Episcopal Church Cross".....	358	54	00	1¾ miles.

## SOAK.

*General locality.*—Western shore of upper St. Marys River about one-half mile southeast of Lynch Island and one-half mile west-northwest of Long Point. (See chart No. 24.)

*Immediate locality.*—Observed station is about 1 foot below high water, 3 yards northeast of bank back of which is a dense growth of pine trees, and 10 yards west of the first point northwest of Long Point. Cement monument marking reference station is 11.02 meters S. 32° 36' W. of observed station.

*Marks.*—Observed station is nail in stub with top about 6 inches above bottom of river. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Martin" (N. 78° 17' E.).....	0	00	00	¾ mile.
Berrill windmill.....	7	34	..	1¼ miles.
Near peak of roof of Berrill house.....	10	23	..	1¼ miles.
Chimney of house on Long Point.....	44	52	..	½ mile.
Nail in blaze in pine tree (8 inches diameter).	92	50	40	16.86 meters.
Nail in blaze in oak tree (20 inches diameter).	132	41	00	12.66 meters.
REFERENCE STATION.....	134	19	00	11.02 meters.
Nail in blaze in oak tree (15 inches diameter).	187	25	10	17.74 meters.
Outside chimney of Ware house.....	235	18	..	1¼ miles.
Chimney of McCoy house on Lynch Island..	252	53	..	½ mile.
Near end of middle gable of Hilton house...	269	00	..	¾ mile.
Peak of roof between two outside chimneys..	302	03	..	¾ mile.
Right chimney of Hammett house.....	302	51	..	¾ mile.
Near peak of side gable of Sanders house....	334	13	..	1½ miles.

HAMMETT.

*General locality.*—Eastern shore of upper St. Marys River on a prominent point about three-eighths of a mile east of Lynch Island and five-eighths of a mile northwest of Martin Point. (See chart No. 24.)

*Immediate locality.*—Observed station is on edge of cultivated land about 4 feet above high water, 8 yards north of shore, 30 yards east of shore on left line of slough, 7 yards east of a single cedar tree, and 90 yards southeast of trees on other side of point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Calvert Monument" (S. 41° 32' E.).....	0	00	00	2¼ miles.
Chimney on near end of Garrett house.....	5	21	..	17½ miles.
Chimney outside of Hyatt house.....	14	31	..	1 mile.
Nail in blaze in cedar tree (3 inches diameter).....	99	38	40	6.21 meters.
Chimney outside of McCoy house.....	143	30	..	¾ mile.
Left chimney of Hammett house.....	252	15	..	¾ mile.
Right peak of roof between two chimneys of Sanders house.....	259	50	..	1 mile.
Windmill near Berrill.....	326	23	..	1½ miles.
Left chimney of Berrill house.....	329	08	..	1½ miles.
Nail in blaze in small persimmon tree.....	335	20	00	8.39 meters.
Near peak of roof between two chimneys of Freeman house.....	336	37	..	1½ miles.
Windmill at St. Marys Seminary.....	357	14	50	2¼ miles.
"Episcopal Church Cross".....	359	14	50	2¼ miles.

McCOY.

*General locality.*—Upper St. Marys River on southwestern end of Lynch Island, about seven-eighths of a mile west-northwest of Martin Point. (See chart No. 24.)

*Immediate locality.*—Observed station is about 10 feet above high water, 10 yards east of shore, 30 yards northwest of shore, 45 yards north of shore at extreme point of island, and 120 yards southwest by south of McCoy camp house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Calvert Monument" (S. 47° 18' E.).....	0	00	00	2¼ miles.
Chimney of house on Long Point.....	1	31	..	1 mile.
Left chimney of house on Short Point.....	4	35	..	1¼ miles.
Nail in blaze in walaut tree (7 inches diameter).....	26	49	30	5.73 meters.
Left chimney of Powell house.....	90	38	..	¾ mile.
Nail in blaze in walnut tree (12 inches diameter).....	95	17	20	15.46 meters.
Nail in blaze in walnut tree (7 inches diameter).....	182	08	00	8.41 meters.
Nail in blaze in walnut tree (6 inches diameter).....	217	16	40	10.34 meters.
Right corner of McCoy house.....	283	14	30	120 yards.
Near peak of roof between two chimneys on Freeman house.....	338	02	..	1¾ miles.
Windmill at St. Marys Seminary.....	357	35	20	2½ miles.
"Episcopal Church Cross".....	359	23	30	2½ miles.

## SMACK.

*General locality.*—Southern side of entrance to St. George River on St. George Island opposite Cherryfield Point. (See chart No. 24.)

*Immediate locality.*—Observed station is about 3 feet above high water, 8 yards south of shore, 30 yards southwest of extreme end of point, 45 yards west of shore, and 4 yards northeast of fence and orchard. Cement monument marking reference station is 6.20 meters S.  $13^{\circ} 27'$  E. of observed station.

*Marks.*—Observed station is nail in stub with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cherry" (N. $31^{\circ} 53'$ E.).....	0	00	00	½ mile.
Chimney of Taylor house.....	27	55	..	2¾ miles.
"St. Michaels Catholic Church Spire".....	58	01	50	5¾ miles.
Near peak of roof of Lewis Hotel at Smith Creek.....	72	05	30	3¾ miles.
Near peak of roof of long barn on Kitts Point..	77	54	..	2¾ miles.
Chimney of first house on point of island....	112	34	..	¼ mile.
REFERENCE STATION.....	134	39	40	6.20 meters.
Chimney of house.....	137	32	..	⅞ mile.
Chimney of house.....	170	38	..	120 yards.
Nail in blaze in peach tree (3 inches diame- ter).....	177	43	50	4.76 meters.
Nail in blaze in peach tree (4 inches diame- ter).....	215	55	10	6.42 meters.
Ball on church.....	231	25	..	½ mile.
Chimney of house.....	254	02	..	¾ mile.
Near peak of roof.....	299	25	..	1¾ miles.
Chimney of house.....	328	03	..	2 miles.

## CHERRY.

*General locality.*—Northern side of entrance to St. George River on Cherryfield Point. (See chart No. 24.)

*Immediate locality.*—Observed station is about 2 feet above high water, 27 yards east of shore, 30 yards north of shore, 30 yards southwest of pine woods, and near several trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Smack" (S. $31^{\circ} 53'$ W.).....	0	00	00	½ mile.
Cross on Catholic Church.....	14	52	40	¾ mile.
Chimney of 2½-story house.....	42	11	..	1 mile.
Left piazza post of Dana Hall.....	56	38	..	1¼ miles.
Near peak of roof of barn.....	104	33	..	¾ mile.
Nail in blaze in pine tree (14 inches diame- ter).....	170	15	30	21.96 meters.
Nail in blaze in pine tree (14 inches diame- ter).....	207	32	50	6.30 meters.
Nail in blaze in pine tree (8 inches diameter)..	226	59	40	17.40 meters.
Chimney of house with ell.....	350	16	..	¾ mile.
Near chimney of house on opposite point....	359	27	..	½ mile.



PRICE.

*General locality.*—Northern shore of St. George River on eastern side of entrance to Price Creek and about one-half mile north of Cherryfield Point. (See chart No. 24.)

*Immediate locality.*—Observed station is on a marsh point about 1½ feet above high water, 9 yards southeast of shore, 17 yards north-northeast of shore, 21 yards east-northeast of shore at end of point, and 200 yards west of pine woods on inner edge of marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Smack" (S. 18° 06' W.).....	0	00	00	1 mile.
Chimney on middle of house.....	32	19	..	1¼ miles.
Right chimney of large house.....	44	10	..	1¾ miles.
Chimney on Adams store.....	46	27	..	1¾ miles.
Near peak of house with no chimney.....	48	01	..	1¾ miles.
Cupola of dance hall.....	51	15	..	1¾ miles.
Chimney of small house.....	53	30	..	1½ miles.
Chimney of small house.....	54	00	..	1½ miles.
Largest chimney on Milton house.....	86	04	..	¾ mile.
Peak of Milton barn.....	92	27	..	¾ mile.
Chimney of small cabin.....	105	24	..	¾ mile.
Peak of Thompson house.....	122	05	..	¾ mile.

ADAMS.

*General locality.*—Southwestern shore of St. George River on St. George Island about 1 mile west-southwest of Cherryfield Point. (See chart No. 24.)

*Immediate locality.*—Observed station is in chicken yard about 1 foot above high-water mark, 28 yards southwest of shore, 15 yards southwest of wire fence, 17 yards south of corner of wire fence, 38 yards west-northwest of corner of wire fence, 37 yards north of corner of wire fence, and 30 yards east of corner of wire fence. Cement monument marking reference station is 13.63 meters N. 80° 35' W. of observed station.

*Marks.*—Observed station is nail in tree stump 8 inches in diameter. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cherry" (N. 81° 14' E.).....	0	00	00	1 mile.
Corner post of wire fence.....	33	42	..	38 yards.
Near peak of roof of large house.....	64	03	..	¼ mile.
Left chimney of large house with four gables.....	88	46	..	½ mile.
Nail in blaze in pine tree (10 inches diameter).....	91	03	20	11.35 meters.
Corner tree of wire fence.....	98	43	..	37 yards.
Near edge of peak of gable.....	154	28	..	100 yards.
Nail in blaze in pine tree (10 inches diameter).....	155	34	20	21.29 meters.
Corner tree of wire fence.....	173	20	..	30 yards.
Near corner of chicken house.....	189	49	..	12.62 meters.
Nail in blaze in pine tree (10 inches diameter).....	192	15	10	8.89 meters.
REFERENCE STATION.....	198	11	30	13.65 meters.
Right chimney of house.....	207	29	..	¾ mile.
Pole on pavilion on wharf.....	228	02	..	¼ mile.
Corner post of wire fence.....	283	24	..	17 yards.
Near peak of roof between chimneys.....	312	22	..	1¾ miles.

## GOOSE.

*General locality.*—Northeastern shore of St. George River, about three-fourths mile northwest of Cherryfield Point, and one-fourth mile northwest of entrance to Price Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is about 1 foot above high-water mark, among cedar, pine, and persimmon trees, 4 yards northeast of edge of lane, 13 yards south of cultivated land beyond trees, and a few yards northwest of four large pine trees at edge of water.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cherry" (S. 45° 49' E.).....	0	00	00	¾ mile.
Nail in blaze in pine tree (11 inches diameter).....	7	36	50	8.08 meters.
Chimney on middle of two and a half story house.....	69	58	..	¾ mile.
Near front peak of two and a half story house..	74	00	..	¾ mile.
Chimney of storehouse.....	94	28	..	¾ mile.
Smokepipe of cottage near high scant woods..	118	53	..	1 mile.
High lone pine tree on St. George Island....	134	07	..	1½ miles.
Chimney on two and a half story house near Piney Point.....	145	57	..	2¾ miles.
Nail in blaze in cedar tree (5 inches diameter).....	174	06	20	8.74 meters.
Nail in blaze in cedar tree (8 inches diameter).....	207	13	00	2.58 meters.
Nail in blaze in cedar tree (6 inches diameter).....	290	25	50	5.75 meters.
Right peak of wharf house.....	263	01	..	1 mile.
Tangent of point.....	347	47	..	250 yards.

## STRAITS.

*General locality.*—Southwestern shore of St. George River on St. George Island about one-fourth of a mile southeast of St. George Island Straits, and about 1¼ miles east of Piney Point Light. (See chart No. 24.)

*Immediate locality.*—Observed station is on marsh land at about 1 foot above high-water mark, 3 yards southeast side of point, 5 yards northwest of side of point, and 19 yards southwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Piney Point Light" (N. 88° 05' W.).....	0	00	00	1¾ miles.
Left peak of roof of small house.....	11	48	..	125 yards.
Near peak of roof of hotel (lightning rod)....	42	28	..	½ mile.
Main chimney of house.....	52	00	..	¾ mile.
Lone locust tree.....	96	33	..	¾ mile.
Chimney of large house with four gables....	239	42	..	½ mile.
Chimney of house.....	273	47	..	125 yards.

## COMBS.

*General locality.*—Northeastern side of St. George River on a small island about one-eighth mile off shore and one-half mile east of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is on marsh land about on level with high water, 7 yards north of extreme end of point, 11 yards west of shore, and 40 yards east-southeast of another point. Cement monument marking reference station is 13.87 meters N. 1° 12' W. of observed station.

*Marks.*—Observed station is nail in stake. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Piney Point Light" (S. 84° 52' W.)	0	00	00	2 1/8 miles.
Chimney on right end of Swan Hotel	15	01		5/8 mile.
Right peak of Graves Hotel	21	30		3/4 mile.
Left chimney of Robrecht house	33	08		7/8 mile.
Left cedar on Moore Island	39	56		3/8 mile.
Cedar tree	51	41		3/8 mile.
Chimney of Taylor house	56	14		1/4 mile.
REFERENCE STATION	93	55	30	13.87 meters.
Lightning rod about on line with chimney	157	56		1/4 mile.
Pavilion on wharf	271	03		5/8 mile.

SWAN.

*General locality.*—Southwestern shore of St. George River about one-eighth of a mile north of St. George Island Straits and 1 5/8 miles east of Piney Point Light. (See chart No. 24.)

*Immediate locality.*—Observed station is in a pasture near a locust tree and three small pine trees about 3 feet above high-water mark, 12 yards south-southeast of shore, 14 yards west of shore, 4 yards west of edge of bank, 10 yards south-southeast of edge of bank, 12 yards south of extreme point of bank, 30 yards southwest of extreme end of point, and 130 yards northeast of a cross on a grave.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Piney Point Light" (S. 82° 14' W.)	0	00	00	1 5/8 miles.
Small chimney of house	43	04		200 yards.
Main chimney of house	67	22		1/2 mile.
Near chimney of large house	102	20		1 3/8 miles.
Near one of two outside chimneys of house	113	12		1 mile.
Nail in blaze in pine tree (2 1/2 inches diameter)	125	54	50	0.77 meters.
Right chimney of house	181	19		3/4 mile.
Nail in blaze in pine tree (2 inches diameter)	218	41	30	5.73 meters.
Pavilion on wharf	237	02		3/4 mile.
Chimney of house in woods	255	26		3/8 mile.
Nail in blaze in locust tree (20 inches diameter)	288	29	10	3.77 meters.
Cross on grave	317	29	30	132 yards.

TAYLOR.

*General locality.*—Northeastern shore of St. George River about one-half mile northeast of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is on solid land back of marsh about 4 feet above high water, 37 yards southeast of shore, 10 yards south-southeast of fence corner, 100 yards east-northeast of a clump of trees, and 125 yards northwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Straits" (S. 8° 58' W.)	0	00	00	1/2 mile.
Chimney of Swan Hotel	66	01	20	1/2 mile.
Right chimney of Graves Hotel	79	58		5/8 mile.
Main chimney of Robrecht house	99	11		1/2 mile.
Nail in blaze in locust tree (12 inches diameter)	113	41	40	7.06 meters.

## References—Continued.

	°	'	''	
Right chimney of Adams house.....	123	58	..	1 1/8 miles.
Nail in blaze in cedar fence post (4 inches diameter).....	130	50	10	8.48 meters.
Left chimney of old 2 1/2-story house.....	134	46	..	1 1/2 miles.
Chimney of house.....	285	51	..	90 yards.
Chimney of house with four gables behind long building.....	338	49	..	1 mile.

## ROBRECHT.

*General locality.*—Southwestern shore of St. George River on a point of land about five-eighths mile north of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is in a cultivated field about 4 feet above high water, 6 yards west of edge of bank, 35 yards southeast of edge of bank, 70 yards northwest of edge of bank, and 40 yards south by west of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument with top about 10 inches below surface of ground. Surface mark is a 3-inch-square wooden box.

## References.—

	°	'	''	
"Swan" (S. 14° 42' E.).....	0	00	00	1/2 mile.
Chimney of pavilion.....	23	29	..	1/4 mile.
Right chimney of Robrecht house.....	77	03	..	1/8 mile.
Chimney of house.....	160	10	..	5/8 mile.
Left chimney of old 2 1/2-story house.....	166	59	..	1 1/2 miles.
Left chimney of house.....	207	43	..	3/4 mile.
Near one of two chimneys on house.....	225	28	..	5/8 mile.
Near peak of roof of house.....	312	48	..	1/2 mile.
Chimney of house in woods.....	356	31	..	5/8 mile.

## TARKHILL.

*General locality.*—Northeastern side of St. George River, a short distance off shore on a small island about three-fourths mile north of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is on a small marsh island or tump about 1 foot above high water, 2 yards southwest of edge of island, 3 yards northeast of edge of island, 8 yards northwest of edge of island, and 22 yards southeast of edge of island.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

	°	'	''	
"Robrecht" (S. 82° 04' W.).....	0	00	00	3/8 mile.
Chimney of old house.....	23	20	..	7/8 mile.
Right chimney of Adams house.....	38	56	..	3/4 mile.
Peak of large barn.....	41	58	..	3/4 mile.
Peak of Chadwick house.....	57	43	..	1 5/8 miles.
Peak of house showing over roof of large house.....	265	22	..	1 1/4 miles.
Chimney of small cabin.....	270	33	..	1 1/4 miles.
Between two chimneys of house.....	271	05	..	1 1/4 miles.
Tangent of point.....	303	00	..	5/8 mile.
Peak of cottage near hotel.....	335	00	..	5/8 mile.
Left chimney of Robrecht house.....	354	54	..	1/2 mile.

## RUSSELL.

*General locality.*—Southwestern shore of upper St. George River about  $1\frac{1}{8}$  miles northwest of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is on the edge of a cultivated field about 2 feet above high water, 7 yards northwest of shore, 13 yards west of shore, 40 yards west-northwest of a small marsh point, and 80 yards east of a corner of a fence around yard of house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Lowell" (N. $51^{\circ} 05'$ E.).....	0	00	00	$\frac{1}{4}$ mile.
Between two chimneys of Mac Adams house.....	18	20		$\frac{3}{4}$ mile.
Peak of barn.....	23	31		$\frac{3}{4}$ mile.
Nail in blaze in pine tree.....	75	46	10	6.45 meters.
Near chimney of Todd Adams house.....	223	20		90 yards.
Peak of small barn.....	235	40		150 yards.
Peak of large barn.....	257	05		200 yards.
Nail in blaze in small holly tree.....	288	53	30	7.94 meters.
Peak of large barn.....	345	44		$\frac{3}{4}$ mile.

## LOWELL.

*General locality.*—Northeastern shore of upper St. George River about  $1\frac{1}{4}$  miles north of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is in a field about 1 foot above high water, 6 yards northwest of shore, 32 yards northeast of extreme point of shore, and 33 yards east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Arbuckle" (N. $82^{\circ} 12'$ E.).....	0	00	00	$\frac{3}{8}$ mile.
Peak of barn.....	5	18		$\frac{1}{2}$ mile.
Left chimney of Swan Hotel.....	93	06		1 mile.
Chimney of storehouse.....	95	30		$\frac{3}{4}$ mile.
Peak of small barn.....	98	53		$\frac{1}{2}$ mile.
Left chimney of Robrecht house.....	99	51		$\frac{1}{2}$ mile.
Left lightning rod of Graves house.....	104	52		$\frac{1}{2}$ mile.
Near chimney of Adams house.....	155	47		$\frac{1}{4}$ mile.
Peak of large barn.....	170	08		$\frac{1}{2}$ mile.
Chimney of Wall house.....	197	55		$\frac{1}{2}$ mile.
Nail in blaze in persimmon tree.....	237	23	10	27.58 meters.

## ARBUCKLE.

*General locality.*—Northeastern side of upper St. George River about  $1\frac{3}{8}$  miles north of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 100 yards northeast of shore, 100 yards north of a ditch, 250 yards west of corner of Adams barn, and 300 yards west by south of Adams house.

*Marks.*—Observed station is center point of triangle on standard cement monument. (Note: Supposed to be buried with top 12 inches below surface of ground.)

*References.*—

	°	'	''	
"Tarkhill" (S. $6^{\circ} 54'$ E.).....	0	00	00	$\frac{5}{8}$ mile.
Right one of two chimneys on Robrecht house.....	35	14		$\frac{7}{8}$ mile.
Near peak of roof of William Adams house.....	78	33		$\frac{5}{8}$ mile.
Tangent of point.....	86	49		$\frac{3}{8}$ mile.
Near peak of Shehan house.....	175	05		$\frac{1}{4}$ mile.
Between two chimneys on J. M. Adams house.....	255	02		300 yards.
Corner of shed attached to barn.....	289	02		253 yards.
Southwest peak of barn.....	289	30		270 yards.

## WALL.

*General locality.*—Southwestern shore of upper St. George River about  $1\frac{1}{2}$  miles north-northwest of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is in a field about 3 feet above high water, 7 yards southwest of shore, 45 yards southeast of shore, 40 yards east of shore of cove, 35 yards east of an oak tree, and 200 yards northwest of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Lowell" (S. $76^{\circ} 47'$ E.).....	0	00	00	$\frac{1}{2}$ mile.
Chimney of Wall house.....	9	14	..	200 yards.
Peak of barn.....	35	48	..	250 yards.
Outside chimney of house.....	155	40	..	1 mile.
Left chimney of house.....	189	00	..	$1\frac{1}{2}$ miles.
Large chimney of $1\frac{1}{2}$ -story house.....	201	44	..	$1\frac{1}{2}$ miles.
East peak of barn.....	242	11	..	$1\frac{3}{4}$ miles.
Left chimney of Chadwick house.....	244	24	..	$\frac{1}{2}$ mile.
Outside chimney of house.....	257	04	..	$\frac{3}{4}$ mile.
Nail in blaze in cedar tree (2 feet diameter)..	261	08	..	5. 28 meters.
Chimney of house across creek.....	328	27	..	1 mile.
Southwest peak of barn.....	352	00	..	1 mile.

## SHEHAN.

*General locality.*—Northeastern shore of upper St. George River about  $1\frac{3}{8}$  miles northwest of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is on solid ground about 2 feet above high water, 8 yards east of shore, 40 yards northwest of shore, 30 yards north-northeast of extreme end of point, 50 yards west of an old rail fence, and north-northwest of marsh between shore and station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Lowell" (S. $36^{\circ} 10'$ E.).....	0	00	00	$\frac{3}{8}$ mile.
Chimney of Robrecht house.....	27	34	..	$1\frac{1}{8}$ miles.
Lightning rod of Adams house.....	38	32	..	$\frac{1}{2}$ mile.
Chimney of house.....	44	13	..	$\frac{1}{2}$ mile.
Peak of Wall house.....	62	28	..	$\frac{3}{8}$ mile.
Peak of house.....	96	00	..	$\frac{3}{4}$ mile.
Peak of large barn.....	121	25	..	$\frac{1}{2}$ mile.
Tangent of point up creek.....	162	50	..	$\frac{1}{4}$ mile.
Nail in blaze in small pine tree.....	254	08	50	20. 32 meters.

## CHADWICK.

*General locality.*—Northeastern shore of upper St. George River on a prominent point between a cove and creek about 2 miles north-northwest of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is on edge of an old field about 2 feet above high water, 9 yards northeast of shore, 18 yards northwest of extreme end of point, 80 yards south-southeast of a  $2\frac{1}{2}$ -story house, and 75 yards from several apple trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Wall" (S. $11^{\circ} 24'$ E.).....	0	00	00	$\frac{1}{2}$ mile.
South peak of barn.....	14	24	..	$\frac{3}{4}$ mile.
Chimney of house.....	27	16	..	$\frac{3}{4}$ mile.
Chimney of house on opposite shore.....	30	49	..	$\frac{1}{2}$ mile.
Chimney of house among trees on opposite shore.....	36	10	..	$\frac{1}{2}$ mile.

References—Continued.

	°	'	"	
Southwest peak of barn . . . . .	39	52		½ mile.
Chimney of house near woods . . . . .	88	28		¾ mile.
Nail in blaze in locust tree . . . . .	137	55	50	3.82 meters.
Near corner of house . . . . .	171	46		81 yards.
South corner of house . . . . .	212	17		½ mile.

GUITHER.

*General locality.*—Southwestern shore of upper St. George River about 2 miles northwest of St. George Island Straits. (See chart No. 24.)

*Immediate locality.*—Observed station is in a grassy field about 2 feet above high water, directly opposite Chadwick farm house, 12 yards northwest of shore, 18 yards south of shore, and 35 yards southwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Chadwick" (N. 58° 50' E.) . . . . .	0	00	00	¼ mile.
Nail in blaze in cedar tree . . . . .	34	37	30	7.05 meters.
Nail in blaze in cedar tree . . . . .	63	31	50	8.92 meters.
Chimney on Wall house . . . . .	80	36		¾ mile.
Northeast peak of barn . . . . .	86	50		¾ mile.
Near peak of barn . . . . .	104	11		¼ mile.
Peak of barn . . . . .	120	12		¼ mile.
Chimney of small house . . . . .	206	51		½ mile.
Chimney of 1½-story house . . . . .	286	20		1¼ miles.
Between two chimneys of house on Chadwick farm . . . . .	345	16		¼ mile.

ST. GEORGE 4.

*General locality.*—Northeastern shore of Potomac River about one-eighth mile north of southern end of St. George Island and one-half mile west-southwest of entrance to Island Creek. (See chart No. 24.)

*Immediate locality.*—Observed station is on grassy sand about 3 feet above high water, 1 yard northeast of shore, 200 yards northwest by west of extreme end of point, and 150 yards southeast of another point. Standard cement monument marking reference station of 1909 is 26.41 meters N. 42° 16' E. of observed station. Reference station No. 1 (tile pipe set in cement) is 31.58 meters N. 14° 30' E. of observed station. Reference station No. 2 (tile pipe set in cement) is 48.98 meters N. 59° 27' E. of observed station.

*Marks.*—Observed station is ¼-inch iron pipe in 3-inch tile pipe set in cement with top about 12 inches below surface of ground. Surface mark is nail in stub. Reference station of 1909 is center point of triangle on standard cement monument. Reference station No. 1 is center of 3-inch tile pipe set in cement with top 3 inches above surface of ground. Reference station No. 2 is center of a 3-inch tile pipe set in cement with top about flush with surface of ground.

References.—

	°	'	"	
"Piney Point Light" (N. 52° 48' W.) . . . . .	0	00	00	3¾ miles.
Nail in blaze in pine tree (4 inches diameter) . . . . .	39	12	50	19.44 meters.
REFERENCE STATION NO. 1 (tile) . . . . .	67	18	00	31.58 meters.
REFERENCE STATION (cement monument) . . . . .	95	03	35	26.41 meters.
Nail in blaze in pine tree (5 inches diameter) . . . . .	105	41	10	26.56 meters.
REFERENCE STATION NO. 2 (tile) . . . . .	112	15	25	48.98 meters.
Tall pine tree on Kitts Point . . . . .	137	43	40	2¾ miles.
Left chimney of large colonial house on Virginia shore . . . . .	287	13		4¼ miles.

## PINEY POINT LIGHT.

*General locality.*—Northeastern shore of Potomac River on Piney Point about 5 miles northwest of entrance to St. Marys River. (See chart No. 24.)

*Immediate locality.*—Observed station is on a tower near a dwelling and a fog-bell tower.

*Marks.*—Observed station is center point of a lantern on a tower about 30 feet high.

*References.*—

"Blakistone Island Light" (N. 67° 02' W.) . . . 0 00 00 . . . . . 12½ miles.

## FOXWELL.

*General locality.*—Northeastern shore of upper Bretons Bay about one-half mile east-southeast of Leonardtown Wharf and 1¼ miles north of entrance to Mouldy Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is about 6 feet above high water, 12 yards northwest of shore, 2 yards from a 3-foot bank, 12 yards south of an orchard, and 25 yards east of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

"Valley" (S. 65° 19' E.) . . . . .	0	00	00	. . . . .	¾ mile.
East gable of Duke house . . . . .	114	28	. . . . .		½ mile.
Nail in blaze in paulownia stump . . . . .	129	59	40	. . . . .	8.50 meters.
East gable of Foxwell house . . . . .	149	24	. . . . .		25 yards.
Southeast chimney of Key house . . . . .	211	06	. . . . .		½ mile.
Chimney of small house . . . . .	239	46	. . . . .		¼ mile.
South chimney of large 2-story house . . . . .	277	43	. . . . .		¼ mile.
Nail in blaze in paulownia tree (5 inches diameter) . . . . .	320	17	30	. . . . .	4.42 meters.
Spike in old wharf pile about 6 inches above ground . . . . .	355	47	40	. . . . .	15.00 meters.

## VALLEY.

*General locality.*—Northeastern shore of bend in upper Bretons Bay about three-fourths mile east-southeast of Leonardtown Wharf and 1¼ miles north-northeast of entrance to Mouldy Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is on a narrow strip of marsh about 1 foot above high water, 15 yards east of high water, and 100 yards south of a cultivated field.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

"Corn" (S. 28° 02' W.) . . . . .	0	00	00	. . . . .	¾ mile.
East gable of Duke house . . . . .	50	02	. . . . .		¾ mile.
East chimney of Foxwell house . . . . .	84	57	. . . . .		¾ mile.
South chimney of large 2-story house . . . . .	116	27	. . . . .		¾ mile.
South gable of house on hill . . . . .	171	08	. . . . .		¼ mile.
Smokestack on sawmill . . . . .	210	35	. . . . .		¾ mile.
Northwest chimney of old farmhouse . . . . .	335	38	. . . . .		¼ mile.

## BUZZARD.

*General locality.*—Western shore of upper Bretons Bay on a prominent point in bend in bay about ½ mile southeast of Leonardtown Wharf, and 1 mile north of entrance to Mouldy Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is about 1 foot above high water, 7 yards northwest of shore, 10 yards southeast of shore, 80 yards west-northwest of a point, and 10 yards east of foot of a slope.

*Marks.*—Observed station is center point of triangle on standard cement monument.



References.—

	°	'	''	
"Foxwell" (N. 18° 28' E.)	0	00	00	¼ mile.
South chimney of two-story house	5	18		½ mile.
West chimney of two-story house	33	02		¾ mile.
Southwest chimney of one-story house	112	52		½ mile.
South gable of wharf house	302	58		⅝ mile.
Cupola on Catholic Academy	342	32	40	1 mile.
West chimney of Foxwell house	355	26		¼ mile.

CORN.

*General locality.*—Eastern shore of upper Bretons Bay on second prominent point north of Mouldy Creek about ⅜ mile southeast of Leonardtown Wharf, and 1½ miles northeast of entrance to Mouldy Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is inside of a rail fence at the edge of a cultivated field about 3 feet above high water, 10 yards from shore, and ¼ mile northwest of a one and one-half story farmhouse.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"Cedar" (S. 29° 46' W.)	0	00	00	¼ mile.
Chimney of small two-story house	52	40		½ mile.
East gable of Duke house	91	30		½ mile.
South gable of wharf house	110	40		⅝ mile.
Southwest chimney of Key house	128	33		⅝ mile.
South gable of Foxwell house	136	28		½ mile.
Cross on Catholic Academy	142	50	10	1½ miles.
South gable of house on hill	174	58		¾ mile.
Smokestack of sawmill	195	39	10	1 mile.
West chimney of small two-story house	218	25		¾ mile.
Near chimney of old farmhouse	290	00		¾ mile.

CEDAR.

*General locality.*—Eastern shore of upper Bretons Bay on first prominent point north of entrance to Mouldy Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is on a marsh point about 2 feet above high water, 15 yards east of shore, 50 yards north of a cultivated field bounded by rail fence and small cedar trees, and directly in front of a dense growth of small cedar trees and myrtle bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"Pine" (S. 10° 40' E.)	0	00	00	¼ mile.
Nail in blaze in cedar tree (6 inches diameter)	24	41	00	31.91 meters.
Nail in blaze in cedar tree (8 inches diameter)	55	37	10	21.30 meters.
North chimney of small house	129	59		⅝ mile.
South gable of Duke house	160	20		½ mile.
Southwest chimney of Key house	180	02		1¼ miles.
Cross on Catholic Academy	189	02	20	1¾ miles.
Nail in blaze in cedar tree (3 inches diameter)	255	08	00	5.81 meters.
Nail in blaze in cedar tree (3 inches diameter)	273	57	10	2.47 meters.
Nail in blaze in cedar tree (4 inches diameter)	326	52	00	3.45 meters.

NONAME.

*General locality.*—Northwestern shore of upper Bretons Bay on a point about one-half mile north-west of entrance to Mouldy Creek, and 1 mile northeast of Lovers Point. (See chart No. 25.)

*Immediate locality.*—Observed station is about 3 feet above high water, near six old piles, 13 yards northwest of shore, 13 yards southwest of shore, 17 yards northeast of shore, and 80 yards south of a fringe of pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	''	
" Buzzard (N. 31° 23' E.).....	0	00	00	1/2 mile.
West gable of old farmhouse.....	45	49	..	1/2 mile.
Nail in blaze in old pile.....	82	37	00	12.70 meters.
West gable of two-story house.....	106	26	..	5/8 mile.
Chimney of two-story house.....	164	01	..	1/2 mile.
Nail in blaze in gum tree (6 inches diameter).....	200	53	40	9.72 meters.
West chimney of house.....	206	51	..	1/2 mile.
Nail in blaze in locust tree (3 inches diameter).....	258	14	00	2.63 meters.

BELLE.

*General locality.*—Northwestern shore of upper Bretons Bay about one-half mile north-northeast of Lovers Point, and five-eighth mile west-northwest of entrance to Mouldy Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is in a cultivated field about 3 feet above high water, 9 yards northwest of shore, 50 yards south by west of a clump of trees, and 65 yards southeast by east and almost in line with northeast side of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	''	
" Noname " (N. 52° 11' E.).....	0	00	00	3/8 mile.
Left corner of left chimney of house.....	15	22	..	1 mile.
Right chimney of house on hill.....	39	35	..	1 1/2 miles.
Near peak of roof of house.....	53	27	..	3/4 mile.
Chimney on middle of double house.....	118	14	..	1/2 mile.
Right chimney of house.....	134	26	..	3/8 mile.
Chimney of large house next to wharf.....	147	49	..	3/8 mile.
Left of left chimney of Adams house.....	255	03	40	65 yards.
Chimney of house.....	348	00	..	1/2 mile.

PINE.

*General locality.*—Eastern shore of upper Bretons Bay about one-fourth mile north-northeast of entrance to Mouldy Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is back of a tree-fringed shore in a field about 10 feet above high water, 7 yards east of edge of bluff, and 6 yards east of a rail fence.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	''	
" Mouldy " (S. 46° 52' W.).....	0	00	00	3/8 mile.
South gable of Duke house.....	109	35	..	3/8 mile.
Nail in blaze in cedar tree (4 inches diameter).....	190	00	20	9.03 meters.
Nail in blaze in persimmon tree (4 inches diameter).....	211	06	40	17.43 meters.
Nail in blaze in pine tree (5 inches diameter).....	336	04	00	5.72 meters.

HEALEY.

*General locality.*—Northwestern shore of Bretons Bay on point opposite Abells Wharf and about three-eighths mile north-northeast of Lovers Point. (See chart No. 25.)

*Immediate locality.*—Observed station is about 12 feet above high water, 6 yards east of edge of bank, 6 yards north of edge of bank, 35 yards west of point where rail fence and water meet, 65 yards southwest of corner of fence, 200 yards southeast of cedar trees, and 250 yards south-southeast of pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Lovers" (S. 0° 03' E.).....	0	00	00	1/2 mile.
Chimney of large house near wharf.....	7	40	..	1/2 mile.
Near chimney of house.....	31	42	..	1 7/8 miles.
Nail in blaze in cedar tree (4 inches diameter)	64	46	40	6.02 meters.
Nail in blaze in twisted cedar tree (4 inches diameter).....	105	20	20	10.33 meters.
Nail in blaze in persimmon tree (8 inches diameter).....	129	26	10	16.41 meters.
Chimney of house on hill.....	199	30	..	400 yards.
Near chimney of house on knoll.....	234	04	..	150 yards.
Left chimney of house on hill.....	269	09	..	2 miles.
Chimney on right end of house.....	305	14	..	1/2 mile.
Chimney of double house.....	334	39	..	1/2 mile.
Windmill.....	352	59	..	5/8 mile.
Water tank.....	354	12	..	5/8 mile.
Right chimney of house.....	354	35	..	5/8 mile.

MOULDY.

*General locality.*—Southeastern shore of Bretons Bay on a point about 100 yards west of entrance to Mouldy Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is about 6 yards south of edge of a 25-foot bluff, 17 yards from high water, 25 yards north of a cultivated field, 50 yards west of a clump of cedar trees, and 100 yards west of entrance to Mouldy Creek.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Beau" (N. 88° 13' W.).....	0	00	00	3/8 mile.
South chimney of two-story house.....	24	30	..	3/4 mile.
Chimney of small two-story house.....	34	13	..	3/4 mile.
South gable of Duke house.....	81	33	..	1 mile.
Cross on Catholic Church.....	91	14	40	2 1/4 miles.
Cross on Catholic Academy.....	91	30	30	2 3/4 miles.
South gable of Foxwell house.....	96	08	..	1 1/4 miles.
South chimney of two-story house.....	99	56	..	1 3/8 miles.
Nail in blaze in ash tree (18 inches diameter).	109	38	30	63.32 meters.
Southwest chimney of one-story farmhouse...	123	57	..	1 mile.
Nail in blaze in oak tree (2 feet diameter)....	165	53	10	52.09 meters.
Center of windmill.....	175	57	30	3/8 mile.
Nail in blaze in ash tree (14 inches diameter).	181	24	30	54.35 meters.
West chimney of large farmhouse.....	248	29	..	1/2 mile.
Top of windmill.....	321	39	30	1 1/2 miles.

## BEAU.

*General locality.*—Southeastern shore of Bretons Bay on first prominent point northeast of Lovers Point about three-eighths mile west of the entrance to Mouldy Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is about 1 foot above high water, 9 yards south of shore, 10 yards east of shore, 10 yards northwest of a small shanty, and 11 yards south-southeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Mouldy" (S. 88° 14' E.).....	0	00	00	¾ mile.
Nail in blaze in double cedar tree (10 inches diameter).....	14	05	00	5.24 meters.
Nail in blaze in cedar tree (8 inches diameter)	41	48	30	6.20 meters.
Left corner of shanty.....	50	11	00	8.78 meters.
Nail in blaze in cedar tree (10 inches diameter).....	72	34	10	5.04 meters.
Right corner of shanty.....	83	51	10	9.89 meters.
Chimney on middle of house.....	118	27	..	½ mile.
Chimney on south end of house at wharf.....	137	20	..	½ mile.
Chimney of Adams house.....	229	33	..	½ mile.
Chimney on middle of house on hill.....	247	07	..	¾ mile.
Peak of near gable of Duke house.....	281	13	..	¾ mile.
Near peak of gable of house.....	302	36	..	1¼ miles.
Left chimney of house.....	346	10	..	¾ mile.
Near peak of gable of house.....	355	55	..	¾ mile.

## HOLLOW.

*General locality.*—Western shore of Bretons Bay, about one-half of a mile northwest of Lovers Point and seven-eighths mile northeast of Paw Paw Point. (See chart No. 25.)

*Immediate locality.*—Observed station is at the side of a ravine about 2 feet above high water, 4 yards northwest of shore, 5 yards southeast of foot of a bank, and northeast of cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Healey" (N. 77° 52' E.).....	0	00	00	½ mile.
Chimney on middle of double house.....	39	42	..	¾ mile.
Right chimney of house.....	55	39	..	¾ mile.
Water tank.....	56	14	..	¾ mile.
Chimney of house.....	71	44	..	1¼ miles.
Nail in blaze in cedar tree (7 inches diameter)	153	12	50	15.41 meters.
Nail in blaze in cedar tree (8 inches diameter)	193	43	00	19.94 meters.
Nail in blaze in white-oak stump (18 inches diameter).....	285	30	10	4.87 meters.
Right chimney of Adams house.....	355	11	..	½ mile.

## TREES.

*General locality.*—Western shore of Bretons Bay, about three-eighths of a mile west of Lovers Point and five-eighths mile northeast of Paw Paw Point. (See chart No. 25.)

*Immediate locality.*—Observed station is at edge of a cultivated field about 5 feet above high water, 15 yards west of shore, 3 yards back from edge of a bank 3 feet high, and 200 yards from a pine woods

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"Hollow" (N. 2° 51' W.).....	0	00	00	3/8 mile.
West gable of 2-story house.....	57	21	..	1/2 mile.
Nail in blaze in cedar tree (4 inches diameter)	89	24	00	.....
Chimney of 2-story house.....	104	05	..	3/4 mile.
Nail in blaze in cedar stump (3 inches diameter).....	117	10	30	.....
Middle chimney on large 2-story house.....	120	29	..	5/8 mile.
Nail in blaze in cherry tree (10 inches diameter).....	213	10	40	.....

LOVERS.

*General locality.*—Southeastern shore of Bretons Bay, about one-eighth of a mile southeast of Lovers Point and 1 mile east of Paw Paw Point. (See chart No. 25.)

*Immediate locality.*—Observed station is about 4 feet above high water, 15 yards south of shore, 6 yards north of a road leading to a wharf, 50 yards north-northwest of a 1½-story house, and 100 yards east of small store with an adjoining dwelling.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"Trees" (N. 67° 47' W.).....	0	00	00	1/2 mile.
North gable of wharf house.....	17	31	..	80 yards.
Near chimney of 2-story house.....	77	47	..	1 mile.
Chimney of 2-story house.....	114	31	..	1/2 mile.
Chimney of 2-story house.....	144	11	40	1/4 mile.
Chimney of 1½-story house.....	162	45	40	1/4 mile.
Chimney of 1½-story house.....	188	50	..	51 yards.
Middle chimney of large 2-story house.....	212	30	..	1/8 mile.
North gable of large barn.....	232	59	10	1/8 mile.
Chimney of store.....	355	16	..	100 yards.

PAW.

*General locality.*—Northwestern shore of Bretons Bay on Paw Paw Point, about 1 mile west-southwest of Lovers Point and three-fourths mile east of Cherry Cove. (See chart No. 25.)

*Immediate locality.*—Observed station is on marsh land near two cedar trees about 1 foot above high water, 7 yards southeast of shore, 18 yards west by north of extreme end of point, 28 yards north-east of another point, 50 yards south-southwest of several cedar trees, and 75 yards southeast of a cultivated field.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"What" (S. 20° 00' E.).....	0	00	00	3/4 mile.
Left chimney of house.....	14	00	..	7/8 mile.
Right corner of right chimney of priest's house.....	103	46	..	17/8 miles.
"Catholic Church Cross (Newtown Neck)".....	104	28	50	17/8 miles.
Nail in blaze in cedar tree (7 inches diameter).....	177	34	00	0.13 meters.
Nail in blaze in water bush (3 inches diameter).....	204	51	00	8.79 meters.
Nail in blaze in cedar tree (6 inches diameter).....	220	42	20	4.77 meters.
Left corner of left chimney of house.....	262	04	..	27/8 miles.
Near corner of chimney at Abells Wharf.....	279	42	..	1 mile.
Right chimney of house.....	286	10	..	17/8 miles.
Water tank.....	287	02	..	1 1/8 miles.
Left peak of roof of large house.....	310	32	..	1 mile.

## WHAT.

*General locality.*—Southeastern shore of Bretons Bay, on first prominent point southwest of Lovers Point, about three-fourths of a mile south-southeast of Paw Paw Point. (See chart No. 25.)

*Immediate locality.*—Observed station is about 20 feet above high water, 9 yards south of edge of bank, 4 yards east of a fence, 85 yards northeast of a fence at creek, 300 yards northeast of a large barn on other side of creek, and east to northeast of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Protestant" (N. 87° 05' W.)	0	00	00	¾ mile.
Near peak of roof of priest's house	10	30		2¼ miles.
"Catholic Church Cross (Newtown Neck)"	10	52	10	2¼ miles.
Near peak of roof between two chimneys of house	28	26		1½ miles.
Peak of front gable of Duke house	78	53		1½ miles.
Nail in blaze in sassafras tree (4 inches diameter)	122	49	00	8.04 meters.
Nail in blaze in persimmon tree (7 inches diameter)	146	12	40	7.47 meters.
Nail in blaze in persimmon tree (6 inches diameter)	169	14	50	7.58 meters.
Chimney of old house	270	19		250 yards.
Left peak of large barn	289	10		300 yards.
Right peak of roof of house with two chimneys	320	38		300 yards.

## CHERRY COVE.

*General locality.*—Northwestern shore of Bretons Bay, about 2 miles north-northeast of Higgins Point and one-eighth mile west-southwest of entrance to Cherry Cove. (See chart No. 25.)

*Immediate locality.*—Observed station is in a field about 15 feet above high water, 12 yards north of edge of bank, 17 yards west-southwest of near corner of a 2-story house, 23 yards west-northwest of a point, 25 yards west of edge of bank, and 27 yards southwest by south of a wire fence around a garden.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Compton" (S. 73° 49' W.)	0	00	00	¾ mile.
Peak of tin roof of priest's house	0	39		1½ miles.
"Catholic Church cross (Newtown Neck)"	2	13	40	1½ miles.
Near peak of roof of large house	28	46	20	¾ mile.
Tangent of point of bank on opposite side of Cherry Cove	119	52		¾ mile.
Left chimney of house	131	40		1½ miles.
Nail in blaze in corner fence post (3 inches diameter)	145	17	00	26.46 meters.
Left corner of house	166	14	20	19.95 meters.
Near corner of house	177	51	50	17.14 meters.
Right corner of house	188	05	20	24.94 meters.
Left corner of large house near Abells Wharf	190	01		2 miles.
Water tank	196	38		2 miles.
Chimney of large house	228	19		2 miles.
Chimney of large house	240	39		1½ miles.
Cupola on building in woods	276	42		1¼ miles.

PROTESTANT.

*General locality.*—Southeastern shore of Bretons Bay on Protestant Point opposite Cherry Cove about 1 7/8 miles east-northeast of Kaywood Point. (See chart No. 25.)

*Immediate locality.*—Observed station is on a sand bar about 2 feet above high water, 26 yards north of shore, 35 yards east by south of a cedar tree, and 35 yards northwest of entrance to a creek. Cement monument marking reference station is 29.12 meters S. 56° 29' E. of observed station.

*Marks.*—Observed station is nail in stub with top about 12 inches above surface of sand. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	''	
"Cherry Cove" (N. 21° 54' W.).....	0	00	00	7/8 mile.
Chimney of house.....	0	50	..	7/8 mile.
Left chimney of house.....	27	44	..	1 3/4 miles.
Peak of front gable of Duke house.....	45	08	..	1 1/2 miles.
Chimney of Adams house.....	71	32	..	2 1/4 miles.
Chimney outside of house at Abells Wharf..	82	37	..	1 3/4 miles.
Water tank.....	87	58	..	1 3/4 miles.
Left chimney of house.....	126	59	..	3/4 mile.
REFERENCE STATION.....	145	24	35	29.12 meters.
Nail in blaze in cedar tree (7 inches diameter).	145	54	20	39.51 meters.
Nail in blaze in oak tree (7 inches diameter)..	173	48	10	28.84 meters.
Nail in blaze in oak tree (20 inches diameter).	204	06	30	23.34 meters.
"Catholic Church Cross (Newtown Neck)"..	311	47	00	1 1/2 miles.
Chimney on middle of roof of house.....	336	32	..	1 mile.

FENCE.

*General locality.*—Southeastern shore of Bretons Bay opposite Compton about 1 3/8 miles northeast of Kaywood Point at entrance to Bay. (See chart No. 25.)

*Immediate locality.*—Observed station is about 12 feet above high water, 3 yards southeast of edge of bank, 70 yards southwest of locust trees, and in front of cedar and sassafras trees. Cement monument marking reference station is 12.87 meters S. 25° 41' E. of observed station.

*Marks.*—Observed station is nail in stub. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	''	
"Compton" (N. 41° 30' W.).....	0	00	00	1 1/8 miles.
Near corner of large outside chimney of house	6	24	..	1 3/8 miles.
Near peak of roof of house.....	32	56	..	1 1/4 miles.
Chimney of house.....	48	47	..	1 1/2 miles.
Largest chimney of Duke house.....	72	15	..	1 3/4 miles.
Nail in blaze in apple tree (16 inches diameter).....	144	58	50	59.59 meters.
Large chimney of building among trees.....	186	31	..	1/8 mile.
Nail in blaze in persimmon tree (4 inches diameter).....	195	36	00	19.97 meters.
REFERENCE STATION.....	195	48	55	12.87 meters.
Nail in blaze in cedar tree (2 inches diameter)	232	51	20	18.10 meters.
Chimney on middle of house.....	294	55	..	1 mile.
Near end of near chimney of priest's house..	352	57	..	1 1/4 miles.





## DUNE.

*General locality.*—Eastern shore of Bretons Bay about five-eighths mile north of Higgins Point and  $1\frac{1}{8}$  miles northwest of Kaywood Point. (See chart No. 25.)

*Immediate locality.*—Observed station is on a sanded grassy knoll about 4 feet above high water, 4 yards southeast of edge of bank, 8 yards northwest of foot of sand slope, 20 yards northeast of first tree in scant woods, 25 yards northwest of edge of woods, 55 yards west-southwest of a large pine tree at point of woods, and 75 yards east-northeast of a mud hole.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Blakistone Island Light" (S. $53^{\circ} 42'$ W.)...	0	00	00	..... $3\frac{3}{8}$ miles.
Chimney of house.....	28	43	..	..... $\frac{3}{4}$ mile.
"Catholic Church Cross (Newtown Neck)"..	89	39	20	..... $1\frac{1}{4}$ miles.
Right tangent of right chimney of priest's house.....	90	18	40	..... $1\frac{1}{4}$ miles.
Right peak of roof of railway building.....	114	03	..	..... $1\frac{1}{2}$ miles.
Right peak of roof between two chimneys of house.....	127	00	..	..... $1\frac{3}{8}$ miles.
Nail in blaze in pine tree (12 inches diameter)	189	58	30	..... 47.76 meters.
Nail in blaze in oak tree (6 inches diameter)..	245	56	00	..... 19.77 meters.
Nail in blaze in oak tree (11 inches diameter).	342	10	20	..... 16.78 meters.

## NEWTOWN.

*General locality.*—Western shore of Bretons Bay about one-half mile north of Kaywood Point and seven-eighths mile northwest of Higgins Point. (See chart No. 25.)

*Immediate locality.*—Observed station is about 12 feet above high water, surrounded by a fence, 9 yards west-northwest of edge of bank, 9 yards southwest of corner of fence, 10 yards north-northeast of corner of fence, 13 yards east of corner of fence, 14 yards south-southeast of corner of fence, 30 yards south-southwest of several trees, 60 yards southwest of a ditch, 75 yards south-southeast of a pond, and 85 yards southwest of a point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Dune" (N. $85^{\circ} 43'$ E.).....	0	00	00	..... $\frac{5}{8}$ mile.
Main chimney of house.....	153	57	..	..... 200 yards.
Nail in blaze in cedar tree (3 inches diameter)	241	26	30	..... 12.22 meters.
Chimney of house.....	280	50	..	..... $1\frac{1}{2}$ miles.
Nail in blaze in twin persimmon tree (8 inches diameter).....	306	40	40	..... 29.56 meters.
Nail in blaze in sugarberry tree (12 inches diameter).....	323	04	20	..... 24.89 meters.
Chimney outside of building at Abells Wharf.	337	37	..	..... $3\frac{1}{4}$ miles.
Large chimney of house.....	340	16	..	..... $3\frac{1}{4}$ miles.
Water tank.....	340	35	..	..... $3\frac{1}{4}$ miles.

## GROVE.

*General locality.*—Eastern shore of Bretons Bay about one-half mile north of Higgins Point and seven-eighths mile northeast of Kaywood Point. (See chart No. 25.)

*Immediate locality.*—Observed station is on sanded grassy land in a grove of trees about 8 feet above high water, 3 yards east of edge of bank, 5 yards south of edge of bank, 23 yards north by east of a large oak tree, and 30 yards south-southwest of a high sand pile. Cement monument marking reference station is near twin oak trees 21.48 meters S.  $34^{\circ} 32'$  E. of observed station.

*Marks.*—Observed station is nail in stub with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Blakistone Island Light" (S. $54^{\circ} 24'$ W.) ..	0	00	00	3 $\frac{3}{4}$ miles.
"Catholic Church Cross (Newtown Neck)" ..	93	09	30	1 $\frac{1}{4}$ miles.
Right tangent of chimney of priest's house ...	93	54	..	1 $\frac{1}{4}$ miles.
Tree (10 inches diameter).....	107	09	..	5 yards.
Nail in blaze in persimmon tree (10 inches diameter).....	204	01	00	8.27 meters.
Nail in blaze in forked oak tree (12 inches diameter).....	243	46	30	12.31 meters.
REFERENCE STATION.....	271	03	45	21.48 meters.
Nail in blaze in right one of twin oak trees (12 inches diameter).....	272	35	50	22.50 meters.
Oak tree (4 feet diameter).....	326	09	..	23 yards.

## CEDOAK.

*General locality.*—Eastern shore of Bretons Bay about one-eighth mile north of Higgins Point and seven-eighths mile east of Kaywood Point. (See chart No. 25.)

*Immediate locality.*—Observed station is about 8 feet above high water, 2 yards east of edge of bank, 11 yards north-northwest of edge of bank at cedar woods, 12 yards west-southwest of an oak tree, 30 yards south-southeast of small clump of cedar trees on point, and 40 yards south of edge of clearing. Cement monument marking reference station is 21.91 meters N.  $76^{\circ} 41'$  E. of observed station.

*Marks.*—Observed station is nail in cedar stub about 1 inch above surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Blakistone Island Light" (S. $58^{\circ} 45'$ W.) ..	0	00	00	3 $\frac{5}{8}$ miles.
Left chimney of Colton Hotel.....	17	18	..	3 $\frac{1}{2}$ miles.
Chimney of house beyond edge of woods ...	28	52	..	1 $\frac{3}{8}$ miles.
Chimney on middle of house.....	54	17	..	$\frac{3}{8}$ mile.
Between two chimneys on right of priest's house.....	94	48	..	1 $\frac{5}{8}$ miles.
Left peak of roof of railway building.....	111	49	..	1 $\frac{7}{8}$ miles.
Nail in blaze in pine tree (13 inches diameter).....	147	06	00	28.08 meters.
Nail in blaze in oak tree (14 inches diameter).....	179	34	00	10.22 meters.
REFERENCE STATION.....	197	56	05	21.91 meters.
Nail in blaze in cedar tree (10 inches diameter).....	222	43	40	16.19 meters.
Left tree on Higgins Point.....	290	59	..	$\frac{1}{8}$ mile.

## KAYWOOD.

*General locality.*—Northern shore of Heron Island Sound on Kaywood Point. (See chart No. 25.)

*Immediate locality.*—Observed station is in a clear field about 8 feet above high water, 4 yards west-northwest of edge of bank, 22 yards northeast of edge of bank, 23 yards north-northeast of extreme point of bank, and 75 yards south-southwest of large gum tree at edge of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Blakistone Island Light" (S. 49° 47' W.) . . . . .	0	00	00	2 $\frac{7}{8}$ miles.
Chimney on near end of house . . . . .	42	31		3 $\frac{8}{8}$ mile.
Chimney of cabin . . . . .	75	41		3 $\frac{8}{8}$ mile.
Nail in blaze in gum tree . . . . .	154	04	10	72 yards.
Right chimney of large house on hill . . . . .	186	28		5 miles.
Near peak of roof of house . . . . .	187	05		5 miles.
Chimney of small house . . . . .	226	06		2 $\frac{1}{2}$ miles.

## HERON.

*General locality.*—Northern side of Potomac River on a sand bar called Heron Island at entrances to St. Clement Bay and Bretons Bay and about 1 $\frac{1}{2}$  miles east-northeast of Blakistone Island Light. (See chart No. 25.)

*Immediate locality.*—Observed station is on southeastern end of sand bar remains of Heron Island.

*Marks.*—Observed station is awash except at low water and was not marked.

*References.*—None necessary.

## BLAKISTONE ISLAND LIGHT.

*General locality.*—Northern side of Potomac River on southern end of Blakistone Island off entrance to St. Clement Bay and Bretons Bay. (See chart No. 25.)

*Immediate locality.*—Observed station is on a dwelling near a fog-bell tower.

*Marks.*—Observed station is center point of lantern on a dwelling known as Blakistone Island Light-house.

*References.*—

	°	'	''	
"Cobb Point Bar Light" (N. 61° 22' W.) . . . . .	0	00	00	5 miles.

## HERRING POND 2 (VIRGINIA).

*General locality.*—Southern shore of Potomac River on a point between Nomini Bay and Machodoc River about three-eighths mile east of Kingcopscio Point. (See progress map.)

*Immediate locality.*—Observed station is about 1 foot above high water, 2 feet south of shore, 25 yards west of a round point, 85 yards east-northeast of entrance to Herring Pond Creek, and west-northwest of a grove of cedar trees. Center one of five cedar posts marking reference station is 3 meters S. 5° 33' E. of observed station.

*Marks.*—Observed station is center of 4-inch tile pipe set in cement with top about flush with surface of ground. Reference station is center one of four nails in center one of five cedar posts.

*References.*—

	°	'	''	
"Blakistone Island Light" (N. 42° 34' W.) . . . . .	0	00	00	4 $\frac{1}{2}$ miles.
Near chimney of Colton Hotel . . . . .	4	18		5 $\frac{1}{2}$ miles.
Church Cross on Maryland shore . . . . .	13	01	30	11 miles.
Right chimney of Yates house . . . . .	26	29		5 $\frac{3}{4}$ miles.
Near corner of large house on hill . . . . .	108	39		8 miles.
Top nail in blaze in gnarled cedar tree (8 inches diameter) . . . . .	160	35	40	10.62 meters.
Nail in blaze in cedar tree (5 inches diameter) . . . . .	220	44	40	19.50 meters.
REFERENCE STATION (nail in cedar stub) . . . . .	217	01	00	3 meters.
Nail in blaze in stump (7 inches diameter) . . . . .	227	29	30	7.52 meters.
Nail in blaze in cedar stump (12 inches diameter) . . . . .	288	16	20	3.62 meters.
Tree on point . . . . .	314	21		$\frac{1}{4}$ mile.
Tangent of woods . . . . .	319	13		$\frac{1}{2}$ mile.

## ST. CLEMENT.

*General locality.*—Northern shore of Heron Island Sound on Newton Neck about  $2\frac{3}{4}$  miles northeast of Blakistone Island Light. (See chart No. 25.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 17 yards northeast of shore, 32 yards east of shore, 32 yards north by west of most prominent point, and 70 yards southeast of another point. Cement monument marking reference station is on line to large mulberry tree 22.01 meters N.  $41^{\circ} 29'$  E. of observed station.

*Marks.*—Observed station is nail in stub with top about 3 inches above surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Blakistone Island Light" (S. $37^{\circ} 57'$ W.)...	0	00	00	$2\frac{3}{4}$ miles.
Near corner of left chimney of Colton Hotel...	29	09	..	$1\frac{7}{8}$ miles.
Left corner of left chimney of large house....	53	51	..	$1\frac{1}{2}$ miles.
Nail in blaze in locust tree (6 inches diameter).....	57	53	50	31.98 meters.
Peak of near gable of house on Canoe Neck Creek.....	119	23	..	$2\frac{3}{4}$ miles.
Left tangent of trees on Long Point.....	120	08	..	$\frac{3}{8}$ mile.
Nail in blaze in mulberry tree (30 inches diameter).....	183	04	40	23.30 meters.
REFERENCE STATION.....	183	31	40	22.01 meters.
Right chimney of house.....	221	59	..	$\frac{3}{8}$ mile.
Nail in blaze in locust tree (3 inches diameter).....	309	32	30	28.52 meters.

## ST. PATRICK.

*General locality.*—Western shore of lower St. Clement Bay about  $1\frac{1}{2}$  miles north of Blakistone Island and one-half mile north-northeast of entrance to St. Patricks Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is on cultivated land about 8 feet above high water, 26 yards west-northwest of edge of bank, 17 yards east-southeast of a lone persimmon tree, 100 yards north-northeast of a rail and wire fence, and 200 yards south of a barn in corner of field. Cement monument marking reference station is about on line to persimmon tree 15.35 meters N.  $59^{\circ} 51'$  W. of observed station.

*Marks.*—Observed station is nail in stub with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Blakistone Island Light" (S. $10^{\circ} 47'$ W.)...	0	00	00	$2\frac{1}{8}$ miles.
Peak of near gable of large house.....	55	39	30	$\frac{1}{4}$ mile.
Chimney of house.....	101	35	..	$\frac{3}{8}$ mile.
REFERENCE STATION.....	109	22	10	15.35 meters.
Nail in blaze in persimmon tree (12 inches diameter).....	109	25	30	16.32 meters.
Right peak of roof of barn.....	158	56	..	200 yards.
Right tangent of chimney of house.....	175	37	..	200 yards.
"Catholic Church Cross (Newtown Neck)".....	228	45	20	$2\frac{3}{8}$ miles.
Near corner of near chimney of priest's house.	229	36	40	$2\frac{3}{8}$ miles.
Near chimney of Yates house.....	255	04	..	1 mile.
Chimney of left house on Blakistone Island..	357	18	..	$2\frac{1}{8}$ miles.

## ROOF.

*General locality.*—Eastern side of St. Clement Bay about one-half mile north-northeast of entrance to bay, and three-eighths mile east-southeast of extreme end of Long Point. (See chart No. 25.)

*Immediate locality.*—Observed station is on western peak of roof of a barn behind a large house.

*Marks.*—Observed station is a 3-inch square staff fastened and braced to the western peak of roof of barn.

*References.*—None necessary.

## CANOE.

*General locality.*—Western shore of lower St. Clement Bay opposite Long Point and about 2 miles north of Blakistone Island. (See chart No. 25.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 4 yards northwest of edge of bank, 4 yards southwest of a ditch and trees in hollow, and 60 yards south by east of a large apple tree. Cement monument marking reference station is 53.28 meters N.  $17^{\circ}$   $17'$  W. of observed station.

*Marks.*—Observed station is nail in stub with top about 2 inches above surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Blakistone Island Light" (S. $14^{\circ}$ $12'$ W.) . . . . .	0	00	00	2 $\frac{3}{4}$ miles.
Chimney of small house . . . . .	19	40	..	1 $\frac{1}{8}$ miles.
Near end of roof of house . . . . .	54	55	..	$\frac{1}{2}$ mile.
REFERENCE STATION . . . . .	148	31	20	53.28 meters.
Nail in blaze in pear tree (26 inches diameter) . . . . .	148	34	30	54.82 meters.
Chimney outside of house . . . . .	150	05	..	$\frac{1}{2}$ mile.
Left chimney of large house . . . . .	178	54	..	$\frac{3}{8}$ mile.
Chimney of house . . . . .	216	23	..	2 $\frac{1}{2}$ miles.
"Catholic Church Cross (Newtown Neck)" . . . . .	233	20	50	1 $\frac{1}{8}$ miles.
Near peak of roof of barn . . . . .	257	32	..	1 $\frac{1}{4}$ miles.
Near chimney of Yates house . . . . .	283	03	..	$\frac{1}{8}$ mile.

## RAILS.

*General locality.*—Eastern shore of St. Clement Bay about three-fourths mile northeast of Long Point and  $3\frac{1}{4}$  miles north-northeast of Blakistone Island Light. (See chart No. 25.)

*Immediate locality.*—Observed station is about 12 feet above high water, 16 yards southeast of edge of bank, 3 yards northeast of a rail fence, 40 yards northeast of a marshy creek between two fences, and 400 yards west to northwest of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Shipping" (N. $4^{\circ}$ $08'$ W.) . . . . .	0	00	00	1 $\frac{1}{4}$ miles.
Chimney of house . . . . .	35	31	..	1 mile.
"Catholic Church Cross (Newtown Neck)" . . . . .	51	15	00	$\frac{7}{8}$ mile.
Near peak of roof of priest's house . . . . .	53	32	..	$\frac{3}{8}$ mile.
Nail in blaze in locust tree (5 inches diameter) . . . . .	129	00	30	5.27 meters.
Nail in blaze in cedar tree (7 inches diameter) . . . . .	240	21	50	3.77 meters.
Nail in blaze in gum tree (10 inches diameter) . . . . .	276	04	40	10.24 meters.
Near chimney of house with several gables . . . . .	295	14	..	1 $\frac{1}{4}$ miles.
Left chimney of large house . . . . .	352	11	..	1 $\frac{1}{4}$ miles.



## SHIPPING.

*General locality.*—Western shore of St. Clement Bay on Shipping Point about three-eighths mile southwest of Howards Wharf and  $1\frac{3}{4}$  miles north-northeast of Long Point. (See chart No. 25.)

*Immediate locality.*—Observed station is on a sand and grass point about 1 foot above high water, 5 yards southwest of shore, 6 yards north of shore, 16 yards west-northwest of extreme end of point, 20 yards east-southeast of woods on point, and 300 yards northeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Catholic Church Cross (Newtown Neck)" (S. 46° 09' E.)	0	00	00	1 mile.
Right tangent of right chimney of priest's house	0	07		1 mile.
Left peak of roof of barn	39	34		1½ miles.
Left tree on Long Point	62	53		1 mile.
Post of bird house	104	23		250 yards.
Chimney on ell of Colton house	114	04		300 yards.
Nail in blaze in cedar tree (3 inches diameter)	159	05	50	18.51 meters.
Nail in blaze in cedar tree (5 inches diameter)	184	37	20	17.18 meters.
Right chimney of house	193	41		5⁄8 mile.
Flagstaff at Maycroft	205	06	40	1 mile.
Nail in blaze in cedar tree (3 inches diameter)	221	28	30	3.76 meters.
Peak of front gable of house	240	48		2 miles.
Near peak of front gable of house	317	34		5⁄8 mile.

## MANSION.

*General locality.*—Eastern shore of St. Clement Bay about one-half mile southeast of Howards Wharf and 2 miles north-northeast of Long Point. (See chart No. 25.)

*Immediate locality.*—Observed station is about 20 feet above high water, 6 yards northeast of edge of bank, 100 yards west by south of a corncrib, 110 yards west-northwest of an outbuilding, 125 yards southwest of a house, and 85 yards west of fruit trees. Cement monument marking reference station is 44.26 meters N. 19° 04' E. of observed station.

*Marks.*—Observed station is nail in stub with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Shipping" (N. 84° 21' W.)	0	00	00	5⁄8 mile.
Right chimney of house	25	21		1 mile.
Nail in blaze in cedar tree (7 inches diameter)	60	41	10	47.34 meters.
Nail in blaze in cedar tree (7 inches diameter)	102	21	10	43.77 meters.
REFERENCE STATION	103	24	35	44.26 meters.
Near corner of house	143	38		127 yards.
Near corner of corncrib	163	17		99 yards.
Nail in blaze in apple tree (14 inches diameter)	182	45	20	77.64 meters.
Near corner of outbuilding	203	42		111 yards.
"Catholic Church Cross (Newtown Neck)"	253	20	00	5⁄8 mile.
Peak of front gable of Colton house	353	10		7⁄8 mile.

## HOWARDS.

*General locality.*—Northeastern shore of St. Clement Bay about  $2\frac{1}{4}$  miles north-northeast of Long Point, one-half mile northeast of Shipping Point and one-eighth mile east of Howards Wharf. (See chart No. 25.)

*Immediate locality.*—Observed station is in a field about 20 feet above high water, 8 yards north of edge of bank, 16 yards west-northwest of edge of ravine, 18 yards northwest of extreme end of point of bank, 70 yards west of another ravine, 100 yards west-northwest of a wire fence, and 250 yards south of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Chapel" (S. $0^{\circ} 26'$ W.).....	0	00	00	$1\frac{1}{8}$ mile.
Left chimney of Yates house.....	16	33	..	$2\frac{1}{4}$ miles.
Chimney outside of house.....	38	37	..	$1\frac{1}{8}$ miles.
Nail in blaze in cedar tree (6 inches diameter).....	54	54	40	8.62 meters.
Nail in blaze in cherry tree (7 inches diameter).....	85	26	10	23.75 meters.
Cupola on Maycroft barn.....	124	50	..	1 mile.
Flagstaff at Maycroft.....	127	33	..	1 mile.
Oak tree (3 feet diameter).....	150	38	..	200 yards.
Chimney of house.....	156	01	..	250 yards.
Left peak of roof of barn.....	223	31	..	250 yards.
Near peak of roof of house.....	241	39	..	$\frac{1}{4}$ mile.
Chimney of house in woods.....	284	21	..	$\frac{3}{8}$ mile.
Nail in blaze in cedar tree (3 inches diameter).....	339	29	00	12.15 meters.

## MILEYS.

*General locality.*—Western shore of St. Clement Bay about one-half mile west-northwest of Howards Wharf, one-half mile northwest of Shipping Point, and one-eighth mile north of entrance to Mileys Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is among water bushes on marsh land about 1 foot above high water, 12 yards southwest of shore, 20 yards west of shore, and 150 yards east-southeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Shipping" (S. $29^{\circ} 08'$ E.).....	0	00	00	$\frac{1}{2}$ mile.
Left chimney of house.....	144	08	..	150 yards.
Right corner of chimney of house.....	154	56	..	150 yards.
Near peak of roof of house.....	183	18	..	$\frac{1}{4}$ mile.
Between two chimneys of old house.....	209	36	..	$\frac{1}{2}$ mile.
Right chimney of old house.....	247	47	..	$\frac{7}{8}$ mile.
Right chimney of Howard house.....	295	02	..	$\frac{1}{2}$ mile.
Left corner of left chimney of priest's house.....	348	13	40	$1\frac{1}{2}$ miles.
"Catholic Church Cross (Newtown Neck)".....	348	39	20	$1\frac{1}{2}$ miles.

## BANK.

*General locality.*—Eastern shore of St. Clement Bay about one-fourth mile north of Howards Wharf, five-eighths mile north-northeast of Shipping Point and five-eighths mile east-northeast of entrance to Mileys Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is in a field adjoining an orchard back of a tree-fringed shore about 12 feet above high water, 20 yards east of edge of field, 17 yards south of a small gully, and 50 yards north of a fence dividing orchard and field. Cement monument marking reference station is 18.53 meters N.  $42^{\circ} 08'$  W. of observed station.



*Marks.*—Observed station is nail in stub with top about flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Shipping" (S. 25° 34' W.).....	0	00	00	5/8 mile.
Near chimney outside small house on Mileys Creek.....	42	12	..	3/4 mile.
Chimney outside right end of house.....	55	15	..	5/8 mile.
Flagstaff at Maycroft.....	80	05	..	5/8 mile.
REFERENCE STATION.....	112	17	40	18.53 meters.
Nail in blaze in cherry tree (22 inches diameter).....	112	22	30	19.60 meters.
Right chimney of house.....	155	16	..	1/2 mile.
Nail in blaze in walnut tree (13 inches diameter).....	182	37	30	13.49 meters.
Tree at corner of orchard.....	280	26	..	66 yards.
Chimney of house.....	327	52	..	1/8 mile.
Nail in blaze in cherry tree (18 inches diameter).....	353	37	00	37.03 meters.

PROFOUND.

*General locality.*—Eastern shore of upper St. Clement Bay about one-half mile south of Cedar Point and 1 mile north of Shipping Point. (See chart No. 25.)

*Immediate locality.*—Observed station is on the southern side of the point on which the Hudson house is located about 12 feet above high water, 3 yards east-southeast of north corner and 3 yards north-northeast of south corner of a chicken house, 25 yards west of extreme end of point, 16 yards southeast of a well, 5 yards southwest of a drain from well, 16 yards southwest of edge of bank, and 4 yards southeast of top of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Cecil" (N. 70° 56' E.).....	0	00	00	1/2 mile.
Nail in blaze in cherry tree (7 inches diameter).....	18	02	35	3.54 meters.
Chimney of house on Howard Point.....	60	16	..	5/8 mile.
"Catholic Church Cross (Newtown Neck)".....	78	55	10	17/8 miles.
Near outside chimney of house.....	120	50	..	1/2 mile.
Left corner of chicken house.....	132	30	20	1.84 meters.
Left side of left chimney of Hudson house.....	201	54	20	44 yards.
Right corner of chicken house.....	213	14	..	2.30 meters.
Nail in blaze in right branch of pear tree (35 inches diameter).....	218	35	40	6.10 meters.
Near corner of kitchen.....	233	32	..	14.35 meters.
Center of standpipe at well.....	253	00	30	13.21 meters.
Near corner of right chimney of house.....	253	44	..	1/4 mile.
Peak of front gable of house.....	286	31	..	3/8 mile.
Nail in blaze in apple tree (14 inches diameter).....	296	38	30	8.79 meters.
Peak of front gable of house.....	316	27	..	2 miles.
Near corner of near chimney of house.....	358	54	..	1/2 mile.

## CECIL.

*General locality.*—Eastern shore of upper St. Clement Bay about one-half mile southeast of Cedar Point and  $1\frac{1}{8}$  miles north of Shipping Point. (See chart No. 25.)

*Immediate locality.*—Observed station is in a field about 12 feet above high water, 14 yards northeast of extreme edge of bank, 14 yards east of edge of bank, 21 yards southeast of edge of bank, 25 yards north of a marshy gully, 130 yards west-southwest of a fence surrounding a farmhouse, and 135 yards west-southwest of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Mileys" (S. $35^{\circ} 54'$ W.).....	0	00	00	$\frac{3}{4}$ mile.
Near corner of near chimney of house.....	5	41	40	$\frac{3}{4}$ mile.
Near corner of chimney outside of house.....	16	58	..	$\frac{3}{4}$ mile.
Peak of front gable of house.....	85	56	..	$\frac{1}{2}$ mile.
Near peak of roof on Cobrums Wharf.....	99	01	..	$\frac{7}{8}$ mile.
Largest chimney of house on ridge.....	111	24	..	$2\frac{3}{4}$ miles.
Near corner of chimney of house on ridge....	132	38	..	$2\frac{1}{2}$ miles.
Peak of front gable of house.....	160	58	..	$1\frac{3}{4}$ miles.
Near corner of house.....	206	52	20	136 yards.
Nail in blaze in cedar tree (5 inches diameter).....	281	10	20	15.07 meters.
Near peak of roof of large barn.....	292	43	..	$\frac{3}{4}$ mile.
Chimney of house.....	316	25	20	$\frac{5}{8}$ mile.

## RADEC.

*General locality.*—Western shore of upper St. Clement Bay on Cedar Point about three-eighths of a mile southeast of Cobrums Wharf and  $1\frac{1}{4}$  miles south of Stones Wharf. (See chart No. 25.)

*Immediate locality.*—Observed station is on a point about 3 feet above high water, 23 yards northwest of shore, 32 yards south of shore, 75 yards west of extreme end of point, 45 yards northeast of outlet of a small pond, and 14 yards north-northeast of a small cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Place" (N. $47^{\circ} 42'$ E.).....	0	00	00	$\frac{1}{2}$ mile.
Nail in blaze in cedar tree (6 inches diameter).....	16	43	30	17.80 meters.
Left point of roof of house.....	51	49	..	$\frac{3}{4}$ mile.
Left chimney of house on Howard Point....	79	13	..	$1\frac{1}{8}$ miles.
Right side of right chimney of Hudson house.	110	59	..	$\frac{1}{2}$ mile.
Nail in blaze in cedar tree (7 inches diameter).....	124	00	50	13.03 meters.
Right tangent of house.....	130	00	..	$\frac{1}{8}$ mile.
Peak of front gable of house.....	225	35	..	$\frac{3}{8}$ mile.
Near peak of roof of wharf house.....	241	18	40	$\frac{3}{8}$ mile.
Chimney of house.....	251	59	..	$\frac{3}{4}$ mile.
Near peak of roof on Stones Wharf.....	283	39	30	$1\frac{1}{4}$ miles.
Left chimney of house.....	284	44	30	$1\frac{1}{4}$ miles.
Left tangent of left chimney of old house....	342	08	..	$\frac{3}{4}$ mile.
Nail in blaze in cedar tree (14 inches diameter).....	351	42	00	25.89 meters.

PLACE.

*General locality.*—Eastern shore of upper St. Clement Bay about three-fourths of a mile east of Cobrums Wharf, five-eighths of a mile southeast of Guest Point and one-half of a mile east-north-east of Cedar Point. (See chart No. 25.)

*Immediate locality.*—Observed station is on the southern edge of a cultivated field about 10 feet above high water, 4 yards north of edge of bank, 20 yards east-southeast of edge of bank, 40 yards east-northeast of extreme end of marsh point, 50 yards north of edge of marsh, and 95 yards west-northwest of a corn crib.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Guest" (N. 41° 32' W.).....	0	00	00	5/8 mile.
Left tangent of left chimney of large house..	57	46	..	1/4 mile.
Left tangent of chimney of shack.....	162	05	..	112 yards.
Nail in blaze in apple trees (5 inches diameter).....	165	35	30	15.43 meters.
Nail in blaze in old stump (5 inches diameter).....	197	51	40	6.53 meters.
Near peak of roof of house on next point....	226	05	..	5/8 mile.
Chimney outside near end of house.....	251	10	..	1 1/4 miles.
Right tangent of right chimney of Hudson house .....	261	35	..	7/8 mile.
Peak on front gable of house.....	287	16	..	5/8 mile.
Near peak of roof on Cobrums Wharf.....	319	05	..	3/4 mile.

COBRUMS.

*General locality.*—Western shore of upper St. Clement Bay on southern side of entrance to Tomakokin Creek, about 1 mile south-southwest of Stones Wharf and 100 yards northwest of Cobrums Wharf. (See chart No. 25.)

*Immediate locality.*—Observed station is on a marsh point about 2 feet above high water, 65 yards north-northwest of shore end of Cobrums Wharf, 7 yards south of shore, 8 yards southwest of shore, 12 yards west of shore at extreme end of point, and 17 yards east-northeast of a fence.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Tomakokin" (N. 38° 47' W.).....	0	00	00	3/8 mile.
Chimney on near end of house .....	14	50	..	3/8 mile.
Left tangent of left chimney of house on hill.	42	17	..	1 3/4 miles.
Near peak of roof of house on Stones Wharf..	53	01	..	1 mile.
Peak of front gable of house .....	88	56	..	1 1/2 miles.
Left tangent of left chimney of old house....	121	54	..	7/8 mile.
Left corner of house on Cobrums Wharf....	177	28	30	70 yards.
Right corner of house on Cobrums Wharf....	184	10	..	65 yards.
Right chimney of house .....	190	12	..	1/2 mile.
Nail in blaze in one of several bushes.....	255	07	50	17.04 meters.
Near peak of roof of barn .....	264	28	..	1/8 mile.
Nail in blaze in cherry tree (3 feet diameter).	306	25	40	30.28 meters.

## GUEST.

*General locality.*—Eastern shore of upper St. Clement Bay on Guest Point, about one-half mile northeast of Cobrums Wharf and five-eighths mile south-southeast of Stones Wharf. (See chart No. 25.)

*Immediate locality.*—Observed station is on a marsh point about 3 feet above high water, 32 yards north of shore, 43 yards northeast of shore, 45 yards east of shore, 95 yards west-northwest of south corner of a fence, and 175 yards south-southwest of north corner of a fence at edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Stones" (N. 16° 55' W.)	0	00	00	5/8 mile.
Near peak of roof on Stones Wharf	1	58	..	5/8 mile.
Near corner of highest chimney on Greenwell house	5	06	..	3/4 mile.
Cedar tree	21	35	..	150 yards.
Left corner of chimney of house	61	55	..	150 yards.
Peak of near gable of house on hill	65	37	..	1 mile.
Near peak of roof of house	100	13	..	3/4 mile.
Near corner of near chimney of old house	129	55	..	1/4 mile.
Left chimney of house	180	27	..	1 3/8 miles.
Left tangent of left chimney of Hudson house	206	11	..	1 3/8 miles.
Near chimney of house	211	20	..	5/8 mile.
Chimney on middle of house among trees	217	19	..	5/8 mile.
Nail in blaze in cedar tree (6 inches diameter)	239	53	50	12.57 meters.
Near peak of roof on Cobrums Wharf	243	57	..	1/2 mile.
Nail in blaze in locust tree (6 inches diameter)	260	31	50	20.25 meters.
Near corner of chimney of house on hill	326	05	..	1 3/4 miles.
Near corner of largest chimney of house on hill	331	50	..	1 3/8 miles.

## TOMAKOKIN.

*General locality.*—Western shore of upper St. Clement Bay on northern side of entrance to Tomakokin Creek, about three-eighths mile northwest of Cobrums Wharf and three-fourths mile southwest of Stones Wharf. (See chart No. 25.)

*Immediate locality.*—Observed station is on the edge of a cultivated field about 4 feet above high water, 4 yards west of shore, 12 yards northwest of high water, 14 yards south-southwest of a walnut tree, and 300 yards south-southeast of a barn.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Guest" (N. 84° 01' E.)	0	00	00	5/8 mile.
Left corner of left chimney of old house	13	15	..	1 mile.
Near peak of roof on Cobrums Wharf	57	33	..	3/8 mile.
Right peak of roof of barn	71	52	..	3/4 mile.
Near corner of chimney of house	135	25	..	3/8 mile.
Left tangent of left chimney of house	181	21	..	5/8 mile.
Nail in blaze in mulberry tree (6 inches diameter)	188	46	40	29.18 meters.
Nail in blaze	200	36	50	40.31 meters.
Right peak of roof of barn	252	21	..	300 yards.
Chimney of house showing over barn roof	289	28	..	1/2 mile.
Right chimney of Greenwell house	306	49	..	3/8 mile.
Near peak of roof on Stones Wharf	307	52	..	3/4 mile.
Nail in blaze in walnut tree (11 inches diameter)	310	31	30	12.71 meters.
Chimney of old house near Guest Point	354	58	..	5/8 mile.

DYNARD.

*General locality.*—Western shore of upper St. Clement Bay about one-half mile southwest of Stones Wharf and one-fourth mile north of Tomakokin Creek. (See chart No. 25.)

*Immediate locality.*—Observed station is in an angle of rail fence in corner of a cultivated field about 2 feet above high water, 8 yards west of shore, 9 yards west-southwest of shore, and 9 yards northwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument.

<i>References.</i> —	o	/	''	
"Turf" (N. 3° 00' E.) . . . . .	0	00	00	3/8 mile.
Right chimney of Greenwell house . . . . .	31	05	..	1/2 mile.
Near peak of roof on Stones Wharf . . . . .	32	59	..	1/2 mile.
Near corner of chimney of house . . . . .	73	11	..	1/2 mile.
Near corner of chimney of house . . . . .	97	26	..	1/2 mile.
Nail in blaze in persimmon tree (8 inches diameter) . . . . .	101	27	30	2.42 meters.
Near corner of chimney of old house . . . . .	107	54	..	1/2 mile.
Left cedar tree on Cedar Point . . . . .	150	05	..	7/8 mile.
Right chimney of house . . . . .	157	13	..	7/8 mile.
Near peak of roof on Cobrums Wharf . . . . .	163	21	..	3/4 mile.
Nail in blaze in cedar fence post . . . . .	181	16	40	2.45 meters.
Chimney of house . . . . .	210	16	..	1/4 mile.
Nail in blaze in mulberry tree (10 inches diameter) . . . . .	325	04	00	4.85 meters.

TURF.

*General locality.*—Western shore of upper St. Clement Bay on a point about three-eighths mile west of Stones Wharf. (See chart No. 25.)

*Immediate locality.*—Observed station is in a cultivated field about 2 feet above high water, 26 yards south-southwest of shore, 27 yards northwest of shore, 32 yards west of shore, 90 yards north of a point, 300 yards east-northeast of a house, and 200 yards east-northeast of a wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument.

<i>References.</i> —	o	/	''	
"Stones" (N. 80° 29' E.) . . . . .	0	00	00	1/4 mile.
Right peak of roof on Stones Wharf . . . . .	3	36	..	3/8 mile.
Left chimney of house . . . . .	86	38	..	1 1/4 miles.
Left peak of roof on Cobrums Wharf . . . . .	93	17	..	7/8 mile.
Left tree on point . . . . .	95	22	..	75 yards.
Near peak of roof of barn . . . . .	152	27	..	300 yards.
Right chimney of house . . . . .	173	06	..	300 yards.
Right chimney of house behind trees . . . . .	226	31	..	1/4 mile.
Left chimney of house on hill . . . . .	252	10	..	2 miles.
Right chimney of house . . . . .	290	11	..	1 mile.
Right chimney of Greenwell house . . . . .	352	57	..	1/4 mile.

## STONES.

*General locality.*—Eastern shore of upper St. Clement Bay near Stones Wharf about five-eighths mile north-northwest of Guest Point. (See chart No. 25.)

*Immediate locality.*—Observed station is on a point about 54 yards west-northwest of northern end of large wharf house, 5 yards northeast of extreme end of point, 5 yards southeast of shore, 30 yards south of a board fence, and 65 yards south-southwest of foot of a hill.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Guest" (S. 16° 55' E.).....	0	00	00	5/8 mile.
Left chimney of house.....	0	23	30	1 5/8 miles.
Left chimney of house.....	16	16	..	1 1/4 miles.
Left peak of roof on Cobrums Wharf.....	26	55	30	1 mile.
Front gable of house.....	30	04	30	1 1/2 miles.
Right corner of right chimney of house.....	94	41	20	1/2 mile.
Right corner of large chimney of house on hill.....	130	28	..	1 3/4 miles.
Middle of post at left corner of board fence... ..	185	44	30	28 yards.
Right corner of right one of two chimneys of Greenwell house.....	236	25	..	1/8 mile.
Peak of north gable of roof of large house on Stones Wharf .....	295	47	..	54 yards.
Peak of south gable of roof of large house on Stones Wharf.....	315	22	..	50 yards.

## BARBER.

*General locality.*—Northeastern shore of Wicomico River about three-fourths mile north-northeast of Stoddard Point. (See chart No. 26.)

*Immediate locality.*—Observed station is on grass land about 2 feet above high-water mark, 3 yards north of shore, 20 yards west of trees which extend inland along creek, 4 yards southwest by west of a corner of a fence and 15 yards southeast of another corner of a fence.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Stoddard" (S. 9° 46' W.).....	0	00	00	1 1/8 miles.
Left chimney of Stoddard house.....	3	27	..	1 1/8 miles.
Near peak of roof between two chimneys.....	45	15	..	1 1/2 miles.
Chimney on left end of small house.....	62	54	..	1 1/2 miles.
Nail in blaze in top fence rail.....	136	06	..	10.62 meters.
Nail in blaze in cedar tree (5 inches diameter). ..	155	29	..	10.75 meters.
Nail in blaze in top of chestnut fence post... ..	245	24	..	3.43 meters.
Nail in blaze in persimmon tree (5 inches diameter).....	259	16	..	13.94 meters.
Tangent of point.....	299	13	..	1/4 mile.
Near large chimney of negro quarters.....	302	07	..	1 1/8 miles.

UPPER.

*General locality.*—Southwestern shore of Wicomico River on Stoddard Point (upper point) about 2¼ miles north-northwest of Mills Point. (See chart No. 26.)

*Immediate locality.*—Observed station is on a long narrow point about 2 feet above high-water mark, 5 yards south of side of point, 8 yards northwest of side of point, 38 yards west of high-water mark on middle of point and 138 yards west by north of high-water mark on extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Stoddard" (S. 27° 38' E.).....	0	00	00	½ mile.
Right chimney of Stoddard house.....	9	12		½ mile.
Left peak of roof of barn.....	33	02		½ mile.
Left chimney of old house.....	49	29		½ mile.
Tangent of next point.....	141	07		⅝ mile.
Right chimney of house on ridge.....	179	15		3 miles.
Chimney outside small house on opposite shore.....	213	28		1¼ miles.
Near corner post of piazza of large house.....	247	47		1⅝ miles.
Chimney top of Key house.....	296	04		1½ miles.

KEY.

*General locality.*—Northeastern shore of Wicomico River on a high bluff about 1 mile north of Cohouck Point. (See chart No. 26.)

*Immediate locality.*—Observed station is about 30 feet above high-water mark in an orchard, about 24 yards northeast of edge of bank, 49 yards north of edge of bank, 15 yards east of edge of bank, 130 yards south-southwest of negro quarters and 130 yards west of fence which incloses an orchard.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Stoddard" (S. 70° 48' W.).....	0	00	00	1⅝ miles.
Near corner of near chimney on Stoddard house.....	0	29		1¼ miles.
Near corner of near chimney of small house..	15	05		1⅝ miles.
Peak of roof between two chimneys on house.	17	13		2 miles.
Peak of roof of very large barn.....	56	52		3 miles.
Chimney on middle of roof on 2-story house..	62	06		3 miles.
Near corner of near chimney of negro's quarters.....	116	54		130 yards.
Nail in blaze in apple tree (12 inches diameter).....	135	58		22.15 meters.
Chimney of Key house.....	164	37		¼ mile.
Nail in blaze in apple tree (14 inches diameter).....	168	57		13.39 meters.
Peak of roof of large barn.....	259	16		½ mile.
Nail in blaze in apple tree (12 inches diameter).....	281	25		7.94 meters.
Peak of roof of house on piles.....	347	23		1⅝ miles.
Between two chimneys of large brick house on hill.....	357	45		2½ miles.

## STODDARD.

*General locality.*—Western shore of Wicomico River about one-half mile south-southeast of Stoddard Point and 1 mile west-northwest of Cohouck Point. (See chart No. 26.)

*Immediate locality.*—Observed station is on gravel, grass, and shell point, near a lone gum tree, about 2 feet above high-water mark, 6 yards south-southwest of side of point, 6 yards north of side of point, 10 yards west of extreme end of point, and 158 yards east-northeast of Stoddard house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Upper" (N. 26° 37' W.).....	0	00	00	1/2 mile.
Outside chimney of small house.....	23	08	..	1 1/2 miles.
Peak of front gable of large house on ridge...	52	54	..	1 3/4 miles.
Chimney on top of Key house.....	94	47	..	1 1/2 miles.
Chimney outside of 2 1/2 story house.....	153	58	..	2 3/8 miles.
Right chimney of large house.....	172	38	..	2 miles.
Peak of roof of house on Chaptico Wharf.....	180	19	..	2 5/8 miles.
Chimney top of house on piles.....	228	37	..	1/2 mile.
Near corner of chimney on Stoddard house..	284	44	..	158 yards.
Nail in blaze in pear tree (24 inches diameter).	315	29	..	4.58 meters.
Nail in blaze in pear tree (4 inches diameter).	349	47	..	9.41 meters.

## COHOUCK.

*General locality.*—Eastern shore of Wicomico River on Cohouck Point on the northern side of entrance to Chaptico Bay. (See chart No. 26.)

*Immediate locality.*—Observed station is on Cohouck Point, about 6 feet above high-water mark, 12 yards east of edge of bank, 35 yards south of edge of bank, 85 yards northeast of extreme point and about 25 yards north of marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Key" (N. 3° 29' E.).....	0	00	00	7/8 mile.
Nearest chimney on negro quarters.....	0	27	..	1 mile.
Near peak of roof of barn.....	26	38	..	1 mile.
Chimney outside near end of 2 1/2-story house.	128	58	..	3/4 mile.
Right chimney of Lyon house near Mills Point.....	171	29	..	1 1/3 miles.
Chimney on flat roof house near mouth of Bowmans Creek.....	226	56	..	2 miles.
Chimney on far end of house.....	261	43	..	1 3/8 miles.
Chimney on house on piles.....	270	53	..	1 1/2 miles.
Peak of front gable of house on ridge.....	352	51	..	2 1/4 miles.

## HAYDEN.

*General locality.*—Western shore of the Wicomico River about 1 1/4 miles west of Cohouck Point. (See chart No. 26.)

*Immediate locality.*—Observed station is surrounded by water bushes on marshy land, about 1 foot above high water, 5 yards northwest of shore and 17 yards southeast of line of trees on top of bank. Cement monument marking reference station is 11.50 meters N. 54° 34' W. of observed station.

*Marks.*—Observed station is nail in stub with top 3 inches above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Fact" (S. 41° 35' E.).....	0	00	00	1 3/8 miles.
Between two main chimneys of large house below Chaptico Wharf.....	5	11	..	2 3/8 miles.
West roof peak of house on Chaptico Wharf..	6	51	..	2 1/4 miles.



References—Continued.

	°	'	''	
Chimney on middle of square house . . . . .	65	06	..	5/8 mile.
Nail in blaze in cedar tree (18 inches diameter) . . . . .	124	14	..	23.45 meters.
Nail in blaze in locust tree (8 inches diameter) . . . . .	155	23	..	16.55 meters.
REFERENCE STATION . . . . .	167	01	20	11.51 meters.
Nail in blaze in oak tree (8 inches diameter) . . . . .	213	29	..	18.74 meters.
Chimney on Key house . . . . .	275	45	..	1 3/4 miles.
Chimney of Maddox house . . . . .	344	28	..	3/4 miles.
Right chimney outside of old house . . . . .	354	31	..	1 3/8 miles.

PERRY.

*General locality.*—Southeastern shore of Chaptico Bay, about 1 mile northeast of Mills Point and 5/8 mile southeast of Colouck Point. (See chart No. 26.)

*Immediate locality.*—Observed station is in an open field, about 20 feet above high-water mark, 8 yards northwest of edge of bank, 9 yards south-southwest from edge of gully in bank, 5 yards south of edge of bank of gully, and about 150 yards north-northeast of creek.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"Fact" (S. 51° 10' W.) . . . . .	0	00	00	1 mile.
Chimney on right end of house . . . . .	5	41	..	2 3/8 miles.
Chimney on flat-roof house . . . . .	15	03	..	2 1/2 miles.
Left chimney of Crane house . . . . .	31	37	..	3 3/8 miles.
Nail in blaze in locust tree (3 inches diameter) . . . . .	42	34	..	10.49 meters.
Nearest chimney on larger part of double brick house . . . . .	42	50	..	3 3/8 miles.
Left chimney of house on piles . . . . .	55	28	..	1 3/4 miles.
Near peak of roof on house . . . . .	62	53	..	2 miles.
Near corner of near chimney of Stoddard house . . . . .	66	59	..	2 miles.
Nail in blaze in locust tree (3 inches diameter) . . . . .	81	40	..	8.44 meters.
Peak of front gable of house on ridge . . . . .	113	51	..	3 to 4 miles.
Nail in blaze in locust tree (8 inches diameter) . . . . .	136	40	..	5.95 meters.
Near chimney of large house on ridge . . . . .	169	08	..	1 5/8 miles.
Chimney outside of 2 1/2-story house . . . . .	289	15	..	150 yards.

BURR.

*General locality.*—Western shore of Wicomico River directly opposite mouth of Chaptico Bay and three-fourths mile north of Bowmans Creek. (See chart No. 26.)

*Immediate locality.*—Observed station is on hard ground between a sloping bank 10 feet high covered with trees and a marshy shore, about 2 feet above high-water mark, 18 yards northwest of extreme point 23 yards north of shore, 17 yards southwest of shore, and 9 yards southeast of bottom of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"Fact" (S. 65° 59' E.) . . . . .	0	00	00	1 1/4 miles.
Between two chimneys of large house on ridge . . . . .	16	39	..	4 3/4 miles.
West end of peak of roof of house on Chaptico Wharf . . . . .	17	15	..	2 3/8 miles.
Right chimney of 2 1/2-story house . . . . .	72	21	..	1 1/4 miles.
Chimney in middle of large house . . . . .	88	21	..	1 1/8 miles.
Nail in blaze in persimmon tree (11 inches diameter) . . . . .	97	25	..	7.67 meters.
Nail in blaze in persimmon tree (9 inches diameter) . . . . .	192	56	..	2.60 meters.

## References—Continued.

Nail in blaze in persimmon tree (10 inches diameter).....	236	32	.....	3.86 meters.
Main chimney of Key house.....	203	03	.....	2¼ miles.
Chimney on Maddox house.....	358	28	.....	3½ miles.

## FACT.

*General locality.*—Eastern shore of Wicomico River on Mills Point on south side of mouth of Chaptico Bay. (See chart No. 26.)

*Immediate locality.*—Observed station is on a long point covered on the southern side with gum and cedar trees, about 10 feet above high-water mark, 23 yards from extreme end of top of bank, 6 yards north of edge of bank, and 8 yards southeast of edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

"Cobb Point Bar Light" (S. 7° 13' E.).....	0	00	00	.....	6½ miles.
Nail in blaze in cedar tree (7 inches diameter).....	5	07	.....	6.20 meters.	
Nail in blaze in oak tree (28 inches diameter).....	56	16	.....	6.37 meters.	
Chimney on ell end of Stoddard house.....	157	08	.....	1¾ miles.	
Chimney on Key house.....	199	54	.....	2½ miles.	
Near peak of roof of large house.....	274	25	.....	¼ mile.	
Nail in blaze in cedar tree (6 inches diameter).....	301	45	.....	16.26 meters.	
Near chimney of large house near shore.....	317	53	.....	¾ mile.	
West end of peak of house on Chaptico Wharf.....	342	53	.....	¾ mile.	

## BOWMAN.

*General locality.*—Western shore of Wicomico River at northeast side of mouth of Bowmans Creek and 1½ miles west by south of Mills Point. (See chart No. 26.)

*Immediate locality.*—Observed station is surrounded by water bushes on point of land about 1½ feet above high water, 14 yards east of high-water mark, 16 yards north of extreme end of point, 20 yards northeast of side of point, 20 yards south of several cedar trees, and about 150 yards south of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

"Sacred Heart Church Spire" (S. 62° 50' E.).....	0	00	00	.....	4½ miles.
Chimney on end of long house.....	10	37	.....	3¼ miles.	
Chimney of Lyon house.....	13	56	.....	3¼ miles.	
Nail in blaze in cedar tree (7 inches diameter).....	50	04	40	.....	8.88 meters.
Chimney on square house.....	76	25	.....	¼ mile.	
Crane house.....	168	10	.....	2 miles.	
Nail in blaze in cedar tree (6 inches diameter).....	216	10	00	.....	18.37 meters.
Nail in blaze in cedar tree (7 inches diameter).....	232	40	30	.....	17.58 meters.
Chimney on rear end of house.....	263	40	.....	½ mile.	
Peak of roof between two chimneys.....	357	27	.....	2¼ miles.	

## EEDLING.

*General locality.*—Western shore of Wicomico River about 1¼ miles southwest of Mills Point and about 1 mile southeast of mouth of Bowmans Creek. (See chart No. 26.)

*Immediate locality.*—Observed station is in a shell-covered cultivated field, about 10 feet above high-water mark, 37 yards southwest of shell and gravel beach, 88 yards west-northwest of extreme end of point, and 79 yards north of a ditch in marsh. Cement monument marking reference station is 23.99 meters N. 89° 56' W. of observed station.

*Marks.*—Observed and reference stations are marked by the center point of the triangles on standard cement monuments.

References.—	o	/	''	
"Fact" (S. 39° 15' W.).....	0	00	00	1¼ miles.
Nail in blaze in gum tree (20 inches diameter).....	2	07	50	26.06 meters.
Near peak of roof of house on Chaptico Wharf.....	42	05	..	1¾ miles.
Chimney outside near end of house on hill.....	44	24	..	2¾ miles.
Nail in blaze in cedar tree (3 inches diameter).....	49	54	40	25.75 meters.
REFERENCE STATION.....	50	48	55	23.99 meters.
Chimney on right of ell of a house.....	60	12	..	2 miles.
Near peak of roof of Eedling house.....	265	55	..	¾ mile.
Nail in blaze in oak tree (24 inches diameter).....	331	27	40	33.99 meters.

FARR.

*General locality.*—Eastern shore of Wicomico River about 1¼ miles south-southeast of Mills Point and one-fourth mile north of the mouth of Manahowick Creek. (See chart No. 26.)

*Immediate locality.*—Observed station is about 10 feet above high-water mark, 5 yards east by south of edge of bank, 32 yards north-northwest of several pine trees at fish shanty near edge of bank, 22 yards south by east of other trees, and 300 yards west by north of a large house.

*Marks.*—Observed station is center point of triangle on standard cement monument buried 16 inches below surface of ground with nail in stub at surface.

References.—	o	/	''	
"Cobb Point Bar Light" (S. 2° 35' E.).....	0	00	00	5¼ miles.
"Rock Point Catholic Church Cross".....	8	03	40	3¼ miles.
Chimney on left side of house.....	42	41	..	1¾ miles.
Left chimney of Crane house.....	113	40	..	4½ miles.
Left peak of house on Chaptico Wharf.....	153	08	..	¾ mile.
Left chimney of house on Mills Point farm.....	168	34	..	1¼ miles.
Right chimney on Maddox house.....	242	28	..	2 miles.
Right corner of large house.....	292	33	..	¼ mile.
Near corner of fish shanty.....	338	27	..	23.69 meters.

GUST.

*General locality.*—Western shore of Wicomico River on Windmill Point about three-fourths mile north of the mouth of Hedneys Creek and opposite mouth of Manahowick Creek. (See chart No. 26.)

*Immediate locality.*—Observed station is on shell and gravel point, bordered by persimmon and cedar trees, about 2 feet above high-water mark, 12 yards northwest of shore, 16 yards south of shore, and 28 yards west-southwest of shore on extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—	o	/	''	
"Fact" (N. 20° 09' E.).....	0	00	00	1½ miles.
Nail in blaze in persimmon tree (8 inches diameter).....	6	22	..	7.95 meters.
Near peak of roof of house on Chaptico Wharf.....	35	32	..	1¼ miles.
Chimney on left side of large house.....	58	18	..	1¾ miles.
Chimney on middle of Lyon house.....	101	24	..	1¾ miles.
Near peak of roof of house with two chimneys.....	171	43	..	¾ mile.
Nail in blaze in cedar tree (4 inches diameter).....	204	14	00	5.90 meters.
Nail in blaze in cedar tree (10 inches diameter).....	301	03	10	16.18 meters.

## LYON.

*General locality.*—Eastern shore of Wicomico River on a point about  $\frac{1}{4}$  mile north of Bramleigh Creek and 2 miles north by east of Rock Point. (See chart No. 26.)

*Immediate locality.*—Observed station is on a point of land between the Lyon residence and edge of bank, 100 yards north of small pond which is fringed on river side with cedar trees, about 4 yards north of a bird house on a post, 19 yards east-northeast of most prominent point of bank, 15 yards east-southeast of side of bank, 16 yards north-northeast of another side, and 12 yards south-southwest of a fence.

*Marks*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	''	
"Weiss" (S. 25° 47' E.)	0	00	00	1¼ miles.
Nail in blaze in cedar post of bird house support	51	15	20	3.67 meters.
Nail in blaze in pear tree (6 inches diameter)	58	00	50	11.74 meters.
Chimney of house	129	14	..	1½ miles.
Left chimney of Crane house	148	52	..	5¼ miles.
Between two chimneys of large brick house	159	59	..	3½ miles.
Near peak of roof between two chimneys of large house	171	56	..	3¾ miles.
West end of peak of roof of house on Chaptico Wharf	186	23	..	1¾ miles.
Corner of fence	198	08	..	14.15 meters.
Near corner of house	247	11	..	22.01 meters.
Right corner of small house	295	38	..	24.59 meters.
Nail in blaze in locust tree (4 inches diameter)	302	02	10	8.82 meters.
Right corner of shed	336	36	..	14.98 meters.

## SACRED HEART CHURCH SPIRE (BUSHWOOD).

*General locality.*—Easterly side of Wicomico River on high land about  $1\frac{1}{2}$  miles inland, north by east of Bushwood Wharf. (See chart No. 26.)

*Immediate locality.*—Observed station is steeple of Sacred Heart Church near Bushwood.

*Marks.*—Observed station is center of cross on steeple.

*References.*—None necessary.

## HEDNEY.

*General locality.*—Western shore of Wicomico River on first point above mouth of Charleston Creek and about  $1\frac{3}{4}$  miles northwest of White Point. (See chart No. 26.)

*Immediate locality.*—Observed station is about 25 feet above high-water mark, 16 yards west-southwest of edge of bank, 139 yards north of large tree at edge of bank, 85 yards north of oak tree at edge of bank, 155 yards east-northeast of gum tree 20 inches diameter on bank of a pond, and about  $\frac{1}{8}$  mile east-southeast of a house among trees.

*Marks.*—Observed station is center point of triangle on standard cement monument with top buried 12 inches below the surface of the ground. Surface mark is nail in stub with top 5 inches above surface of ground.

*References.*—

	°	'	''	
"Sacred Heart Church Spire" (N. 86° 31' E.)	0	00	00	4½ miles.
Near corner of nearest chimney of four on a large house on hill	7	11	..	4½ miles.
Right chimney of a large house	13	03	..	2 miles.
Middle of island at end of White Point Bar	38	45	..	1¾ miles.
Nail in blaze in oak tree (48 inches diameter)	50	28	00	73.16 meters.
Nail in blaze in walnut tree (36 inches diameter)	84	52	30	115.63 meters.
Middle of gum tree	147	46	30	138.47 meters.

References—Continued.

	°	'	''	
Near peak of roof between two chimneys.....	239	48	..	¾ mile.
Near chimney on large house.....	312	19	..	1⅝ miles.
Chimney of Lyon house.....	352	40	..	1⅞ miles.

CHARLES.

*General locality.*—Western shore of Wicomico River on first point south of entrance to Charleston Creek, and 1¼ miles north of Rock Point. (See chart No. 26.)

*Immediate locality.*—Observed station is on a small marshy point about 6 inches above high-water mark and 18 yards east of pine woods on a bank 10 feet above high water. Cement monument marking reference station is 15.56 meters N. 57° 10' W. of observed station.

*Marks.*—Observed station is nail in stub with top 2 inches above ground. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"Hard" (S. 17° 38' E.).....	0	00	00	1¼ miles.
Nail in blaze in pine tree (10 inches diameter)	47	51	..	28.46 meters.
Nail in blaze in pine tree (12 inches diameter).	84	58	..	16.66 meters.
Nail in blaze in pine tree (7 inches diameter).	134	22	..	16.87 meters.
REFERENCE STATION.....	138	28	10	15.56 meters.
West chimney on two-story house.....	205	53	..	1¼ miles.
"Sacred Heart Church Spire (Bushwood)"..	268	03	50	2¾ miles.
West chimney on Garner house.....	293	51	..	1¾ miles.
West gable of house on Bushwood Wharf.....	300	07	..	2 miles.

WEISS.

*General locality.*—Eastern shore of Wicomico River on White Point, about 3 miles north by east of Cobb Point Bar Light. (See chart No. 26.)

*Immediate locality.*—Observed station is on a bluff near small cedar trees, about 8 feet above high-water mark, 13 yards north of and 27 yards south of edges of bluff and 52 yards east of extreme point.

*Marks.*—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"Cobb Point Bar Light" (S. 11° 43' W.)....	0	00	00	3¼ miles.
Flagstaff on schoolhouse.....	40	41	20	1½ miles.
Nail in blaze in cedar tree (10 inches diameter).....	54	03	10	42.29 meters.
Left chimney on two-story house.....	155	26	..	¾ mile.
Nail in blaze in poplar tree (3 inches diameter).....	181	46	..	6.24 meters.
"Sacred Heart Church Spire".....	216	56	30	1¾ miles.
West chimney of Garner house.....	260	27	..	½ mile.
Nail in blaze in poplar tree (4 inches diameter).....	266	27	50	37.80 meters.
West gable of house on Bushwood Wharf.....	284	26	..	½ mile.
Left chimney on two-story house.....	342	10	..	2¾ miles.

BLAKISTONE.

*General locality.*—Eastern shore of Wicomico River, about one-fourth mile southeast of Plowdens Wharf at Bushwood, and about 3 miles north-northeast of Cobb Point Bar Light. (See chart No. 26.)

*Immediate locality.*—Observed station is on second bluff southeast of Bushwood Wharf, 15 feet above high-water mark, 15 yards southeast of a large dogwood tree, about 6 yards northeast of edge of bluff, 3 yards southwest of rail fence, about 15 yards southwest of an ice house near orchard, and 5 to 10 yards south to east of several small cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
"Prec" (S. 18° 42' W.).....	0	00	00	2 miles.
"Rock Point Catholic Church Cross".....	51	28	30	2 miles.
Left peak of roof of wharf house.....	94	16		1¾ miles.
Large tree.....	117	48		13.36 meters.
Chimney of Blakistone store.....	125	48		¼ mile.
Near peak of roof of Blakistone house.....	176	32		250 yards.
Point of cupola on Ranahan house.....	191	45		1¾ miles.
Near left corner of sill of ice house.....	233	15		14.15 meters.
Right lower corner.....	260	33		15.76 meters.
Near peak of roof.....	312	54		¼ mile.

## HARD.

*General locality.*—Western shore of Wicomico River on point of land known as Rock Point about 2 miles north by west of Cobb Point Bar Light. (See chart No. 26.)

*Immediate locality.*—Observed station is on low point of land near several small cedar trees about 1 foot above high-water mark, 47 yards west of shore, 16 yards south of shore, 30 yards north of shore, about 80 yards northeast by north of Rock Point Wharf, and 170 yards northeast by east of Lancaster's store.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
"Cobb Point Bar Light" (S. 10° 17' E.)....	0	00	00	2 miles.
Northeast gable of wharf house.....	41	07		80 yards.
"Rock Point Catholic Church Cross".....	70	16	20	¼ mile.
South chimney on Lancaster's store.....	88	53		170 yards.
Point of east gable on house.....	134	44		¼ mile.
"Sacred Heart Church Spire".....	239	04	20	3 miles.
Gable of house on wharf at Bushwood.....	256	00		1¾ miles.
West gable of house.....	293	06		2 miles.
West gable on one-story house.....	315	19		2¼ miles.
North chimney of two-story house.....	330	12		2½ miles.

## ROCK POINT CATHOLIC CHURCH CROSS.

*General locality.*—Eastern shore of Wicomico River at Rock Point. (See chart No. 26.)

*Immediate locality.*—Observed station is in settlement called Rock Point. It is on the larger of two similar buildings, the smaller one being the schoolhouse.

*Marks.*—Observed station is center point of cross on Rock Point Catholic Church.

*References.*—None necessary.

## PREC.

*General locality.*—Eastern shore of Wicomico River on Bluff Point about 2 miles north-northeast of Cobb Point Bar Light. (See chart No. 26.)

*Immediate locality.*—Observed station is about 10 feet above high-water mark, 34 yards southeast of nearest end of neck of Bluff Point, 29 yards south-southeast of shore, 16 yards northeast of shore, and 88 yards west by southwest of house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
"Cobb Point Bar Light" (S. 28° 37' W.)....	0	00	00	2 miles.
Tangent of woods on Cobb Point.....	34	04		2 miles.
"Rock Point Catholic Church Cross".....	70	16	30	1¾ miles.
Nail in blaze in locust tree (3 inches diameter)	116	14	40	20.64 meters.
Left chimney of Garner house.....	148	42		1¾ miles.

## References—Continued.

	°	'	''	
Nail in blaze in left one of twin locust trees (12 inches diameter) . . . . .	153	38	20	30.36 meters.
"Sacred Heart Church Spire" . . . . .	172	15	10	2¾ miles.
Near chimney of Sherrer house . . . . .	228	37		88 yards.
Nail in blaze in poplar tree (6 inches diameter) . . . . .	243	01	50	33.74 meters.
Nail in blaze in poplar tree (5 inches diameter) . . . . .	282	00	40	27.71 meters.
Left chimney of cottage . . . . .	298	22		¾ mile.
Right chimney of Bailey house on St. Margarets Island . . . . .	336	25		1½ miles.

## CORNER.

*General locality.*—Western shore of Wicomico River on the eastern side of an island known as Cobb Point Neck about halfway between Cobb Point and the entrance to Neales Sound. (See chart No. 26.)

*Immediate locality.*—Observed station is in a cultivated field on a bluff bordered with pine trees about 15 feet above high-water mark, 3 yards west of a wire fence running along edge of bluff and 21 yards east-northeast of a wire fence which separates cornfield from pine woods.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

	°	'	''	
"Cobb Point Bar Light" (S. 29° 39' E.) . . . . .	0	00	00	1¾ miles.
Nail in blaze in cedar tree (3 inches diameter) . . . . .	50	02		16.08 meters.
Nail in blaze in pine tree (8 inches diameter) . . . . .	111	43		21.41 meters.
Nail in blaze in pine tree (12 inches diameter) . . . . .	135	20		33.22 meters.
Middle chimney of house . . . . .	177	07		¼ mile.
"Catholic Church Cross" . . . . .	217	16	10	⅝ mile.
Left chimney of house on St. Margarets Island . . . . .	318	56		1¾ miles.

## ST. MARGARET 2.

*General locality.*—Northwestern side of Potomac River on the southwestern side of St. Margarets Island in the mouth of the Wicomico River about 1 mile northeast of Cobb Point Bar Light. (See chart No. 26.)

*Immediate locality.*—Observed station is on a bluff about 12 feet above high-water mark, 15 inches northeast of edge of bluff, 86 yards northwest of cow shed, 129 yards south-southwest of several houses, and 154 yards west-southwest of Bailey (large) house. Cement monument marking reference station is 79.19 meters N. 46° 26' E. of observed station and at corner of cow shed.

*Marks.*—Observed station is center of a stub in a 2¼-inch tile pipe set in cement with top flush with ground. Reference station is center point of triangle of standard cement monument.

## References.—

	°	'	''	
"Cobb Point Bar Light" (S. 53° 22' W.) . . . . .	0	00	00	1 mile.
Tangent of Cobb Point . . . . .	45	13		1⅝ miles.
"Rock Point Catholic Church Cross" . . . . .	83	42	50	1⅞ miles.
Chimney on left of Garner new house . . . . .	129	40		2⅝ miles.
"Sacred Heart Church Spire" . . . . .	143	27	50	4 miles.
REFERENCE STATION . . . . .	173	04	15	79.19 meters.
Left chimney of Bailey house . . . . .	194	51		150 yards.
Nearest chimney of small house on Bullock Island . . . . .	220	26		1 mile.
Left chimney of small house on St. Catherine Island . . . . .	258	32		1¼ miles.

## COBB POINT BAR LIGHT.

*General locality.*—Northerly side of Potomac River at mouth of Wicomico River on the southeastern extremity of Cobb Point Bar. (See chart No. 26.)

*Immediate locality.*—Observed station is on the end of Cobb Point Bar at the mouth of the Wicomico River.

*Marks.*—Observed station is center point of black lantern on screw pile structure known as "Cobb Point Bar Light."

*References.*—

	° / "	
"Blakistone Island Light" (S. 61° 25' E.) . . . . .	0 00 00 . . . . .	5 miles.

## RIVER SPRINGS CATHOLIC CHAPEL CROSS.

*General locality.*—Northern side of Potomac River inland about three-fourths mile north by west of River Springs. (See charts Nos. 25 and 26.)

*Immediate locality.*—Observed station is on building known as River Springs Catholic Chapel.

*Marks.*—Observed station is center of cross on River Springs Catholic Chapel.

*References.*—None necessary.

## SOUND.

*General locality.*—Northern shore of St. Catherine Sound about 2¼ miles east by north of Cobb Point Bar Light and one-fourth mile east of Bullock Island. (See chart No. 26.)

*Immediate locality.*—Observed station is about 15 feet above high-water mark, 35 yards north of edge of bank, 2 yards east of wire fence, 65 yards east of edge of bank, 57 yards south of southeast corner of fence of house yard, and 63 yards south by west of telephone pole line which is on the same side of the road.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	° / "	
"Cobb Point Bar Light" (S. 84° 53' W.) . . . . .	0 00 00 . . . . .	2¼ miles.
Right chimney of house on Bullock Island . . . . .	8 24 . . . . .	½ mile.
Near end of small chimney on large house . . . . .	27 15 . . . . .	1 mile.
Left corner post of fence . . . . .	65 05 . . . . .	Near.
Near corner of chimney of small house . . . . .	86 25 . . . . .	Near.
Near corner post of fence . . . . .	100 58 . . . . .	Near.
Right peak of roof of barn . . . . .	115 20 . . . . .	Near.
"River Springs Catholic Chapel Cross" . . . . .	148 31 10 . . . . .	1 mile.
Chimney of Blakistone store . . . . .	189 16 . . . . .	½ mile.
Near chimney of Bailey house . . . . .	217 59 . . . . .	½ mile.
Chimney on smaller house on St. Catherine Island . . . . .	323 03 . . . . .	¾ mile.

## BAILEY.

*General locality.*—Northeastern shore of St. Catherine Sound, about three-fourths mile east by north of eastern end of St. Catherine Island and 1 mile north of the Potomac River. (See chart No. 26.)

*Immediate locality.*—Observed station is on shelly ground on Bailey property, about 5 feet above high-water mark, 10 yards northeast of high-water mark, 7 yards northeast of a wire fence, 35 yards south-southeast of corner of wire fence, 30 yards north-northwest of corner of wire and wooden fences, 25 yards north of Bailey house, and 40 yards west by south of corner of wooden fence.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	° / "	
"Cobb Point Bar Light" (N. 88° 11' W.) . . . . .	0 00 00 . . . . .	2½ miles.
Nail in blaze in one of four cedar trees (3 inches diameter) . . . . .	13 29 . . . . .	12.37 meters.
Nail in blaze in cedar tree (8 inches diameter) . . . . .	44 59 . . . . .	27.82 meters.
Corner of wire fence . . . . .	46 29 . . . . .	32.06 meters.
Chimney on house . . . . .	90 38 . . . . .	150 yards.
"River Springs Catholic Chapel Cross" . . . . .	113 06 00 . . . . .	1 mile.
Corner of wooden fence . . . . .	175 52 . . . . .	37.49 meters.



References—Continued.

	°	'	''	
Chimney of Bailey house . . . . .	203	26	..	25 yards.
Junction of wire and wooden fences . . . . .	254	35	..	26.22 meters.
Left chimney of house on Waterloo Point . . . . .	277	43	..	¾ mile.
Nail in blaze in first of six cedar trees . . . . .	297	27	..	10.76 meters.
Right chimney of small house on St. Catherine Island . . . . .	348	02	..	1 mile.

ST. CATHERINE.

*General locality.*—Southern shore of St. Catherine Sound, on the northern side of St. Catherine Island. (See chart No. 26.)

*Immediate locality.*—Observed station is about 12 feet above high-water mark, 86 yards south of edge of bank, 49 yards west of line of young cedar trees, 198 yards northeast of a lone mulberry tree 3 feet in diameter, and 207 yards southeast of small house among trees.

*Marks.*—Observed station is center point of triangle on standard cement monument with top 12 inches below the surface.

References.—

	°	'	''	
"Cobb Point Bar Light" (N. 81° 08' W.) . . . . .	0	00	00	17½ miles.
Right side of right chimney on small house . . . . .	13	04	..	207 yards.
Left chimney of large house on St. Margarets Island . . . . .	34	42	..	13½ miles.
Right chimney of house on Bullock Island . . . . .	66	01	..	½ mile.
Chimney of Blackistone house . . . . .	117	39	..	¾ mile.
"River Springs Catholic Chapel Cross" . . . . .	129	17	40	15½ miles.
Left chimney of Bailey house . . . . .	158	19	..	¾ mile.
Right chimney of Young house on Waterloo Point . . . . .	207	48	..	¾ mile.

WATERLOO.

*General locality.*—Southeastern shore of St. Catherine Sound, about three-fourths mile east-southeast of St. Catherine Island and about one-fourth mile north of Potomac River. (See chart No. 26.)

*Immediate locality.*—Observed station is at top of rise in field, about 8 feet above high-water mark, 48 yards east by south of shore at a point where several mulberry trees stand, 43 yards south of large sugarberry tree, 19 yards south by east of wire-fence post, and 200 yards north of Young house on Waterloo Farm.

*Marks.*—Observed station is center point of triangle on standard cement monument, with top 12 inches below surface of ground.

References.—

	°	'	''	
"Sound" (N. 18° 41' W.) . . . . .	0	00	00	1 mile.
Near end of peak of Blackistone barn . . . . .	3	02	..	1 mile.
"Sacred Heart Church Spire (Bushwood)" . . . . .	10	37	20	5 miles.
Peak of gable of Blackistone house at River Springs . . . . .	21	54	..	¾ mile.
Near peak of roof of Bailey house . . . . .	31	01	..	¾ mile.
Near peak of roof of Yates house . . . . .	49	13	..	½ mile.
Near peak of roof of Quaid house . . . . .	71	25	..	¾ mile.
Near peak of house . . . . .	92	31	..	½ mile.
Nail in blaze in apple tree (5 inches diameter) . . . . .	111	20	30	34.78 meters.
Nail in blaze 8-inch branch on apple tree (14 inches diameter) . . . . .	153	34	20	24.90 meters.
Nail in blaze in apple tree (6 inches diameter) . . . . .	203	50	00	26.18 meters.
Near peak of roof of Young house . . . . .	206	57	..	200 yards.
Left tangent of St. Catherine Island . . . . .	300	21	..	¾ mile.
Right chimney of roof of house on Bullock Island . . . . .	337	19	..	13½ miles.
Near peak of roof of house . . . . .	352	57	..	1¾ miles.

## BOUNDARIES OF OYSTER BARS.

### EXPLANATION.

The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster beds of Maryland provides for the designation and employment by the Department of Commerce and Labor of such officers, experts, and other technically qualified persons "as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland." The oyster laws of Maryland provide that the Maryland Shell Fish Commissioners, with the aid of such persons as may be designated by the Government, shall proceed "to have laid out, surveyed, and designated on the said charts the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts." The oyster laws of Maryland also provide in another section that there shall "be made a true and accurate survey of the natural oyster beds, bars, and rocks \* \* \* with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey."

Under the provisions of the laws quoted above the State of Maryland, in cooperation with the Department of Commerce and Labor, must define the boundaries of the natural oyster bars "as accurately as practicable" and also "with reference to fixed and permanent objects on the shore, giving courses and distances." The requirement of "as accurately as practicable" is easily fulfilled by definition of the location of the corners of the oyster bars by latitude and longitude. In fact, this method is probably the most satisfactory and accurate one that could be used for all purposes of legal definition or for relocation of the oyster-bar boundaries by competent engineers. Therefore the additional requirement of "giving courses and distances" is superfluous and is only fulfilled in the published definitions on account of the specific provisions of the law making it compulsory. This part of the description of boundaries has involved an immense amount of extra computations in order to prevent technical discrepancies between the latitude and longitude of a corner of an oyster bar and its distance and bearing from objects on shore of known latitude and longitude without adding anything to the accuracy and very little to the convenience in the practical use of the descriptions of the oyster-bar boundaries.

As provided by law, the boundaries of the oyster bars are all straight lines, but in the work already completed they have inclosed areas of all shapes from triangles to

complicated 14-sided figures and of all sizes from 4 acres to 7,548 acres. The sides have varied in length from 93 to 7,529 yards, and in some cases the corners of the boundaries have been practically at the triangulation stations from which they are located, while in other instances they were over 13,600 yards from the landmarks most available for the purpose of fixing their position.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made and the magnitude of the work, with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and great importance.

The boundaries of the oyster bars of Maryland, as established by the shell fish commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and the future.

#### METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in each county.

*Title.*—At the top of each tabular form is given the legal name of the oyster bar to be described and the one by which it is known and designated in the published oyster records and on the oyster charts. The adopted name of the oyster bar is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the commission; and when there was no local name in common use a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the oyster bar was located.

Underneath the name in parentheses is given the general locality of the oyster bar and the serial number of the Maryland Oyster Chart on which its legal boundaries are shown.<sup>1</sup>

*First column.*—This column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar. Where the corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars, only the number of the corner of the oyster bar being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the commission as the primary technical definition of the location of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

Survey, and the points thus defined can be relocated from distant triangulation stations of the survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>1</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>2</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the shellfish commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars—one, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

(1) *Triangulation.*—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An

<sup>1</sup> The mean magnetic variation for St. Marys County was  $5^{\circ} 25'$  west of north in 1910 and increasing at the rate of  $4'$  yearly.

<sup>2</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D. C.

explanation of this class of work would be too long for a report of this sort, and those not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "Brooks Shallows" oyster bar, which is the first one described in this publication, and assume that "Corner No. 3" is to be examined as to its position. The angle between the two landmarks "Dwarf" and "Hallowing" as determined from right to left from the forward bearings from this corner is  $54^{\circ} 50'$  and the angle between "Hallowing" and "Indian" is  $77^{\circ} 10'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor ("position finder"), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the

sextant to subtend the same angle obtained from the protractor. The second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant then the other until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic location of a point is attained. In fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State fishery force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer can take compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>1</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks for which the bearings are published have been destroyed or washed away any landmarks whose positions are indicated on the charts can be used. This can be done by getting their bearings directly from the chart by parallel rulers or a protractor and then applying these new bearings in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fifth column of the tables opposite the "corner" in question. The direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point, but in general it should be checked by an additional range line determined from a third station.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

<sup>1</sup> The mean magnetic variation for St. Marys County is  $5^{\circ} 25'$  west of north in 1910 and increasing at the rate of  $4'$  yearly.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

BOUNDARIES OF NATURAL OYSTER BARS.

BROOKS SHALLOWS.

(Upper Patuxent River—Chart No. 19.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 29 57.18	76 40 31.45	S. 86 50 E.	N. 86 49 W.	Yards. 1, 171 1, 512 916	Dwarf. Hallowing. Indian.
			N. 38 18 E.	S. 38 18 W.		
			N. 20 33 W.	S. 20 33 E.		
2	38 30 03.78	76 40 31.64	S. 76 15 E.	N. 76 15 W.	1, 210 1, 348 710	Dwarf. Hallowing. Indian.
			N. 44 20 E.	S. 44 21 W.		
			N. 26 29 W.	S. 26 29 E.		
3	38 30 04.02	76 40 24.36	S. 73 15 E.	N. 73 15 W.	1, 025 1, 215 808	Dwarf. Hallowing. Indian.
			N. 38 05 E.	S. 38 06 W.		
			N. 39 05 W.	S. 39 05 E.		
4	38 29 57.54	76 40 23.78	S. 85 27 E.	N. 85 27 W.	960 1, 386 995	Dwarf. Hallowing. Indian.
			N. 32 00 E.	S. 32 01 W.		
			N. 31 45 W.	S. 31 46 E.		

SOTHORON.

(Upper Patuxent River—Chart No. 19.)

1	38 29 26.59	76 40 07.29	N. 89 19 E.	S. 89 20 W.	1, 442 1, 102 258	Buzz. Dwarf. Sothoron.
			N. 28 42 E.	S. 28 42 W.		
			N. 56 12 W.	S. 56 13 E.		
2	38 29 36.28	76 40 09.57	S. 39 58 W.	N. 39 58 E.	239 1, 534 871	Sothoron. Buzz. Dwarf.
			S. 78 22 E.	N. 78 21 W.		
			N. 42 39 E.	S. 42 39 W.		
3	38 29 37.52	76 39 59.48	S. 74 05 E.	N. 74 05 W.	1, 284 681 478	Buzz. Dwarf. Sothoron.
			N. 28 19 E.	S. 28 19 W.		
			S. 61 51 W.	N. 61 51 E.		
4	38 29 26.88	76 40 00.94	N. 89 40 E.	S. 89 40 W.	1, 274 1, 023 405	Buzz. Dwarf. Sothoron.
			N. 20 40 E.	S. 20 40 W.		
			N. 70 45 W.	S. 70 45 E.		

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BROAD NECK (ST. MARYS COUNTY).

(Upper Patuxent River—Chart No. 19.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 27 36.14	76 39 10.54	N. 34 58 E. N. 28 35 W. S. 52 54 W.	S. 34 58 W. S. 28 35 E. N. 52 54 E.	1,137 1,200 626	Sheridan. Collins. Cremona.
2	38 27 57.42	76 39 27.00	S. 3 17 W. N. 78 51 E. N. 23 32 W.	N. 3 17 E. S. 78 51 W. S. 23 32 E.	1,097 1,109 454	Cremona. Sheridan. Collins.
3	38 28 00.34	76 39 09.64	N. 63 40 W. S. 23 40 W. N. 79 34 E.	S. 63 41 E. N. 23 40 E. S. 79 34 W.	715 1,304 639	Collins. Cremona. Sheridan.
Thence along county boundary as delineated on Chart No. 19 to corner No. 4.						
4	38 27 41.18	76 39 00.00	N. 26 03 E. N. 42 57 W. S. 54 49 W.	S. 26 03 W. S. 42 57 E. N. 54 49 E.	848 1,317 952	Sheridan. Collins. Cremona.

## THOMAS (ST. MARYS COUNTY).

(Upper Patuxent River—Chart No. 19.)

1	38 26 47.41	76 38 21.12	N. 72 51 W. S. 17 35 E. N. 43 44 E.	S. 72 51 E. N. 17 34 W. S. 43 44 W.	635 1,839 2,218	Oppkit. Fight. Kitt.
2	38 27 41.18	76 39 00.00	N. 26 03 E. N. 42 57 W. S. 54 49 W.	S. 26 03 W. S. 42 57 E. N. 54 49 E.	848 1,317 952	Sheridan. Collins. Cremona.
Thence along county boundary as delineated on Chart No. 19 to corner No. 3.						
3	38 27 12.58	76 38 14.84	N. 61 07 E. N. 25 33 W. S. 49 29 W.	S. 61 07 W. S. 25 33 E. N. 49 29 E.	1,561 1,914 1,018	Kitt. Sheridan. Oppkit.

## SANDGATES.

(Middle Patuxent River—Chart No. 19.)

1	38 25 01.66	76 36 45.53	S. 45 16 E. N. 41 54 E. N. 47 36 W.	N. 45 16 W. S. 41 55 W. S. 47 37 E.	675 2,924 2,688	Forr. Photo. Fight.
2	38 25 00.06	76 36 57.58	S. 47 48 E. N. 49 42 E. N. 46 49 W.	N. 47 48 W. S. 49 43 W. S. 46 50 E.	1,078 2,980 2,285	Forr. Photo. Fight.
3	38 25 28.46	76 36 50.40	S. 23 49 E. N. 58 30 E. N. 63 54 W.	N. 23 49 W. S. 58 30 W. S. 63 55 E.	1,507 2,437 2,067	Forr. Photo. Fight.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

SANDGATES—Continued.

(Middle Patuxent River—Chart No. 19.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
4	38 25 47.34	76 37 23.27	N. 74 33 W.	S. 74 33 E.	1,021	Fight. Forr. Photo.
			S. 36 18 E.	N. 36 18 W.	2,500	
			N. 77 50 E.	S. 77 51 W.	3,022	
5	38 25 54.57	76 37 15.44	N. 88 38 W.	S. 88 39 E.	1,192	Fight. Forr. Photo.
			S. 29 24 E.	N. 29 23 W.	2,593	
			N. 81 52 E.	S. 81 53 W.	2,774	
6	38 25 30.21	76 36 37.39	S. 10 23 E.	N. 10 23 W.	1,461	Forr. Photo. Fight.
			N. 55 03 E.	S. 55 04 W.	2,119	
			N. 68 53 W.	S. 68 54 E.	2,360	

UPPER FORREST.

(Middle Patuxent River—Chart No. 19.)

1	38 24 45.22	76 36 02.57	N. 59 04 E.	S. 59 05 W.	2,846	Slim. Photo. Forr.
			N. 16 36 E.	S. 16 36 W.	2,850	
			N. 83 08 W.	S. 83 08 E.	666	
2	38 24 48.95	76 36 11.88	N. 63 34 E.	S. 63 35 W.	3,002	Slim. Photo. Forr.
			N. 22 09 E.	S. 22 10 W.	2,813	
			S. 83 38 W.	N. 83 37 E.	417	
3	38 25 15.09	76 36 13.64	S. 21 35 W.	N. 21 35 E.	997	Forr. Slim. Photo.
			N. 80 33 E.	S. 80 34 W.	2,773	
			N. 32 43 E.	S. 32 43 W.	2,048	
4	38 25 09.14	76 36 05.04	S. 39 18 W.	N. 39 18 E.	939	Forr. Slim. Photo.
			N. 74 59 E.	S. 75 00 W.	2,595	
			N. 24 33 E.	S. 24 34 W.	2,116	

LOWER FORREST.

(Middle Patuxent River—Chart No. 19.)

1	38 24 22.16	76 35 33.18	S. 32 41 E.	N. 32 41 W.	888	Cole. Slim. Forr.
			N. 36 34 E.	S. 36 35 W.	2,789	
			N. 59 15 W.	S. 59 15 E.	1,676	
2	38 24 30.16	76 35 41.64	S. 34 42 E.	N. 34 41 W.	1,237	Sole. Slim. Forr.
			N. 43 45 E.	S. 43 45 W.	2,727	
			N. 64 13 W.	S. 64 13 E.	1,351	
3	38 24 36.20	76 35 34.00	S. 22 20 E.	N. 22 20 W.	1,320	Cole. Slim. Forr.
			N. 43 37 E.	S. 43 38 W.	2,440	
			N. 74 52 W.	S. 74 53 E.	1,470	
4	38 24 28.25	76 35 26.00	S. 16 53 E.	N. 16 53 W.	996	Cole. Slim. Forr.
			N. 35 56 E.	S. 35 56 W.	2,507	
			N. 68 13 W.	S. 68 14 E.	1,756	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## GATTON.

(Middle Patuxent River—Chart No. 19.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 23 26.43	76 32 54.98	S. 48 28 W. S. 51 46 E. N. 29 03 E.	N. 48 28 E. N. 51 46 W. S. 29 04 W.	442 1,404 2,263	Hutchins. Bars. Island.
2	38 23 33.36	76 34 06.58	S. 71 28 E. N. 59 48 E. N. 63 43 W.	N. 71 27 W. S. 59 50 W. S. 63 43 E.	1,656 3,469 2,029	Hutchins. Island. Cole.
3	38 23 45.80	76 34 06.30	S. 58 49 E. N. 66 06 E. N. 75 18 W.	N. 58 48 W. S. 66 07 W. S. 75 19 E.	1,826 3,272 1,888	Hutchins. Island. Cole.
4	38 23 46.90	76 33 39.02	S. 40 28 E. N. 60 24 E. N. 80 10 W.	N. 40 28 W. S. 60 25 W. S. 80 11 E.	1,292 2,607 2,587	Hutchins. Island. Cole.
5	38 23 30.68	76 32 54.26	S. 38 43 W. S. 46 57 E. N. 30 29 E.	N. 38 43 E. N. 46 57 W. S. 30 29 W.	559 1,483 2,129	Hutchins. Bars. Island.

## CAPTAIN POINT.

(Middle Patuxent River—Chart No. 19.)

1	38 23 01.40	76 32 04.82	S. 83 52 W. S. 40 32 E. N. 71 04 E.	N. 83 51 E. N. 40 31 W. S. 71 04 W.	230 2,137 2,509	Bars. Stock. Wheat.
2	38 23 06.18	76 32 11.74	N. 75 13 W. S. 13 39 W. N. 75 34 E.	S. 75 13 E. N. 13 39 E. S. 75 35 W.	1,529 191 2,699	Hutchins. Bars. Wheat.
3	38 23 10.34	76 32 06.79	N. 81 11 W. S. 28 26 W. N. 77 54 E.	S. 81 11 E. N. 28 26 E. S. 77 55 W.	1,628 371 2,538	Hutchins. Bars. Wheat
4	38 23 05.78	76 32 00.25	S. 63 48 W. S. 35 34 E. N. 73 27 E.	N. 63 48 E. N. 35 34 W. S. 73 28 W.	390 2,178 2,408	Bars. Stock. Wheat.

SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

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BOUNDARIES OF NATURAL OYSTER BARS—continued.

PETERSON (ST. MARYS COUNTY).

(Middle Patuxent River—Charts Nos. 19 and 20.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 23 12.22	76 31 11.86	S. 76 36 W.	N. 76 35 E.	Yards.	Bars. Stock. Wheat.
			S. 0 30 W.	N. 0 30 E.	1,669	
			N. 65 25 E.	S. 65 24 W.	1,989	
2	38 23 33.08	76 32 03.82	N. 8 23 W.	S. 8 24 E.	1,773	Island. Hutchins. Bars.
			S. 72 59 W.	N. 72 58 E.	1,766	
			S. 13 09 W.	N. 13 09 E.	1,122	
3	38 23 44.44	76 31 50.08	N. 30 01 E.	S. 30 01 W.	1,818	Peak. Island. Bars.
			N. 24 27 W.	S. 24 27 E.	1,506	
			S. 22 47 W.	N. 22 47 E.	1,601	

Thence along county boundary as delineated on charts Nos. 19 and 20 to corner No. 1.

NEALE.

(Lower Patuxent River—Charts Nos. 19 and 20.)

1	38 22 12.38	76 31 08.24	S. 48 38 E.	N. 48 38 W.	1,733	Briscoe. Lend. Stock.
			N. 65 21 E.	S. 65 22 W.	2,803	
			N. 75 51 W.	S. 75 51 E.	117	
2	38 22 36.50	76 31 41.34	S. 43 37 E.	N. 43 37 W.	1,084	Stock. Wheat. Bars.
			N. 47 11 W.	S. 47 11 E.	2,463	
			N. 46 16 W.	S. 46 17 E.	1,179	
3	38 22 59.46	76 31 09.58	N. 47 03 W.	S. 47 03 E.	1,317	Wheat. Bars. Stock.
			N. 88 37 W.	S. 88 38 E.	1,695	
			S. 2 52 W.	N. 2 52 E.	1,501	
4	38 22 25.60	76 30 51.72	N. 41 45 E.	S. 41 46 W.	2,236	Sollers. Wheat. Stock.
			N. 13 30 E.	S. 13 30 W.	2,099	
			S. 52 56 W.	N. 52 56 E.	692	

MEARS (ST. MARYS COUNTY).

(Lower Patuxent River—Charts Nos. 19 and 20.)

1	38 22 13.42	76 30 03.46	N. 36 08 E.	S. 36 09 W.	1,403	Lend. Stock. Briscoe.
			S. 89 59 W.	N. 89 59 E.	1,833	
			S. 19 34 W.	N. 19 34 E.	1,251	
2	38 22 16.00	76 30 23.80	S. 85 52 W.	N. 85 52 E.	1,297	Stock. Briscoe. Lend.
			S. 5 27 E.	N. 5 27 W.	1,273	
			N. 52 35 E.	S. 52 35 W.	1,722	
3	38 22 48.14	76 30 44.62	N. 88 53 E.	S. 88 54 W.	1,920	Lend. Sollers. Wheat.
			N. 55 05 E.	S. 55 05 W.	1,587	
			N. 13 16 E.	S. 13 16 W.	1,313	

Thence along county boundary as delineated on charts Nos. 19 and 20 to corner No. 1.

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## HALF PONE.

(Lower Patuxent River—Chart No. 20.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 21 47.27	76 30 37.34	S. 58 08 E.	N. 58 08 W.	565	Briscoe. Lend. Stock.
			N. 40 36 E.	S. 40 36 W.	2,654	
			N. 46 51 W.	S. 46 52 E.	1,280	
2	38 21 56.15	76 30 49.42	S. 53 16 E.	N. 53 15 W.	1,000	Briscoe. Lend. Stock.
			N. 50 02 E.	S. 50 03 W.	2,672	
			N. 46 48 W.	S. 46 48 E.	841	
3	38 22 08.82	76 30 33.26	S. 19 57 E.	N. 19 57 W.	1,091	Briscoe. Lend. Stock.
			N. 51 29 E.	S. 51 29 W.	2,069	
			N. 81 53 W.	S. 81 53 E.	1,053	
4	38 21 53.69	76 30 24.36	S. 14 47 E.	N. 14 47 W.	533	Briscoe. Lend. Stock.
			N. 37 33 E.	S. 37 33 W.	2,268	
			N. 62 44 W.	S. 62 45 E.	1,438	

## HAWKS NEST.

(Lower Patuxent River—Chart No. 20.)

1	38 20 00.53	76 29 19.14	N. 68 41 W.	S. 68 41 E.	385	Mill. Cable. Bur.
			S. 7 40 W.	N. 7 40 E.	1,375	
			S. 60 27 E.	N. 60 27 W.	641	
2	38 20 11.78	76 29 35.80	S. 15 34 E.	N. 15 34 W.	248	Mill. Bur. Ton.
			S. 55 11 E.	N. 55 11 W.	1,217	
			N. 71 35 E.	S. 71 36 W.	2,194	
3	38 20 25.60	76 29 44.06	S. 23 16 E.	N. 23 16 W.	768	Mill. Ton. Hellen.
			N. 84 23 E.	S. 84 23 W.	2,312	
			N. 45 52 E.	S. 45 53 W.	2,289	
4	38 20 45.56	76 29 42.62	S. 10 53 E.	N. 10 53 W.	1,403	Mill. Hellen. Nat.
			N. 60 07 E.	S. 60 08 W.	1,855	
			N. 54 56 W.	S. 54 56 E.	366	
5	38 21 15.90	76 29 58.00	S. 7 37 E.	N. 7 37 W.	821	Nat. Hellen. Briscoe.
			S. 87 08 E.	N. 87 07 W.	2,020	
			N. 36 37 W.	S. 36 37 E.	945	
6	38 21 18.88	76 29 48.21	S. 9 26 W.	N. 9 26 E.	923	Nat. Hellen. Briscoe.
			S. 83 32 E.	N. 83 31 W.	1,768	
			N. 51 22 W.	S. 51 22 E.	1,054	
7	38 20 35.88	76 29 09.36	S. 30 30 W.	N. 30 30 E.	1,218	Mill. Ton. Hellen.
			S. 85 02 E.	N. 85 01 W.	1,384	
			N. 30 06 E.	S. 30 07 W.	1,440	
8	38 20 09.04	76 29 12.27	S. 74 48 W.	N. 74 48 E.	561	Mill. Bur. Ton.
			S. 31 52 E.	N. 31 52 W.	710	
			N. 61 41 E.	S. 61 41 W.	1,655	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

BOB WISE.

(Lower Patuxent River—Chart No. 20.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 19 24.58	76 29 16.71	S. 81 02 E.	N. 81 01 W.	Yards. 1,208	Town. Bur. Cable.
			N. 28 48 E.	S. 28 48 W.	1,022	
			S. 58 47 W.	N. 58 47 E.	290	
2	38 19 30.38	76 29 26.83	S. 3 26 E.	N. 3 26 W.	347	Cable. Town. Bur.
			S. 75 15 E.	N. 75 15 W.	1,512	
			N. 47 23 E.	S. 47 23 W.	1,034	
3	38 19 57.28	76 29 24.58	N. 40 38 W.	S. 40 38 E.	329	Mill. Cable. Bur.
			S. 01 47 W.	N. 01 47 E.	1,254	
			S. 73 37 E.	N. 73 37 W.	732	
4	38 19 52.74	76 29 15.14	N. 49 06 W.	S. 49 06 E.	614	Mill. Cable. Bur.
			S. 14 48 W.	N. 14 48 E.	1,137	
			S. 83 16 E.	N. 83 16 W.	454	
Thence along county boundary as delineated on Chart No. 20 to corner No. 5.						
5	38 19 32.82	76 29 15.02	S. 34 21 W.	N. 34 21 E.	518	Cable. Town. Bur.
			S. 67 53 E.	N. 67 53 W.	1,240	
			N. 35 55 E.	S. 35 55 W.	763	

SPENCERS.

(Lower Patuxent River—Chart No. 20.)

1	38 19 22.55	76 28 37.04	N. 30 11 W.	S. 30 11 E.	1,115	Bur. Crane. Town.
			S. 38 16 W.	N. 38 16 E.	413	
			S. 49 15 E.	N. 49 15 W.	185	
2	38 19 24.58	76 29 16.71	S. 81 02 E.	N. 81 01 W.	1,208	Town. Bur. Cable.
			N. 28 48 E.	S. 28 48 W.	1,022	
			S. 58 47 W.	N. 58 47 E.	290	
3	38 19 32.82	76 29 15.02	S. 34 21 W.	N. 34 21 E.	518	Cable. Town. Bur.
			S. 67 53 E.	N. 67 53 W.	1,240	
			N. 35 55 E.	S. 35 55 W.	763	
Thence along county boundary as delineated on Chart No. 20 to corner No. 4.						
4	38 19 31.80	76 28 19.14	N. 21 38 E.	S. 21 38 W.	775	New. Bur. Town.
			N. 57 48 W.	S. 57 48 E.	1,225	
			S. 37 50 W.	N. 37 50 E.	547	

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## TOWN CREEK.

(Lower Patuxent River—Chart No. 20.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 18 48.66	76 28 30.82	N. 70 12 E.	S. 79 12 W.	1,890	Sand. Methodist Church. Episcopal
			N. 50 32 E.	S. 50 32 W.	1,845	
2	38 18 54.47	76 28 38.58	N. 27 14 W.	S. 27 14 E.	921	Sand. Methodist Church. Episcopal
			N. 85 36 E.	S. 85 37 W.	2,069	
			N. 59 04 E.	S. 59 05 W.	1,901	
3	38 19 12.97	76 28 30.02	N. 19 03 W.	S. 19 03 E.	658	Crane. Methodist Church. Episcopal
			N. 75 52 E.	S. 75 52 W.	1,447	
			N. 12 59 W.	S. 12 59 E.	208	
4	38 19 10.86	76 28 22.58	S. 89 50 W.	N. 89 49 E.	442	Crane. Methodist Church. Episcopal
			N. 70 36 E.	S. 70 37 W.	1,278	
			N. 41 45 W.	S. 41 45 E.	367	
			N. 83 47 W.	S. 83 47 E.	644	Crane.

## GOODWIN.

(Lower Patuxent River—Chart No. 20.)

1	38 18 28.75	76 28 06.02	S. 8 19 E.	N. 8 19 W.	417	Ben. Sand. Town.
			N. 49 26 E.	S. 49 26 W.	1,577	
			N. 22 00 W.	S. 22 00 E.	1,827	
2	38 18 34.80	76 28 10.62	S. 16 30 E.	N. 16 30 W.	643	Ben. Sand. Town.
			N. 58 06 E.	S. 58 07 W.	1,555	
			N. 20 40 W.	S. 20 40 E.	1,592	
3	38 18 37.12	76 28 05.38	S. 3 34 E.	N. 3 34 W.	606	Ben. Sand. Town.
			N. 57 49 E.	S. 57 49 W.	1,395	
			N. 26 25 W.	S. 26 25 E.	1,577	
4	38 18 30.80	76 28 01.60	S. 6 46 W.	N. 6 46 E.	484	Ben. Sand. Town.
			S. 48 29 E.	N. 48 29 W.	1,442	
			N. 26 16 W.	S. 26 16 E.	1,812	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

LA GRANDE.

(Lower Patuxent River—Chart No. 20.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 17 35.18	76 27 17.84	S. 79 05 E.	N. 79 05 W.	723	Craddock. Sand. Ben.
			N. 1 40 W.	S. 1 40 E.	2,834	
			N. 41 11 W.	S. 41 12 E.	1,853	
2	38 18 13.71	76 27 48.34	S. 46 38 E.	N. 46 38 W.	2,092	Craddock. Sand. Ben.
			N. 25 24 E.	S. 25 25 W.	1,696	
			N. 76 58 W.	S. 76 58 E.	420	
3	38 18 20.36	76 27 39.18	S. 37 34 E.	N. 37 34 W.	2,094	Craddock. Sand. Ben.
			N. 20 19 E.	S. 20 20 W.	1,395	
			S. 78 47 W.	N. 78 46 E.	665	
4	38 18 00.96	76 27 14.07	N. 5 19 W.	S. 5 19 E.	1,975	Sand. Ben. Craddock.
			N. 68 19 W.	S. 68 20 E.	1,421	
			S. 31 13 E.	N. 31 13 W.	1,177	
5	38 17 35.26	76 27 07.14	S. 72 09 E.	N. 72 09 W.	448	Craddock. Sand. Ben.
			N. 7 23 W.	S. 7 23 E.	2,852	
			N. 47 14 W.	S. 47 14 E.	2,048	

MILLSTONE.

(Lower Patuxent River—Chart No. 20.)

1	38 17 32.82	76 26 07.63	N. 22 47 E.	S. 22 47 W.	3,538	Drum Point Light. Sand. Craddock.
			N. 33 47 W.	S. 33 48 E.	3,593	
			S. 87 10 W.	N. 87 09 E.	1,157	
2	38 17 40.10	76 26 47.16	N. 18 36 W.	S. 18 37 E.	2,813	Sand. Ben. Craddock.
			N. 58 53 W.	S. 58 54 E.	2,377	
			S. 19 08 W.	N. 19 08 E.	322	
3	38 18 14.62	76 26 27.79	N. 45 43 E.	S. 45 44 W.	2,654	Drum Point Light. Sand. Craddock.
			N. 43 14 W.	S. 43 15 E.	2,061	
			S. 22 55 W.	N. 22 55 E.	1,592	
4	38 17 52.60	76 25 45.94	N. 17 00 E.	S. 17 00 W.	2,714	Drum Point Light. Sand. Craddock.
			N. 48 21 W.	S. 48 22 E.	3,377	
			S. 67 19 W.	N. 67 18 E.	1,878	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## DEEP POINT MUD.

(Lower Patuxent River—Chart No. 20.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / '	° / '		
1	38 17 52.60	76 25 45.94	N. 17 00 E.	S. 17 00 W.	Yards. 2,714 3,377 1,878	Drum Point Light. Sand. Craddock.
			N. 48 21 W.	S. 48 22 E.		
			S. 67 19 W.	N. 67 18 E.		
2	38 18 14.62	76 26 27.79	N. 45 43 E.	S. 45 44 W.	2,654 2,061 1,592	Drum Point Light. Sand. Craddock.
			N. 43 14 W.	S. 43 15 E.		
			S. 22 55 W.	N. 22 55 E.		
3	38 18 31.18	76 25 30.58	S. 58 20 E.	N. 58 20 W.	954 1,351 3,080	Carroll 2. Drum Point Light. Sand.
			N. 16 35 E.	S. 16 35 W.		
			N. 72 10 W.	S. 72 11 E.		
4	38 18 11.80	76 25 24.99	N. 6 55 E.	S. 6 56 W.	1,965 3,470 2,662	Drum Point Light. Sand. Craddock.
			N. 62 39 W.	S. 62 40 E.		
			S. 59 04 W.	N. 59 03 E.		

## CARROLL MUDS (ST. MARYS COUNTY).

(Lower Patuxent River—Chart No. 20.)

1	38 18 16.38	76 24 44.61	N. 61 07 E.	S. 61 07 W.	1,362 1,978 410	Hog 2. Drum Point Light. Carroll 2.
			N. 24 59 W.	S. 24 59 E.		
			S. 89 49 W.	N. 89 49 E.		
2	38 18 17.00	76 25 04.64	S. 79 40 E.	N. 79 40 W.	124 1,842 1,799	Carroll 2. Hog 2. Drum Point Light.
			N. 69 46 E.	S. 69 47 W.		
			N. 9 43 W.	S. 9 43 E.		
3	38 18 45.42	76 25 04.36	S. 6 40 E.	N. 6 40 W.	988 1,746 874	Carroll 2. Hog 2. Drum Point Light.
			S. 79 23 E.	N. 79 23 W.		
			N. 20 54 W.	S. 20 55 E.		
Thence along county boundary as delineated on Chart No. 20 to corner No. 4.						
4	38 19 03.80	76 24 17.62	N. 82 51 W.	S. 82 52 E.	1,565 1,958 1,054	Drum Point Light. Carroll 2. Hog 2.
			S. 35 10 W.	N. 35 09 E.		
			S. 26 46 E.	N. 26 46 W.		
5	38 18 48.16	76 24 02.46	N. 69 44 W.	S. 69 44 E.	2,084 1,867 420	Drum Point Light. Carroll 2. Hog 2.
			S. 54 59 W.	N. 54 58 E.		
			S. 9 52 E.	N. 9 52 W.		



BOUNDARIES OF NATURAL OYSTER BARS—continued.

HOG ISLAND.

(Entrance Patuxent River—Chart No. 20.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / '	° / '		
1	38 18 20.00	76 23 08.90	S. 66 17 E.	N. 66 16 W.	Yards. 1,865 6,747 1,453	Cedar Point Light. Pat. Hog 2.
			N. 1 16 W.	S. 1 16 E.		
			N. 68 20 W.	S. 68 21 E.		
2	38 18 36.00	76 23 57.04	N. 61 40 W.	S. 61 41 E.	2,385 72 3,252	Drum Point Light. Hog 2. Cedar Point Light.
			S. 86 47 W.	N. 86 47 E.		
			N. 66 39 E.	S. 66 40 W.		
3	38 19 17.14	76 23 47.02	S. 83 51 W.	N. 83 50 E.	2,380 1,432 3,820	Drum Point Light. Hog 2. Cedar Point Light.
			S. 13 40 W.	N. 13 40 E.		
			S. 45 24 E.	N. 45 23 W.		
4	38 18 46.92	76 22 31.22	N. 80 06 W.	S. 80 08 E.	4,445 2,381 1,801	Drum Point Light. Hog 2. Cedar Point Light.
			S. 81 00 W.	N. 80 59 E.		
			S. 23 03 E.	N. 23 03 W.		

CHINESE MUDDS (ST. MARYS COUNTY).

(Entrance Patuxent River—Chart No. 20.)

1	38 18 35.08	76 22 01.52	N. 77 19 W.	S. 77 21 E.	5,297 3,142 1,261	Drum Point Light. Hog 2. Cedar Point Light.
			N. 89 31 W.	S. 89 32 E.		
			S. 3 49 W.	N. 3 49 E.		
2	38 18 46.92	76 22 31.22	N. 80 06 W.	S. 80 08 E.	4,445 2,381 1,801	Drum Point Light. Hog 2. Cedar Point Light.
			S. 81 00 W.	N. 80 59 E.		
			S. 23 03 E.	N. 23 03 W.		
3	38 19 17.14	76 23 47.02	S. 83 51 W.	N. 83 50 E.	2,380 1,432 3,820	Drum Point Light. Hog 2. Cedar Point Light.
			S. 13 40 W.	N. 13 40 E.		
			S. 45 24 E.	N. 45 23 W.		
Thence along county boundary as delineated in Chart No. 20 to corner No. 4.						
4	38 19 37.58	76 21 34.27	N. 32 48 W.	S. 32 49 E.	4,915 5,968 3,461	Pat. Drum Point Light. Cedar Point Light.
			S. 80 55 W.	N. 80 52 E.		
			S. 13 30 W.	N. 13 30 E.		
5	38 19 15.82	76 21 21.84	S. 88 03 W.	N. 88 01 E.	6,226 4,495 2,867	Drum Point Light. Hog 2. Cedar Point Light.
			S. 72 12 W.	N. 72 11 E.		
			S. 23 23 W.	N. 23 23 E.		

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## CEDAR POINT HOLLOW.

(Chesapeake Bay—Charts Nos. 20 and 21.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 13 46.44	76 21 49.06	N. 40 00 W.	S. 40 01 E.	Yards. 5,298 2,878 3,217	Desert. Ford. Reed.
			N. 72 51 W.	S. 72 52 E.		
			S. 16 18 W.	N. 16 18 E.		
2	38 13 51.97	76 23 22.26	N. 77 05 E.	S. 77 10 W.	13,697 8,541 3,981	Hooper Island Light. Cedar Point Light. Desert.
			N. 13 58 E.	S. 13 59 W.		
			N. 13 28 W.	S. 13 29 E.		
3	38 15 05.58	76 23 47.04	N. 87 37 E.	S. 87 43 W.	14,021 6,410 1,415	Hooper Island Light. Cedar Point Light. Desert.
			N. 25 03 E.	S. 25 04 W.		
			N. 10 56 W.	S. 10 56 E.		
4	38 15 08.60	76 23 00.00	N. 11 12 W.	S. 11 12 E.	3,714 1,991 2,107	Cain. Desert. Ford.
			N. 49 43 W.	S. 49 43 E.		
			S. 24 13 E.	N. 24 13 W.		
5	38 16 40.66	76 23 00.00	N. 29 29 E.	S. 29 30 W.	2,987 900 2,368	Cedar Point Light. Cain. Desert.
			N. 53 13 W.	S. 53 13 E.		
			S. 39 54 W.	N. 39 54 E.		
6	38 16 40.70	76 22 37.82	N. 18 43 E.	S. 18 44 W.	2,744 1,416 2,784	Cedar Point Light. Cain. Desert.
			N. 67 41 W.	S. 67 42 E.		
			S. 49 15 W.	N. 49 14 E.		
7	38 17 27.33	76 22 35.42	N. 38 31 E.	S. 38 32 W.	1,311 1,720 4,027	Cedar Point Light. Cain. Desert.
			S. 53 02 W.	N. 53 01 E.		
			S. 32 39 W.	N. 32 39 E.		
8	38 17 52.90	76 22 02.70	N. 18 11 W.	S. 18 11 E.	168 2,939 5,228	Cedar Point Light. Cain. Desert.
			S. 49 48 W.	N. 49 47 E.		
			S. 35 35 W.	N. 35 34 E.		
9	38 15 41.30	76 20 48.18	N. 23 50 W.	S. 23 51 E.	5,031 4,930 5,027	Cedar Point Light. Cain. Desert.
			N. 58 57 W.	S. 58 59 E.		
			N. 87 54 W.	S. 87 55 E.		
10	38 14 33.94	76 20 51.08	N. 63 35 W.	S. 63 37 E.	5,524 4,359 5,302	Desert. Ford. Reed.
			S. 80 04 W.	N. 80 02 E.		
			S. 27 33 W.	N. 27 32 E.		

## ROCKY BEACH.

(Chesapeake Bay—Chart No. 21.)

1	38 11 37.42	76 21 40.16	S. 25 26 E.	N. 25 26 W.	2,415 13,075 1,701	Point Agin. Hooper Island Light. Reed.
			N. 54 28 E.	S. 54 32 W.		
			N. 42 06 W.	S. 42 06 E.		
2	38 12 00.00	76 22 09.62	S. 31 46 E.	N. 31 45 W.	3,459 13,309 615	Point Agin. Hooper Island Light. Reed.
			N. 59 06 W.	S. 59 10 E.		
			N. 35 26 W.	S. 35 26 E.		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

ROCKY BEACH—Continued.

(Chesapeake Bay—Chart No. 21.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
3	38 12 32.60	76 22 36.22	S. 30 26 E.	N. 30 25 W.	Yards.	Reed. Hooper Island Light. Ford.
			N. 64 43 E.	S. 64 47 W.	694	
			N. 24 09 W.	S. 24 10 E.	13,411 3,658	
4	38 13 00.60	76 23 02.88	S. 34 31 E.	N. 34 31 W.	1,872	Reed. Hooper Island Light. Ford.
			N. 69 33 E.	S. 69 38 W.	13,698	
			N. 18 13 W.	S. 18 14 E.	2,521	
5	38 13 51.97	76 23 22.26	N. 77 05 E.	S. 77 10 W.	13,697	Hooper Island Light. Cedar Point Light. Desert.
			N. 13 58 E.	S. 13 59 W.	8,541	
			N. 13 28 W.	S. 13 29 E.	3,981	
6	38 13 46.44	76 21 49.06	N. 40 00 W.	S. 40 01 E.	5,298	Desert. Ford. Reed.
			N. 72 51 W.	S. 72 52 E.	2,878	
			S. 16 18 W.	N. 16 18 E.	3,217	
7	38 11 54.84	76 20 41.78	N. 44 33 W.	S. 44 35 E.	6,473	Ford. Reed. Point Agin.
			N. 75 56 W.	S. 75 57 E.	2,777	
			S. 10 35 W.	N. 10 35 E.	2,815	
8	38 11 49.94	76 20 57.82	N. 40 44 W.	S. 40 46 E.	6,311	Ford. Reed. Point Agin.
			N. 69 40 W.	S. 69 41 E.	2,418	
			S. 1 59 W.	N. 1 59 E.	2,604	

TENACRES.

(Chesapeake Bay—Chart No. 21.)

1	38 10 22.02	76 20 34.23	N. 37 16 W.	S. 37 17 E.	4,781	Reed. Point Agin. Point No Point Light.
			N. 63 14 W.	S. 63 15 E.	805	
			S. 42 43 E.	N. 42 41 W.	7,388	
2	38 11 37.42	76 21 40.16	S. 25 26 E.	N. 25 26 W.	2,415	Point Agin. Hooper Island Light. Reed.
			N. 54 28 E.	S. 54 32 W.	13,075	
			N. 42 06 W.	S. 42 06 E.	1,701	
3	38 11 49.94	76 20 57.82	N. 40 44 W.	S. 40 46 E.	6,311	Ford. Reed. Point Agin.
			N. 69 40 W.	S. 69 41 E.	2,418	
			S. 1 59 W.	N. 1 59 E.	2,604	
4	38 10 40.33	76 20 00.73	N. 49 50 W.	S. 49 52 E.	4,942	Reed. Point Agin. Point No Point Light.
			S. 80 59 W.	N. 80 59 E.	1,631	
			S. 34 16 E.	N. 34 15 W.	7,316	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

McKAY.

(Chesapeake Bay—Chart No. 21.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 09 29.82	76 19 38.52	N. 46 02 W.	S. 46 03 E.	Yards. 3,058 2,022 5,090	Point Agin. Point No Point. Point No Point Light.
			S. 11 53 E.	N. 11 53 W.		
			S. 43 53 E.	N. 43 52 W.		
2	38 09 40.42	76 19 47.96	N. 47 51 W.	S. 47 51 E.	2,630 2,429 5,523	Point Agin. Point No Point. Point No Point Light.
			S. 15 58 E.	N. 15 57 W.		
			S. 43 11 E.	N. 43 10 W.		
3	38 09 52.20	76 19 33.80	N. 59 33 W.	S. 59 34 E.	2,699 2,748 5,581	Point Agin. Point No Point. Point No Point Light.
			S. 6 04 E.	N. 6 04 W.		
			S. 37 34 E.	N. 37 33 W.		
4	38 10 15.26	76 20 04.16	N. 68 46 W.	S. 68 47 E.	1,629 3,679 6,692	Point Agin. Point No Point. Point No Point Light.
			S. 17 23 E.	N. 17 23 W.		
			S. 39 00 E.	N. 38 59 W.		
5	38 10 07.20	76 20 21.06	N. 51 07 W.	S. 51 07 E.	1,372 3,590 6,784	Point Agin. Point No Point. Point No Point Light.
			S. 25 34 E.	N. 25 33 W.		
			S. 43 24 E.	N. 43 22 W.		
6	38 10 22.02	76 20 34.23	N. 37 16 W.	S. 37 17 E.	4,781 805 7,388	Reed. Point Agin. Point No Point Light.
			N. 63 14 W.	S. 63 15 E.		
			S. 42 43 E.	N. 42 41 W.		
7	38 10 40.33	76 20 00.73	N. 49 50 W.	S. 49 52 E.	4,942 1,631 7,316	Reed. Point Agin. Point No Point Light.
			S. 80 59 W.	N. 80 59 E.		
			S. 34 16 E.	N. 34 15 W.		
8	38 10 54.92	76 19 34.98	S. 71 59 W.	N. 71 58 E.	2,414 4,858 7,385	Point Agin. Point No Point. Point No Point Light.
			S. 3 48 E.	N. 3 48 W.		
			S. 27 43 E.	N. 27 41 W.		
9	38 10 00.00	76 18 31.62	N. 74 29 W.	S. 74 30 E.	4,133 3,292 5,001	Point Agin. Point No Point. Point No Point Light.
			S. 24 30 W.	N. 24 29 E.		
			S. 20 26 E.	N. 20 26 W.		

## FISH HAWK.

(Chesapeake Bay—Charts Nos. 21 and 22.)

1	38 09 00.00	76 17 52.67	N. 58 03 W.	S. 58 05 E.	5,914 2,592 2,757	Point Agin. Point No Point. Point No Point Light.
			S. 67 57 W.	N. 67 56 E.		
			S. 14 54 E.	N. 14 54 W.		
2	38 09 00.00	76 19 12.72	N. 42 43 W.	S. 42 44 E.	4,257 1,009 3,894	Point Agin. Point No Point. Point No Point Light.
			S. 15 33 W.	N. 15 33 E.		
			S. 46 51 E.	N. 46 50 W.		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

FISH HAWK—Continued.

(Chesapeake Bay—Charts Nos. 21 and 22.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
3	38 09 29.82	76 19 38.52	N. 46 02 W.	S. 46 03 E.	3,058 2,022 5,090	Point Agin. Point No Point. Point No Point Light.
			S. 11 53 E.	N. 11 53 W.		
			S. 43 53 E.	N. 43 52 W.		
4	38 10 00.00	76 18 31.62	N. 74 29 W.	S. 74 30 E.	4,133 3,292 5,001	Point Agin. Point No Point. Point No Point Light.
			S. 24 30 W.	N. 24 29 E.		
			S. 20 26 E.	N. 20 26 W.		

ST. JEROME.

(Chesapeake Bay—Chart No. 22.)

1	38 07 12.60	76 19 54.22	N. 85 57 W.	S. 85 57 E.	501 2,559 4,061	St. Jerome. Point Look-in. Point No Point Light.
			S. 1 38 E.	N. 1 38 W.		
			N. 76 22 E.	S. 76 23 W.		
2	38 07 13.74	76 19 57.38	S. 89 35 W.	N. 89 35 E.	416 2,593 4,125	St. Jerome. Point Look-in. Point No Point Light.
			S. 3 28 E.	N. 3 28 W.		
			N. 77 09 E.	S. 77 11 W.		
3	38 07 32.58	76 19 44.54	S. 49 52 W.	N. 49 52 E.	991 3,228 3,700	St. Jerome. Point Look-in. Point No Point Light.
			S. 3 13 W.	N. 3 17 E.		
			N. 85 36 E.	S. 85 38 W.		
4	38 07 29.47	76 19 36.14	S. 61 28 W.	N. 61 27 E.	1,119 3,145 3,487	St. Jerome. Point Look-in. Point No Point Light.
			S. 7 28 W.	N. 7 28 E.		
			N. 83 36 E.	S. 83 37 W.		

SHAVING PILE.

(Chesapeake Bay—Chart No. 22.)

1	38 06 42.78	76 18 04.06	N. 27 50 E.	S. 27 50 W.	2,220 3,565 3,232	Point No Point Light. St. Jerome. Point Look-in.
			N. 73 01 W.	S. 73 02 E.		
			S. 61 28 W.	N. 61 27 E.		
2	38 07 22.24	76 18 14.40	N. 63 51 E.	S. 63 52 W.	1,435 3,173 3,867	Point No Point Light. St. Jerome. Point Look-in.
			S. 84 46 W.	N. 84 45 E.		
			S. 41 59 W.	N. 41 58 E.		
3	38 07 20.54	76 17 48.04	N. 40 21 E.	S. 40 21 W.	901 3,867 4,331	Point No Point Light. St. Jerome. Point Look-in.
			S. 86 34 W.	N. 86 32 E.		
			S. 49 26 W.	N. 49 24 E.		

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BUTLER.

(Chesapeake Bay—Chart No. 22.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 06 07.50	76 19 49.96	S. 6 34 W.	N. 6 34 E.	Yards.	Point Look-in. Point No Point Light. St. Jerome.
			N. 50 34 E.	S. 50 35 W.	357	
			N. 15 22 W.	S. 15 22 E.	4,964 2,313	
2	38 06 20.72	76 19 54.93	S. 6 32 E.	N. 6 32 W.	805	Point Look-in. Point No Point Light. St. Jerome.
			N. 55 41 E.	S. 55 42 W.	4,813	
			N. 15 04 W.	S. 15 04 E.	1,848	
3	38 06 33.18	76 20 07.42	S. 19 11 E.	N. 19 11 W.	1,292	Point Look-in. Point No Point Light. St. Jerome.
			N. 61 59 E.	S. 62 00 W.	4,869	
			N. 6 02 W.	S. 6 02 E.	1,372	
4	38 06 51.62	76 19 47.80	S. 3 03 W.	N. 3 03 E.	1,844	Point Look-in. Point No Point Light. St. Jerome.
			N. 66 12 E.	S. 66 13 W.	4,126	
			N. 42 04 W.	S. 42 04 E.	1,001	
5	38 06 52.60	76 19 04.02	N. 57 59 E.	S. 58 00 W.	3,077	Point No Point Light. St. Jerome. Point Look-in.
			N. 68 52 W.	S. 68 52 E.	1,968	
			S. 34 00 W.	N. 34 00 E.	2,262	
6	38 06 07.66	76 18 43.84	N. 33 22 E.	S. 33 21 W.	3,767	Point No Point Light. St. Jerome. Point Look-in.
			N. 46 51 W.	S. 46 52 E.	3,253	
			S. 78 44 W.	N. 78 43 E.	1,838	

## POINT LOOK-IN.

(Chesapeake Bay—Chart No. 22.)

1	38 04 00.80	76 19 30.60	S. 12 42 E.	N. 12 42 W.	2,569	Potomac. Point No Point Light. Point Look-in.
			N. 24 04 E.	S. 24 06 W.	8,132	
			N. 8 05 W.	S. 8 05 E.	3,958	
2	38 04 39.18	76 19 31.62	S. 8 51 E.	N. 8 51 W.	3,847	Potomac. Point No Point Light. Point Look-in.
			N. 28 37 E.	S. 28 38 W.	6,984	
			N. 11 23 W.	S. 11 23 E.	2,683	
3	38 04 39.73	76 19 00.00	N. 22 16 E.	S. 22 17 W.	6,604	Point No Point Light. Point Look-in. Potomac.
			N. 27 46 W.	S. 27 47 E.	2,944	
			S. 3 46 W.	N. 3 46 E.	3,837	
4	38 04 53.98	76 19 00.00	N. 23 58 E.	S. 23 58 W.	6,162	Point No Point Light. Point Look-in. Potomac.
			N. 32 51 W.	S. 32 52 E.	2,528	
			S. 3 21 W.	N. 3 20 E.	4,308	
5	38 06 07.50	76 19 49.96	S. 6 34 W.	N. 6 34 E.	357	Point Look-in. Point No Point Light. St. Jerome.
			N. 50 34 E.	S. 50 35 W.	4,964	
			N. 15 22 W.	S. 15 22 E.	2,313	
6	38 06 07.66	76 18 43.84	N. 33 22 E.	S. 33 21 W.	3,767	Point No Point Light. St. Jerome. Point Look-in.
			N. 46 51 W.	S. 46 52 E.	3,253	
			S. 78 44 W.	N. 78 43 E.	1,838	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

POINT LOOK-IN—Continued.

(Chesapeake Bay—Chart No. 22.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / '	° / '	° / '	
7	38 05 26. 12	76 18 08. 64	N. 14 00 E.	S. 14 01 W.	4,687	Point No Point Light. Point Look-in. Potomac.
			N. 69 11 W.	S. 69 12 E.	2,932	
			S. 16 45 W.	N. 16 44 E.	5,623	
8	38 04 10. 30	76 17 41. 22	N. 3 15 E.	S. 3 15 W.	7,116	Point No Point Light. Point Look-in. Potomac.
			N. 43 58 W.	S. 43 59 E.	5,000	
			S. 39 45 W.	N. 39 44 E.	3,678	

POINT LOOKOUT.

(Chesapeake Bay—Charts Nos. 22 and 23.)

1	38 02 25. 55	76 19 02. 00	N. 15 42 W.	S. 15 42 E.	732	Potomac. Point Look-in. Point Lookout Light.
			N. 10 30 W.	S. 10 31 E.	7,251	
			S. 67 11 W.	N. 67 11 E.	528	
2	38 02 50. 62	76 19 01. 74	N. 11 56 W.	S. 11 57 E.	6,424	Point Look-in. Potomac. Point Lookout Light.
			S. 55 20 W.	N. 55 20 E.	249	
			S. 25 10 W.	N. 25 10 E.	1,160	
3	38 02 59. 01	76 19 04. 18	N. 11 53 W.	S. 11 54 E.	6,132	Point Look-in. Potomac. Point Lookout Light.
			S. 18 13 W.	N. 18 13 E.	447	
			S. 17 49 W.	N. 17 49 E.	1,400	
4	38 03 06. 80	76 19 01. 27	N. 13 09 W.	S. 13 10 E.	5,893	Point Look-in. Potomac. Point Lookout Light.
			S. 17 33 W.	N. 17 33 E.	721	
			S. 17 36 W.	N. 17 35 E.	1,674	
5	38 04 00. 80	76 19 30. 60	S. 12 42 E.	N. 12 42 W.	2,569	Potomac. Point No Point Light. Point Look-in.
			N. 24 04 E.	S. 24 06 W.	8,132	
			N. 8 05 W.	S. 8 05 E.	3,958	
6	38 04 10. 30	76 17 41. 22	N. 3 15 E.	S. 3 15 W.	7,116	Point No Point Light. Point Look-in. Potomac.
			N. 43 58 W.	S. 43 59 E.	5,000	
			S. 39 45 W.	N. 39 44 E.	3,678	
7	38 02 50. 40	76 17 57. 36	N. 25 51 W.	S. 25 52 E.	6,990	Point Look-in. Potomac. Point Lookout Light.
			S. 86 00 W.	N. 86 00 E.	1,926	
			S. 64 45 W.	N. 64 45 E.	2,444	

OLD HARE.

(Smith Creek—Chart No. 24.)

1	38 05 50. 98	76 24 07. 54	S. 64 10 E.	N. 64 10 W.	1,019	Sig. Dago. Red Beacon.
			N. 14 24 W.	S. 14 24 E.	1,389	
			N. 43 35 W.	S. 43 35 E.	802	
2	38 06 10. 48	76 24 58. 62	S. 84 34 E.	N. 84 34 W.	813	Red Beacon. Dago. Day.
			N. 55 46 E.	S. 55 46 W.	1,228	
			N. 64 24 W.	S. 64 24 E.	584	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## OLD HARE—Continued.

(Chesapeake Bay—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / "	° / "	° / "	° / "	Yards.	
3	38 06 25.70	76 24 44.46	S. 36 09 E. N. 74 23 E. N. 13 14 W.	N. 36 09 W. S. 74 23 W. S. 13 14 E.	731 663 542	Red Beacon. Dago. Tab.
4	38 06 23.46	76 24 28.62	N. 40 32 E. N. 42 11 W. S. 1 01 E.	S. 40 32 W. S. 42 11 E. N. 1 01 W.	333 813 514	Dago. Tab. Red Beacon.

## SMITH CREEK.

(Smith Creek—Chart No. 24.)

1	38 06 29.00	76 24 46.04	S. 34 04 E. N. 84 24 E. N. 11 06 W.	N. 34 04 W. S. 84 24 W. S. 11 06 E.	844 684 427	Red beacon. Dago. Tab.
2	38 06 41.37	76 24 49.11	S. 26 23 E. S. 65 19 E. N. 21 08 E.	N. 26 23 W. N. 65 18 W. S. 21 08 W.	1,249 839 750	Red beacon. Dago. Oak.
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 07 02.36	76 24 37.22	N. 29 40 W. S. 80 51 W. S. 24 07 W.	S. 29 40 E. N. 80 51 E. N. 24 07 E.	516 47 776	Stung. Oak. Tab.
4	38 07 02.56	76 24 33.00	N. 39 47 W. S. 84 54 W. S. 30 59 W.	S. 39 48 E. N. 84 54 E. N. 30 59 E.	574 159 834	Stung. Oak. Tab.
5	38 06 55.20	76 24 38.39	N. 39 48 E. N. 3 39 W. S. 31 29 W.	S. 39 48 W. S. 3 39 E. N. 31 29 E.	525 234 547	Out. Oak. Tab.
6	38 06 55.02	76 24 30.62	N. 17 29 E. N. 42 45 W. S. 46 57 W.	S. 17 29 W. S. 42 45 E. N. 46 57 E.	429 327 674	Out. Oak. Tab.
7	38 07 02.61	76 24 29.58	S. 89 53 E. N. 33 25 E. S. 86 22 W.	N. 89 53 W. S. 33 25 W. N. 86 22 E.	273 184 251	In. Out. Oak.
8	38 07 03.06	76 24 22.21	N. 34 31 W. S. 86 01 W. S. 74 54 E.	S. 34 32 E. N. 86 01 E. N. 74 54 W.	168 447 79	Out. Oak. In.



BOUNDARIES OF NATURAL OYSTER BEDS—continued.

SMITH CREEK—Continued.

(Smith Creek—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
9	38 06 52.20	76 24 14.86	N. 69 27 E.	S. 69 27 W.	283	Pipe. In. Oak.
			N. 19 05 W.	S. 19 05 E.	365	
			N. 62 25 W.	S. 62 26 E.	724	
10	38 06 41.82	76 24 21.94	N. 45 17 E.	S. 45 17 W.	639	Pipe. Oak. Tab.
			N. 33 29 W.	S. 33 29 E.	821	
			S. 88 48 W.	N. 88 48 E.	724	

GRAVES.

(Smith Creek—Chart No. 24.)

1	38 07 02.36	76 24 37.22	N. 29 30 W.	S. 29 40 E.	516	Stung. Oak. Tab.
			S. 80 51 W.	N. 80 51 E.	47	
			S. 24 07 W.	N. 24 07 E.	776	
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 07 10.60	76 24 45.69	S. 32 11 E.	N. 32 11 W.	337	Oak. Out. Stung.
			S. 77 40 E.	N. 77 40 W.	543	
			N. 9 51 W.	S. 9 51 E.	173	
3	38 07 15.65	76 24 46.80	S. 24 39 E.	N. 24 39 W.	501	Oak. Jutland. Flat.
			N. 55 23 E.	S. 55 23 W.	344	
			N. 12 32 W.	S. 12 32 E.	537	
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 07 31.19	76 24 51.17	S. 12 32 E.	N. 12 32 W.	537	Stung. Flagpole. Ran 2.
			N. 80 21 E.	S. 80 21 W.	366	
			N. 27 44 E.	S. 27 44 W.	280	
5	38 07 02.56	76 24 33.00	N. 39 47 W.	S. 39 48 E.	574	Stung. Oak. Tab.
			S. 84 54 W.	N. 84 54 E.	159	
			S. 30 59 W.	N. 30 59 E.	834	

JUTLAND.

(Smith Creek—Chart No. 24.)

1	38 07 02.61	76 24 29.58	S. 89 53 E.	N. 89 53 W.	273	In. Out. Oak.
			N. 33 25 E.	S. 33 25 W.	184	
			S. 86 22 W.	N. 86 22 E.	251	
2	38 07 36.46	76 24 47.58	S. 28 17 W.	N. 28 17 E.	203	Flat. Flagpole. Ran 2.
			S. 66 19 E.	N. 66 19 W.	290	
			N. 26 17 E.	S. 26 17 W.	79	

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## JUTLAND—Continued.

(Smiths Creek—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / "	° / "	° / "	° / "	Yards.	
3	38 07 38.54	76 24 46.28	S. 27 44 W. S. 1 01 W. S. 51 05 E.	N. 27 44 E. N. 1 01 E. N. 51 05 W.	280 772 296	Flat. Stung. Flagpole.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 07 31.02	76 24 39.58	N. 37 57 E. N. 88 56 W. S. 20 22 W.	S. 37 57 W. S. 88 56 E. N. 20 22 E.	86 309 552	Flagpole. Flat. Stung.
5	38 07 21.45	76 24 36.16	S. 55 23 W. S. 6 30 W. S. 29 51 E.	N. 55 23 E. N. 6 30 E. N. 29 51 W.	344 655 556	Stung. Oak. Out.
Thence from corner No. 5 along the mean low-water line of the shore to corner No. 6, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
6	38 07 03.06	76 24 22.21	N. 34 31 W. S. 86 01 W. S. 74 54 E.	S. 34 32 E. N. 86 01 E. N. 74 54 W.	168 447 79	Out. Oak. In.

## DUNBAR.

(Smith Creek—Chart No. 24.)

1	38 07 12.94	76 23 47.00	S. 79 19 W. S. 56 42 W. S. 10 21 W.	N. 79 19 E. N. 56 42 E. N. 10 21 E.	1,051 439 414	Out. Drum. Enough.
2	38 07 19.58	76 23 48.60	S. 67 05 W. S. 34 53 W. S. 2 51 W.	N. 67 04 E. N. 34 53 E. N. 2 51 E.	1,075 567 631	Out. Drum. Enough.
3	38 07 20.33	76 23 46.36	S. 67 05 W. S. 38 04 W. S. 7 55 W.	N. 67 04 E. N. 38 03 E. N. 7 54 E.	1,141 622 662	Out. Drum. Enough.
4	38 07 14.34	76 23 42.30	S. 78 10 W. S. 59 39 W. S. 23 42 W.	N. 78 10 E. N. 59 39 E. N. 23 42 E.	1,183 570 496	Out. Drum. Enough.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SEDGE POINT.

(Lower St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 06 17.94	76 25 22.01	N. 89 24 E.	S. 89 24 W.	Yards.	Day.
			N. 24 26 W.	S. 24 26 E.	1,918	Between.
			N. 89 37 W.	S. 89 38 E.	4,046	Labor.
2	38 06 18.02	76 25 37.60	S. 89 49 E.	N. 89 48 W.	512	Day.
			N. 12 16 W.	S. 12 16 E.	1,785	Between.
			N. 89 36 W.	S. 89 38 E.	3,631	Labor.
3	38 06 45.00	76 25 32.23	N. 32 01 W.	S. 32 01 E.	983	Between.
			S. 76 47 W.	N. 76 45 E.	3,876	Labor.
			S. 22 01 E.	N. 22 01 W.	983	Day.

MOUTH OF CREEK.

(Lower St. Marys River—Chart No. 24.)

1	38 06 18.60	76 27 16.76	S. 89 37 E.	N. 89 36 W.	3,154	Day.
			N. 52 43 E.	S. 52 44 W.	2,844	Between.
			N. 89 41 W.	S. 89 42 E.	988	Labor.
2	38 06 18.68	76 27 27.58	S. 89 36 E.	N. 89 35 W.	3,441	Day.
			N. 56 00 E.	S. 56 01 W.	3,078	Between.
			N. 89 47 W.	S. 89 47 E.	701	Labor.
3	38 06 50.60	76 28 04.10	S. 14 17 E.	N. 14 17 W.	1,105	Labor.
			N. 79 38 E.	S. 79 39 W.	3,582	Between.
			N. 27 13 W.	S. 27 13 E.	1,006	Smack.
4	38 07 11.80	76 28 10.76	N. 11 41 E.	S. 11 41 W.	970	Cherry.
			N. 57 31 W.	S. 57 32 E.	336	Smack.
			S. 14 10 E.	N. 14 10 W.	1,840	Labor.
5	38 07 04.99	76 27 49.02	N. 18 00 W.	S. 18 01 E.	1,242	Cherry.
			N. 64 35 W.	S. 64 35 E.	953	Smack.
			S. 4 44 W.	N. 4 44 E.	1,504	Labor.

CHICKEN COCK.

(Lower St. Marys River—Chart No. 24.)

1	38 06 38.30	76 25 55.46	S. 55 14 E.	N. 55 13 W.	1,202	Day.
			N. 5 16 E.	S. 5 16 W.	1,064	Between.
			S. 78 12 W.	N. 78 11 E.	3,223	Labor.
2	38 07 18.72	76 26 19.44	S. 67 37 E.	N. 67 36 W.	796	Between.
			N. 2 28 E.	S. 2 28 W.	1,899	Fort.
			S. 51 13 W.	N. 51 12 E.	3,227	Labor.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## CHICKEN COCK—Continued.

(Lower St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
3	38 07 18.32	76 25 58.36	N. 14 05 E.	S. 14 05 W.	Yards.	Fort. Labor. Between.
			S. 56 52 W.	N. 56 51 E.	1,970	
			S. 31 07 E.	N. 31 07 W.	3,666 339	
4	38 07 00.00	76 25 45.78	N. 26 02 W.	S. 26 02 E.	364	Between. Labor. Day.
			S. 67 47 W.	N. 67 46 E.	3,686	
			S. 27 14 E.	N. 27 14 W.	1,593	
5	38 06 39.94	76 25 45.01	N. 10 12 W.	S. 10 12 E.	1,023	Between. Labor. Day.
			S. 78 15 W.	N. 78 14 E.	3,507	
			S. 43 45 E.	N. 43 44 W.	1,026	

## CHERRY.

(Lower St. Marys River—Chart No. 24.)

1	38 07 06.81	76 27 39.46	N. 88 02 E.	S. 88 04 W.	2,871	Between. Cherry. Smack.
			N. 29 43 W.	S. 29 43 E.	1,287	
			N. 72 38 W.	S. 72 39 E.	1,170	
2	38 07 23.00	76 28 15.13	N. 28 41 E.	S. 28 41 W.	651	Cherry. Adams. Smack.
			N. 77 16 W.	S. 77 17 E.	1,413	
			S. 40 07 W.	N. 40 07 E.	258	
3	38 07 39.96	76 28 03.41	N. 45 49 W.	S. 45 49 E.	1,344	Goose. Smack. Between.
			S. 31 53 W.	N. 31 53 E.	906	
			S. 73 48 E.	N. 73 47 W.	3,652	
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 07 41.20	76 27 49.04	S. 46 43 W.	N. 46 43 E.	1,183	Smack. Between. Fort.
			S. 71 14 E.	N. 71 13 W.	3,299	
			N. 65 13 E.	S. 65 14 W.	2,719	
5	38 07 57.01	76 27 33.00	N. 73 25 E.	S. 73 26 W.	2,129	Fort. Pond. Smack.
			N. 2 43 W.	S. 2 43 E.	807	
			S. 43 47 W.	N. 43 47 E.	1,862	
6	38 07 29.02	76 27 19.00	N. 13 12 W.	S. 13 12 E.	1,800	Pond. Cherry. Smack.
			N. 72 41 W.	S. 72 41 E.	1,239	
			S. 76 27 W.	N. 76 26 E.	1,709	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

MIDDLEGROUND LUMP.

(Lower St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / "	° / "	° / "	° / "	Yards.	
1	38 07 42.00	76 27 03.22	N. 48 46 E. N. 32 22 W. S. 87 33 W.	S. 48 17 W. S. 32 23 E. N. 87 32 E.	1,672 1,553 1,604	Fort. Pond. Cherry.
2	38 07 51.94	76 27 01.44	N. 57 04 E. N. 41 54 W. S. 76 15 W.	S. 57 04 W. S. 41 54 E. N. 76 14 E.	1,430 1,317 1,699	Fort. Pond. Cherry.
3	38 07 45.50	76 26 51.12	N. 42 56 E. N. 43 58 W. S. 84 28 W.	S. 42 56 W. S. 43 59 E. N. 84 27 E.	1,358 1,662 1,934	Fort. Pond. Cherry.

FORT.

(Lower St. Marys River—Chart No. 24.)

1	38 07 36.02	76 25 56.00	S. 7 12 E. N. 87 45 W. N. 22 26 W.	N. 7 12 W. S. 87 47 E. S. 22 26 E.	893 3,397 1,422	Between. Cherry. Fort.
2	38 08 00.00	76 26 52.52	S. 70 19 W. S. 43 39 E. N. 62 17 E.	N. 70 18 E. N. 43 39 W. S. 62 17 W.	2,005 2,342 1,087	Cherry. Between. Fort.
3	38 08 00.00	76 26 13.16	N. 9 36 W. N. 71 54 W. S. 18 36 E.	S. 9 36 E. S. 71 53 E. N. 18 36 W.	513 2,278 1,785	Fort. Pond. Between.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 07 37.98	76 25 54.82	N. 24 42 W. N. 88 53 W. S. 4 50 E.	S. 24 42 E. S. 88 54 E. N. 4 50 W.	1,373 3,426 956	Fort. Cherry. Between.

EDMUND.

(Lower St. Marys River—Chart No. 24.)

1	38 08 01.44	76 27 19.18	N. 74 41 E. N. 31 39 W. S. 58 25 W.	S. 74 41 W. S. 31 39 E. N. 58 25 E.	1,734 774 1,382	Fort. Pond. Cherry.
2	38 08 04.62	76 27 32.20	N. 80 10 E. N. 6 10 W. S. 45 00 W.	S. 80 11 W. S. 6 10 E. N. 44 59 E.	2,049 555 1,173	Fort. Pond. Cherry.
3	38 08 20.99	76 27 34.44	S. 48 42 E. S. 84 28 E. N. 52 55 E.	N. 48 41 W. N. 84 27 W. S. 52 55 W.	3,641 2,089 2,252	Between. Fort. Rod.
4	38 08 27.68	76 27 17.64	S. 63 15 W. S. 75 17 E. N. 50 00 E.	N. 63 14 E. N. 75 17 W. S. 50 00 W.	501 1,687 1,761	Pond. Fort. Rod.

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## COAD.

(Lower St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 08 20.09	76 27 34.44	S. 48 42 E.	N. 48 41 W.	3,641	Between. Fort. Rod.
			S. 84 28 E.	N. 84 27 W.	2,089	
			N. 52 55 E.	S. 52 55 W.	2,252	
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 08 42.80	76 27 53.82	S. 70 08 E.	N. 70 07 W.	2,759	Fort. Rod. Thompson.
			N. 74 54 E.	S. 74 55 W.	2,395	
			N. 21 55 E.	S. 21 55 W.	1,201	
3	38 08 49.42	76 27 36.62	S. 3 28 E.	N. 3 28 W.	960	Pond. Rod. Thompson.
			N. 77 49 E.	S. 77 50 W.	1,897	
			N. 0 38 W.	S. 0 38 E.	891	
4	38 08 27.68	76 27 17.64	S. 63 15 W.	N. 63 14 E.	501	Pond. Fort. Rod.
			S. 75 17 E.	N. 75 17 W.	1,687	
			N. 50 00 E.	S. 50 00 W.	1,761	

## LANGLEY HOLLOW.

(Lower St. Marys River—Chart No. 24.)

1	38 08 08.80	76 26 19.10	N. 19 11 E.	S. 19 11 W.	221	Fort. Pond. Between.
			N. 78 25 W.	S. 78 26 E.	2,048	
			S. 20 04 E.	N. 20 03 W.	2,120	
2	38 08 09.34	76 26 26.18	N. 53 51 E.	S. 53 51 W.	324	Fort. Pond. Between.
			N. 77 48 W.	S. 77 49 E.	1,860	
			S. 24 30 E.	N. 24 30 W.	2,209	
3	38 08 41.22	76 26 27.54	N. 1 16 E.	S. 1 16 W.	676	Rod. Pond. Fort.
			S. 69 03 W.	N. 69 02 E.	1,907	
			S. 18 36 E.	N. 18 36 W.	933	
4	38 08 54.68	76 26 22.00	N. 30 52 W.	S. 30 52 E.	259	Rod. Pond. Fort.
			S. 59 31 W.	N. 59 30 E.	2,238	
			S. 6 24 E.	N. 6 24 W.	1,346	
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 08 52.88	76 26 12.58	N. 53 37 W.	S. 53 37 E.	477	Rod. Pond. Fort.
			S. 63 42 W.	N. 63 41 E.	2,432	
			S. 4 31 W.	N. 4 31 E.	1,284	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

PRIEST.

(Middle St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 08 41.22	76 26 27.54	N. 1 16 E.	S. 1 16 W.	Yards.	Rod. Pond. Fort.
			S. 69 03 W.	N. 69 02 E.	676	
			S. 18 36 E.	N. 18 36 W.	1,907 933	
2	38 09 01.34	76 26 45.64	S. 89 41 E.	N. 89 41 W.	497	Rod. Inigoes. Thompson.
			N. 33 28 E.	S. 33 28 W.	1,324	
			N. 70 18 W.	S. 70 19 E.	1,452	
3	38 09 15.99	76 26 24.54	S. 7 27 W.	N. 7 27 E.	501	Rod. Raley. Inigoes.
			N. 89 08 E.	S. 89 08 W.	560	
			N. 15 23 E.	S. 15 24 W.	633	
4	38 09 09.62	76 26 16.40	N. 56 56 E.	S. 56 57 W.	409	Raley. Inigoes. Rod.
			N. 3 27 W.	S. 3 27 E.	827	
			S. 44 59 W.	N. 44 59 E.	398	
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 08 54.68	76 26 22.00	N. 30 52 W.	S. 30 52 E.	259	Rod. Pond. Fort.
			S. 59 31 W.	N. 59 30 E.	2,238	
			S. 6 24 E.	N. 6 24 W.	1,346	

CARTHAGENA CREEK.

(Middle St. Marys River—Chart No. 24.)

1	38 09 01.40	76 27 46.92	S. 13 44 E.	N. 13 44 W.	1,400	Pond. Rod. Thompson.
			S. 89 52 E.	N. 89 52 W.	2,128	
			N. 28 31 E.	S. 28 31 W.	554	
2	38 09 11.20	76 27 53.06	S. 16 20 E.	N. 16 19 W.	1,764	Pond. Rod. Thompson.
			S. 81 40 E.	N. 81 39 W.	2,316	
			N. 69 53 E.	S. 69 53 W.	456	
3	38 09 15.85	76 27 36.98	S. 2 06 E.	N. 2 06 W.	1,851	Pond. Rod. Grind.
			S. 75 13 E.	N. 75 12 W.	1,928	
			N. 61 51 E.	S. 61 51 W.	1,188	
4	38 09 18.75	76 27 32.70	S. 49 22 W.	N. 49 22 E.	150	Thompson. Pond. Rod.
			S. 1 22 W.	N. 1 22 E.	1,948	
			S. 71 23 E.	N. 71 22 W.	1,847	
5	38 09 10.00	76 27 22.18	S. 78 38 E.	N. 78 38 W.	1,499	Rod. Grind. Thompson.
			N. 40 46 E.	S. 40 46 W.	1,001	
			N. 63 25 W.	S. 63 25 E.	441	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## THOMPSON CREEK.

(Middle St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 09 10.00	76 27 22.18	S. 78 38 E. N. 40 46 E. N. 63 25 W.	N. 78 38 W. S. 40 46 W. S. 63 25 E.	1,499 1,001 441	Rod. Grind. Thompson.
2	38 09 18.75	76 27 32.70	S. 49 22 W. S. 1 22 W. S. 71 23 E.	N. 49 22 E. N. 1 22 E. N. 71 22 W.	150 1,948 1,847	Thompson. Pond. Rod.
3	38 09 22.60	76 27 28.50	S. 44 46 W. S. 4 21 W. S. 66 17 E.	N. 44 46 E. N. 4 21 E. N. 66 17 W.	320 2,083 1,789	Thompson. Pond. Rod.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 09 30.77	76 27 00.40	S. 41 49 E. N. 51 59 E. N. 23 35 E.	N. 41 49 W. S. 51 59 W. S. 23 35 W.	1,335 94 1,307	Rod. Grind. Chan.
5	38 09 25.82	76 26 45.64	S. 31 01 E. N. 69 03 E. N. 54 53 W.	N. 31 01 W. S. 69 03 W. S. 54 53 E.	965 782 389	Rod. Inigoes. Grind.
6	38 09 18.86	76 26 55.87	S. 52 21 E. N. 62 52 E. N. 5 50 W.	N. 52 21 W. S. 62 52 W. S. 5 50 E.	972 1,126 461	Rod. Inigoes. Grind.

## RALEYS SHORE.

(Entrance to St. Inigoes Creek—Chart No. 24.)

1	38 09 00.62	76 26 16.40	N. 56 56 E. N. 3 27 W. S. 44 59 W.	S. 56 57 W. S. 3 27 E. N. 44 59 E.	409 827 398	Raley. Inigoes. Rod.
2	38 09 15.99	76 26 24.54	S. 7 27 W. N. 89 08 E. N. 15 23 E.	N. 7 27 E. S. 89 08 W. S. 15 24 W.	501 560 633	Rod. Raley. Inigoes.
3	38 00 26.59	76 26 00.26	S. 23 39 E. N. 52 44 E. N. 43 26 W.	N. 23 39 W. S. 52 44 W. S. 43 26 E.	380 583 348	Raley. Cottage. Inigoes.
4	38 09 18.62	76 25 59.00	N. 47 12 E. N. 44 28 W. S. 56 18 W.	S. 47 12 W. S. 44 28 E. N. 56 18 E.	576 730 144	Church. Inigoes. Raley.

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

KENNEDY.

(*St. Inigoes Creek—Chart No. 24.*)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 09 26.00	76 26 04.72	S. 5 33 E.	N. 5 33 W.	330	Raley. Cottage.
			N. 42 36 E.	S. 42 36 W.	506	
			N. 52 49 W.	S. 52 50 E.	451	
2	38 09 35.26	76 26 11.26	S. 78 00 W.	N. 78 00 E.	189	Inigoes. Raley. Cottage.
			S. 17 49 E.	N. 17 49 W.	673	
			N. 83 20 E.	S. 83 21 W.	520	
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 09 35.40	76 26 05.82	S. 82 22 W.	N. 82 22 E.	333	Inigoes. Raley. Cottage.
			S. 5 25 E.	N. 5 25 W.	648	
			N. 81 30 E.	S. 81 30 W.	376	
4	38 09 27.76	76 25 52.46	N. 71 29 E.	S. 71 29 W.	261	Church. Cottage. Inigoes.
			N. 2 58 E.	S. 2 58 W.	314	
			N. 72 43 W.	S. 72 43 E.	718	

JONES.

(*St. Inigoes Creek—Chart No. 24.*)

1	38 09 28.18	76 25 32.60	N. 0 55 W.	S. 0 55 E.	462	Grason. Cottage. Church.
			N. 59 41 W.	S. 59 41 E.	594	
			N. 76 06 W.	S. 76 07 E.	289	
2	38 09 32.06	76 25 39.88	N. 31 45 E.	S. 31 45 W.	354	Grason. Cottage. Church.
			N. 66 33 W.	S. 66 33 E.	347	
			S. 43 09 W.	N. 43 08 E.	126	
3	38 09 39.80	76 25 44.30	N. 76 55 E.	S. 76 55 W.	312	Grason. Dusky. Cottage.
			N. 6 38 E.	S. 6 38 W.	202	
			S. 65 14 W.	N. 65 14 E.	221	
4	38 09 42.40	76 25 36.74	N. 58 27 W.	S. 58 27 E.	209	Dusky. Cottage. Grason.
			S. 65 51 W.	N. 65 51 E.	441	
			S. 80 30 E.	N. 80 30 W.	104	

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## ST. INIGOES NORTH.

(St. Inigoes Creek—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° /	° /		
1	38 09 54.66	76 25 27.38	S. 37 57 E.	N. 37 57 W.	380	Smoke.
			N. 58 04 E.	S. 58 04 W.	397	Sleep.
			S. 87 54 W.	N. 87 54 E.	294	Rock.
2	38 10 03.16	76 25 29.70	S. 37 59 W.	N. 37 58 E.	377	Rock.
			S. 26 47 E.	N. 26 47 W.	656	Smoke.
			S. 79 07 E.	N. 79 06 W.	406	Sleep.
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 10 00.89	76 25 14.72	S. 70 42 W.	N. 70 42 E.	668	Rock.
			S. 11 24 W.	N. 11 24 E.	521	Smoke.
			S. 30 29 E.	N. 30 29 W.	445	Chestnut.
4	38 09 58.16	76 25 12.42	N. 33 38 W.	S. 33 38 E.	110	Sleep.
			S. 21 25 W.	N. 21 25 E.	449	Smoke.
			S. 29 31 E.	N. 29 31 W.	335	Chestnut.

## ST. INIGOES SOUTH.

(St. Inigoes Creek—Chart No. 24.)

1	38 09 45.02	76 25 22.00	N. 75 02 E.	S. 75 02 W.	94	Smoke.
			N. 54 17 W.	S. 54 17 E.	538	Rock.
			S. 69 59 W.	N. 69 59 E.	308	Grason.
2	38 09 50.82	76 25 24.36	S. 41 53 E.	N. 41 53 W.	229	Smoke.
			N. 37 05 E.	S. 37 05 W.	425	Sleep.
			N. 72 22 W.	S. 72 22 E.	393	Rock.
3	38 09 52.96	76 25 06.86	N. 38 28 W.	S. 38 28 E.	337	Sleep.
			S. 52 04 W.	N. 52 04 E.	396	Smoke.
			S. 8 12 E.	N. 8 12 W.	117	Chestnut.
4	38 09 49.51	76 25 06.23	N. 30 29 W.	S. 30 29 E.	445	Sleep.
			N. 79 14 W.	S. 79 14 E.	873	Rock.
			S. 68 53 W.	N. 68 53 E.	352	Smoke.

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

COPPAGE.

(Middle St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 09 30.77	76 27 00.40	S. 41 49 E. N. 51 59 E. N. 23 35 E.	N. 41 49 W. S. 51 59 W. S. 23 35 W.	1,335 94 1,307	Rod. Grind. Chan.
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 09 48.16	76 27 18.24	S. 46 04 E. N. 58 35 E. N. 42 42 W.	N. 46 04 W. S. 58 36 W. S. 42 43 E.	762 1,168 689	Grind. Chan. Coppage.
3	38 09 52.40	76 27 11.70	S. 29 09 E. N. 60 25 E. N. 60 28 W.	N. 29 09 W. S. 60 26 W. S. 60 28 E.	769 945 737	Grind. Chan. Coppage.
4	38 09 43.26	76 26 50.73	S. 26 49 W. S. 70 18 E. N. 18 53 E.	N. 26 49 E. N. 70 17 W. S. 18 53 W.	408 919 818	Grind. Inigoes. Chan.

COOPER CREEK.

(Middle St. Marys River—Chart No. 24.)

1	38 09 48.16	76 27 18.24	S. 46 04 E. N. 58 35 E. N. 42 42 W.	N. 46 04 W. S. 58 36 W. S. 42 43 E.	762 1,168 689	Grind. Chan. Coppage.
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 10 06.00	76 27 35.60	S. 3 12 W. N. 89 43 E. N. 45 07 E.	N. 3 12 E. S. 89 44 W. S. 45 07 W.	95 1,459 1,171	Coppage. Chan. Bello.
3	38 10 06.98	76 27 31.40	S. 42 26 W. S. 88 54 E. N. 42 08 E.	N. 42 26 E. N. 88 53 W. S. 42 09 W.	174 1,348 1,071	Coppage. Chan. Bello.
4	38 09 58.54	76 27 25.58	N. 77 45 E. N. 27 35 E. N. 60 06 W.	S. 77 46 W. S. 27 35 W. S. 60 06 E.	1,220 1,216 314	Chan. Bello. Coppage.
5	38 09 52.40	76 27 11.70	S. 29 09 E. N. 60 25 E. N. 60 28 W.	N. 29 09 W. S. 60 26 W. S. 60 28 E.	769 945 737	Grind. Chan. Coppage.

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## ROSECROFT HOLLOW.

(Middle St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.			Longitude.			True bearing.		Distance.	U. S. C. & G. S. triangulation station.
	°	'	"	°	'	"	Forward.	Back.		
1	38	09	29.88	76	26	25.10	N. 84 13 W.	S. 84 14 E.	Yards. 870 736 232	Grind. Raley. Inigoes.
							S. 51 20 E.	N. 51 19 W.		
							N. 52 11 E.	S. 52 11 W.		
2	38	09	53.02	76	26	32.20	N. 27 16 W.	S. 27 16 E.	501 069 573	Chan. Grind. Kennedy.
							S. 44 21 W.	N. 44 21 E.		
							S. 32 50 E.	N. 32 50 W.		
3	38	10	05.78	76	26	45.85	S. 36 29 E.	N. 36 28 W.	1,134 136 970	Kennedy. Chan. Bello.
							N. 83 50 E.	S. 83 50 W.		
							N. 30 39 W.	S. 30 39 E.		
4	38	10	06.21	76	26	40.81	N. 37 29 W.	S. 37 29 E.	1,032 1,223 1,072	Bello. Grind. Kennedy.
							S. 21 30 W.	N. 21 30 E.		
							S. 30 14 E.	N. 30 14 W.		
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.										
5	38	09	50.06	76	26	21.42	N. 77 23 W.	S. 77 23 E.	2,030 1,132 382	Coppage. Grind. Kennedy.
							S. 58 25 W.	N. 58 25 E.		
							S. 3 33 E.	N. 3 33 W.		
6	38	09	39.98	76	26	25.80	S. 73 22 E.	N. 73 22 W.	146 970 884	Kennedy. Chan. Grind.
							N. 24 19 W.	S. 24 19 E.		
							S. 73 23 W.	N. 73 23 E.		
7	38	09	32.42	76	26	21.04	S. 40 36 E.	N. 40 36 W.	716 94 213	Raley. Inigoes. Kennedy.
							N. 53 02 E.	S. 53 02 W.		
							N. 3 39 E.	S. 3 39 W.		

## GRAVELLY RUN.

(Middle St. Marys River—Chart No. 24.)

1	38	10	05.78	76	26	45.85	S. 36 29 E.	N. 36 28 W.	1,134 136 970	Kennedy. Chan. Bello.
							N. 83 50 E.	S. 83 50 W.		
							N. 30 39 W.	S. 30 39 E.		
2	38	10	28.46	76	26	34.00	N. 85 06 W.	S. 85 06 E.	812 772 233	Bello. Chan. Gravel.
							S. 13 35 W.	N. 13 35 E.		
							S. 52 01 E.	N. 52 01 W.		
3	38	10	38.22	76	26	09.08	N. 12 06 E.	S. 12 06 W.	544 1,256 674	Brome. McKay. Gravel.
							N. 61 06 W.	S. 61 06 E.		
							S. 45 24 W.	N. 45 24 E.		
4	38	10	59.19	76	26	09.28	S. 34 26 E.	N. 34 26 W.	211 542 817	Brome. Calvert Monument. Deep.
							N. 1 45 W.	S. 1 45 E.		
							N. 69 11 W.	S. 69 11 E.		

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## GRAVELLY RUN—Continued.

(Middle St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
5	38 10 59.62	76 26 01.46	N. 23 03 W.	S. 23 04 E.	573	Calvert Monument. Deep. Brome.
			N. 74 09 W.	S. 74 09 E.	1,009	
			S. 25 13 W.	N. 25 13 E.	209	
Thence from corner No. 5 along the mean low-water line of the shore to corner No. 6, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
6	38 10 06.21	76 26 40.81	N. 37 29 W.	S. 37 29 E.	1,032	Bello. Grind. Kennedy.
			S. 21 30 W.	N. 21 30 E.	1,223	
			S. 30 14 E.	N. 30 14 W.	1,072	

## WEST ST. MARYS.

(Middle St. Marys River—Chart No. 24.)

1	38 11 07.80	76 26 37.96	S. 40 22 W.	N. 40 21 E.	512	McKay. Brome. Calvert Monument.
			S. 62 15 E.	N. 62 15 W.	997	
			N. 71 22 E.	S. 71 23 W.	788	
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 11 18.76	76 26 39.42	N. 9 10 E.	S. 9 10 W.	201	Pagan. Deep. Calvert Monument.
			S. 6 00 E.	N. 6 00 W.	372	
			S. 81 27 E.	N. 81 27 W.	795	
3	38 11 18.43	76 26 34.56	N. 24 59 W.	S. 24 59 E.	231	Pagan. Deep. McKay.
			S. 14 10 W.	N. 14 10 E.	370	
			S. 29 24 W.	N. 29 24 E.	862	
4	38 11 07.98	76 26 33.60	N. 12 21 W.	S. 12 21 E.	575	Pagan. Deep. McKay.
			S. 87 00 W.	N. 87 00 E.	116	
			S. 48 28 W.	N. 48 28 E.	597	

## SEMINARY.

(Upper St. Marys River—Chart No. 24.)

1	38 11 09.44	76 26 11.38	N. 31 30 E.	S. 31 30 W.	223	Episcopal Church cross. Calvert Monument. Deep.
			N. 11 21 E.	S. 11 21 W.	200	
			S. 85 32 W.	N. 85 32 E.	710	
2	38 11 17.82	76 26 23.50	N. 59 34 W.	S. 59 34 E.	454	Pagan. Deep. Calvert Monument.
			S. 48 43 W.	N. 48 43 E.	511	
			S. 76 35 E.	N. 76 35 W.	371	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## SEMINARY—Continued.

(Upper St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
3	38 11 25.56	76 26 03.82	N. 34 40 E.	S. 34 40 W.	744	Bend. Pagan. Calvert Monument.
			S. 88 02 W.	N. 88 02 E.	915	
			S. 24 59 W.	N. 24 59 E.	383	
4	38 11 20.60	76 26 00.64	N. 23 28 E.	S. 23 29 W.	849	Bend. Pagan. Calvert Monument.
			N. 82 15 W.	S. 82 14 E.	1,009	
			S. 53 51 W.	N. 53 51 E.	305	
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 11 10.80	76 26 07.96	N. 10 04 E.	S. 10 04 W.	146	Episcopal Church cross. Calvert Monument. Deep.
			N. 18 57 W.	S. 18 57 E.	158	
			S. 82 47 W.	N. 82 46 E.	805	

## PAGAN.

(Upper St. Marys River—Chart No. 24.)

1	38 11 27.28	76 26 40.00	N. 79 36 W.	S. 79 36 E.	1,069	West Hollow. Pagan. Bend.
			S. 27 56 E.	N. 27 56 W.	101	
			N. 68 14 E.	S. 68 15 W.	1,492	
2	38 11 33.35	76 26 41.14	S. 89 19 W.	N. 89 19 E.	1,021	West Hollow. Pagan. Bend.
			S. 14 50 E.	N. 14 50 W.	303	
			N. 76 11 E.	S. 76 11 W.	1,458	
3	38 11 34.50	76 26 34.24	S. 87 36 W.	N. 87 35 E.	1,206	West Hollow. Pagan. Bend.
			S. 17 39 W.	N. 17 39 E.	349	
			N. 75 52 E.	S. 75 52 W.	1,271	
4	38 11 28.18	76 26 32.54	N. 82 34 W.	S. 82 35 E.	1,260	West Hollow. Pagan. Bend.
			S. 51 38 W.	N. 51 37 E.	193	
			N. 66 14 E.	S. 66 14 W.	1,297	
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

BOUNDARIES OF NATURAL OYSTER BARS—continued.

BISCOE.

(Upper St. Marys River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' / "	° / ' / "		
1	38 11 28.34	76 26 57.20	S. 76 05 E.	N. 76 05 W.	Yards. 521 1,326 614	Pagan. Horseshoe. West Hollow.
			N. 14 16 E.	S. 14 16 W.		
			N. 75 10 W.	S. 75 10 E.		
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 11 28.66	76 27 02.06	S. 77 55 E.	N. 77 54 W.	649 1,356 487	Pagan. Horseshoe. West Hollow.
			N. 19 39 E.	S. 19 39 W.		
			N. 72 30 W.	S. 72 30 E.		
3	38 11 33.42	76 27 02.00	S. 64 54 E.	N. 64 54 W.	699 1,205 466	Pagan. Horseshoe. West Hollow.
			N. 22 09 E.	S. 22 09 W.		
			S. 88 13 W.	N. 88 13 E.		
4	38 11 33.38	76 26 55.58	S. 57 26 E.	N. 57 26 W.	548 1,152 637	Pagan. Horseshoe. West Hollow.
			N. 14 16 E.	S. 14 16 W.		
			S. 88 51 W.	N. 88 51 E.		

HORSESHOE.

(Upper St. Marys River—Chart No. 24.)

1	38 11 48.18	76 26 52.00	N. 16 56 E.	S. 16 56 W.	648 694 892	Horseshoe. Brief. West Hollow.
			N. 54 00 W.	S. 54 00 E.		
			S. 55 02 W.	N. 55 02 E.		
2	38 11 49.16	76 26 56.42	N. 27 34 E.	S. 27 34 W.	662 581 819	Horseshoe. Brief. West Hollow.
			N. 49 49 W.	S. 49 49 E.		
			S. 48 25 W.	N. 48 25 E.		
3	38 12 00.60	76 26 50.46	N. 36 21 E.	S. 36 21 W.	249 602 1,209	Horseshoe. Brief. West Hollow.
			S. 88 57 W.	N. 88 57 E.		
			S. 39 42 W.	N. 39 42 E.		
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## SHORT POINT.

(Upper St. Marys River—Chart No. 24.)

Corner of bar	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / "	° / "	° / "	° / "	Yards.	
1	38 11 48.24	76 27 13.76	S. 16 35 W. N. 51 12 E. N. 2 29 E.	N. 16 35 E. S. 51 12 W. S. 2 29 W.	535 984 406	West Hollow. Horseshoe. Brief.
2	38 11 49.96	76 27 18.60	S. 2 24 W. N. 57 59 E. N. 22 49 E.	N. 2 24 E. S. 57 59 W. S. 22 49 W.	572 1,058 377	West Hollow. Horseshoe. Brief.
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 12 00.92	76 27 12.34	N. 75 26 E. N. 49 24 W. S. 43 08 W.	S. 75 27 W. S. 49 24 E. N. 43 08 E.	754 486 30	Horseshoe. Tenuate. Brief.
4	38 12 03.66	76 27 08.66	N. 81 16 E. N. 64 27 W. S. 46 02 W.	S. 81 16 W. S. 64 27 E. N. 46 02 E.	639 517 164	Horseshoe. Tenuate. Brief.
5	38 12 01.82	76 27 04.25	N. 72 48 E. N. 63 59 W. S. 77 34 W.	S. 72 49 W. S. 63 59 E. N. 77 34 E.	539 651 241	Horseshoe. Tenuate. Brief.

## BRYAN.

(Upper St. Marys River—Chart No. 24.)

1	38 12 07.80	76 27 15.94	N. 72 59 W. S. 16 36 E. S. 86 59 E.	S. 72 59 E. N. 16 36 W. N. 86 59 W.	285 265 827	Tenuate. Brief. Horseshoe.
2	38 12 09.08	76 27 24.36	S. 45 17 E. S. 85 20 E. N. 50 35 W.	N. 45 17 W. N. 85 20 W. S. 50 35 E.	421 1,053 63	Brief. Horseshoe. Tenuate.
Thence from corner No. 2, along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 12 10.28	76 27 26.21	S. 83 27 E. N. 23 30 E. N. 58 55 W.	N. 83 27 W. S. 23 31 W. S. 58 55 E.	1,106 681 819	Horseshoe. Martin. Soak.
4	38 12 14.96	76 27 25.20	N. 27 41 E. N. 70 01 W. S. 9 41 W.	S. 27 41 W. S. 70 01 E. N. 9 41 E.	527 775 160	Martin. Soak. Tenuate.
5	38 12 12.86	76 27 14.59	N. 3 58 W. S. 74 15 W. S. 5 20 E.	S. 3 58 E. N. 74 15 E. N. 5 20 W.	530 321 426	Martin. Tenuate. Brief.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

ST. GEORGE.

(St. George River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 07 23.00	76 28 15.13	N. 28 41 E. N. 77 16 W. S. 40 07 W.	S. 28 41 W. S. 77 17 E. N. 40 07 E.	651 1,413 258	Cherry. Adams. Smack.
2	38 07 40.98	76 28 19.34	S. 3 52 W. S. 85 22 E. N. 29 21 E.	N. 3 52 E. N. 85 22 W. S. 29 21 W.	806 427 1,015	Smack. Cherry. Price.
3	38 08 02.90	76 28 24.82	S. 3 24 E. S. 36 24 E. N. 77 12 W.	N. 3 24 W. N. 36 24 W. S. 77 12 E.	1,545 961 661	Smack. Cherry. Price.
4	38 08 12.32	76 28 00.82	S. 52 27 W. S. 16 24 W. S. 1 33 E.	N. 52 27 E. N. 16 24 E. N. 1 33 W.	2,218 1,939 172	Adams. Smack. Price.
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 07 39.96	76 28 03.41	N. 45 49 W. S. 31 53 W. S. 73 48 E.	S. 45 49 E. N. 31 53 E. N. 73 47 W.	1,344 906 3,652	Goose. Smack. Between.

HURDLE.

(St. George River—Chart No. 24.)

1	38 07 17.82	76 28 32.98	S. 85 39 E. N. 46 32 E. N. 61 42 W.	N. 85 39 W. S. 46 32 W. S. 61 42 E.	309 1,085 1,025	Smack. Cherry. Adams.
2	38 07 38.80	76 29 04.22	N. 33 55 E. N. 51 43 W. S. 17 33 W.	S. 33 55 W. S. 51 44 E. N. 17 33 E.	1,176 1,368 233	Goose. Straits. Adams.
3	38 07 51.97	76 28 53.00	N. 33 53 E. N. 44 49 W. S. 29 00 W.	S. 33 53 W. S. 44 49 E. N. 29 00 E.	641 1,208 761	Goose. Coombs. Adams.
4	38 07 40.98	76 28 19.34	S. 3 52 W. S. 85 22 E. N. 29 21 E.	N. 3 52 E. N. 85 22 W. S. 29 21 W.	806 427 1,015	Smack. Cherry. Price.
5	38 07 23.00	76 28 15.13	N. 28 41 E. N. 77 16 W. S. 40 07 W.	S. 28 41 W. S. 77 17 E. N. 40 07 E.	651 1,413 258	Cherry. Adams. Smack.

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## GOOSE POINT.

(St. George River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 07 40.98	76 28 19.34	S. 3 52 W.	N. 3 52 E.	806	Smack. Cherry. Price.
			S. 85 22 E.	N. 85 22 W.	427	
			N. 29 21 E.	S. 29 21 W.	1,015	
2	38 07 51.97	76 28 53.00	N. 33 53 E.	S. 33 53 W.	641	Goose. Coombs. Adams.
			N. 44 49 W.	S. 44 49 E.	1,208	
			S. 29 00 W.	N. 29 00 E.	761	
3	38 08 07.74	76 28 39.59	S. 31 14 W.	N. 31 14 E.	1,400	Adams. Smack. Cherry.
			S. 15 52 E.	N. 15 52 W.	1,774	
			S. 45 49 E.	N. 45 49 W.	1,344	
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 08 02.90	76 28 24.82	S. 3 24 E.	N. 3 24 W.	1,545	Smack. Cherry. Price.
			S. 36 24 E.	N. 36 24 W.	961	
			N. 77 12 W.	S. 77 12 E.	661	

## ISLAND SHORE.

(St. George River—Chart No. 24.)

1	38 07 38.80	76 29 04.22	N. 33 55 E.	S. 33 55 W.	1,176	Goose. Straits. Adams.
			N. 51 43 W.	S. 51 44 E.	1,368	
			S. 17 33 W.	N. 17 33 E.	233	
2	38 07 48.56	76 29 31.42	S. 49 55 E.	N. 49 55 W.	855	Adams. Coombs. Straits.
			N. 10 09 E.	S. 10 09 W.	988	
			N. 33 58 W.	S. 33 58 E.	626	
3	38 08 00.28	76 29 40.90	S. 43 48 E.	N. 43 48 W.	1,310	Adams. Coombs. Straits.
			N. 36 29 E.	S. 36 29 W.	717	
			N. 38 13 W.	S. 38 13 E.	150	
4	38 08 15.42	76 29 40.34	S. 16 03 W.	N. 16 03 E.	402	Straits. Coombs. Taylor.
			N. 80 53 E.	S. 80 53 W.	417	
			N. 3 04 E.	S. 3 04 W.	478	
5	38 07 51.97	76 28 53.00	N. 33 53 E.	S. 33 53 W.	641	Goose. Coombs. Adams.
			N. 44 49 W.	S. 44 49 E.	1,208	
			S. 29 00 W.	N. 29 00 E.	761	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

MILBOURNE SHORE.

(St. George River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 07 51.97	76 28 53.00	N. 33 53 E.	S. 33 53 W.	641	Goose. Coombs. Adams.
			N. 44 49 W.	S. 44 49 E.	1,208	
			S. 29 00 W.	N. 29 00 E.	761	
2	38 08 15.42	76 29 40.34	S. 16 03 W.	N. 16 03 E.	402	Straits. Coombs. Taylor.
			N. 80 53 E.	S. 80 53 W.	417	
			N. 3 04 E.	S. 3 04 W.	478	
3	38 08 21.42	76 29 43.00	S. 3 54 W.	N. 3 54 E.	595	Straits. Coombs. Taylor.
			S. 74 14 E.	N. 74 13 W.	501	
			N. 19 15 E.	S. 19 15 W.	291	
4	38 08 27.38	76 29 45.70	S. 55 31 W.	N. 55 31 E.	521	Swan. Coombs. Taylor.
			S. 58 41 E.	N. 58 41 W.	049	
			N. 66 20 E.	S. 66 20 W.	184	
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 08 29.80	76 29 27.82	S. 88 30 W.	N. 88 30 E.	308	Taylor. Straits. Coombs.
			S. 27 00 W.	N. 27 00 E.	980	
			S. 10 33 E.	N. 10 33 W.	426	
6	38 08 17.38	76 29 24.89	S. 49 02 W.	N. 49 01 E.	692	Straits. Adams. Goose.
			S. 17 32 E.	N. 17 31 W.	1,598	
			S. 74 55 E.	N. 74 55 W.	1,250	
7	38 08 12.16	76 29 04.76	N. 71 50 W.	S. 71 50 E.	564	Coombs. Adams. Goose.
			S. 2 22 W.	N. 2 22 E.	1,348	
			S. 77 28 E.	N. 77 28 W.	687	
8	38 08 18.06	76 29 01.94	S. 87 51 W.	N. 87 51 E.	611	Coombs. Adams. Goose.
			S. 4 50 W.	N. 4 50 E.	1,551	
			S. 59 41 E.	N. 59 41 W.	690	
Thence from corner No. 8 along the mean low-water line of the shore to corner No. 9, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
9	38 08 07.74	76 28 39.59	S. 31 14 W.	N. 31 14 E.	1,400	Adams. Smack. Cherry.
			S. 15 52 E.	N. 15 52 W.	1,774	
			S. 45 49 E.	N. 45 49 W.	1,344	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BEDS—continued.

## STRAITS.

(St. George River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 08 04.18	76 29 58.62	S. 88 40 E. N. 9 53 W. N. 88 00 W.	N. 88 40 W. S. 9 53 E. S. 88 01 E.	376 495 2,913	Straits. Swan. Piney Point Light.
2	38 08 15.94	76 30 07.24	S. 83 36 W. S. 56 11 E. N. 57 45 E.	N. 83 35 E. N. 56 11 W. S. 57 45 W.	2,699 728 171	Piney Point Light. Straits. Swan.

Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

3	38 08 15.32	76 30 01.66	S. 49 54 E. N. 85 57 E. N. 2 03 W.	N. 49 54 W. S. 85 56 W. S. 2 03 E.	596 982 115	Straits. Coombs. Swan.
4	38 08 13.00	76 29 57.38	S. 48 12 E. N. 80 19 E. N. 31 49 W.	N. 48 13 W. S. 80 19 W. S. 31 49 E.	459 878 224	Straits. Coombs. Swan.

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## TARKHILL.

(St. George River—Chart No. 24.)

1	38 08 20.03	76 29 58.70	N. 57 56 E. N. 21 12 W. S. 60 30 W.	S. 57 56 W. S. 21 13 E. N. 60 30 E.	607 814 95	Taylor. Robrecht. Swan.
2	38 08 50.98	76 29 54.84	N. 57 12 W. S. 54 19 W. S. 55 35 E.	S. 57 13 E. N. 54 19 E. N. 55 35 W.	1,077 489 337	Russell. Robrecht. Tarkhill.
3	38 09 03.21	76 29 50.34	N. 80 34 W. S. 36 34 W. S. 14 42 E.	S. 80 35 E. N. 36 34 E. N. 14 42 W.	1,040 867 623	Russell. Robrecht. Tarkhill.
4	38 08 48.22	76 29 30.20	N. 66 37 W. S. 75 33 W. S. 21 17 W.	S. 66 38 E. N. 75 33 E. N. 21 16 E.	1,702 390 676	Russell. Tarkhill. Taylor.

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

5	38 08 27.38	76 29 45.70	S. 55 31 W. S. 58 41 E. N. 66 20 E.	N. 55 31 E. N. 58 41 W. S. 66 20 W.	521 649 184	Swan. Coombs. Taylor.
6	38 08 21.42	76 29 43.00	S. 3 54 W. S. 74 14 E. N. 19 15 E.	N. 3 54 E. N. 74 13 W. S. 19 15 W.	595 501 291	Straits. Coombs. Taylor.

SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

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BOUNDARIES OF NATURAL OYSTER BARS—continued.

SWAN.

(St. George River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 08 20.03	76 29 58.70	N. 57 56 E.	S. 57 56 W.	Yards. 607 814 95	Taylor. Robrecht. Swan.
			N. 21 12 W.	S. 21 13 E.		
			S. 60 30 W.	N. 60 30 E.		
2	38 08 27.78	76 30 07.22	S. 25 03 E.	N. 25 03 W.	340 744 503	Swan. Taylor. Robrecht.
			N. 85 22 E.	S. 85 22 W.		
			N. 7 45 W.	S. 7 45 E.		
3	38 08 42.54	76 30 09.76	S. 14 42 E.	N. 14 42 W.	833 681 1,167	Swan. Tarkhill. Lowell.
			N. 82 04 E.	S. 82 04 W.		
			N. 7 19 W.	S. 7 19 E.		
4	38 08 50.98	76 29 54.84	N. 57 12 W.	S. 57 13 E.	1,077 489 337	Russell. Robrecht. Tarkhill.
			S. 54 19 W.	N. 54 19 E.		
			S. 55 35 E.	N. 55 35 W.		

ROLLIN.

(St. George River—Chart No. 24.)

1	38 08 50.80	76 30 07.82	N. 43 36 W.	S. 43 36 E.	813 283 651	Russell. Robrecht. Tarkhill.
			S. 10 32 W.	N. 10 32 E.		
			S. 73 31 E.	N. 73 31 W.		
2	38 08 59.04	76 30 20.32	S. 26 49 E.	N. 26 49 W.	623 616 385	Robrecht. Lowell. Russell.
			N. 12 26 E.	S. 12 26 W.		
			N. 36 13 W.	S. 36 13 E.		
3	38 09 03.57	76 30 12.88	N. 8 19 W.	S. 8 19 E.	453 454 714	Lowell. Russell. Robrecht.
			N. 69 39 W.	S. 69 39 E.		
			S. 6 41 E.	N. 6 41 W.		
4	38 08 50.98	76 29 54.84	N. 57 12 W.	S. 57 13 E.	1,077 489 337	Russell. Robrecht. Tarkhill.
			S. 54 19 W.	N. 54 19 E.		
			S. 55 35 E.	N. 55 35 W.		

CEDAR POINT.

(St. George River—Chart No. 24.)

1	38 08 50.98	76 29 54.84	N. 57 12 W.	S. 57 13 E.	1,077 489 337	Russell. Robrecht. Tarkhill.
			S. 54 19 W.	N. 54 19 E.		
			S. 55 35 E.	N. 55 35 W.		
2	38 09 03.57	76 30 12.88	N. 8 19 W.	S. 8 19 E.	453 454 714	Lowell. Russell. Robrecht.
			N. 69 39 W.	S. 69 39 E.		
			S. 6 41 E.	N. 6 41 W.		

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## CEDAR POINT—Continued.

(St. George River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
3	38 09 10.59	76 30 01.22	N. 45 13 E.	S. 45 13 W.	434	Arbuckle.
			N. 60 37 W.	S. 60 37 E.	432	Lowell.
			S. 83 44 W.	N. 83 44 E.	740	Russell.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 09 03.21	76 29 50.34	N. 80 34 W.	S. 80 35 E.	1,040	Russell.
			S. 36 34 W.	N. 36 34 E.	867	Robrecht.
			S. 14 42 E.	N. 14 42 W.	623	Tarkhill.

## SHEHAN.

(St. George River—Chart No. 24.)

1	38 08 59.04	76 30 20.32	S. 26 49 E.	N. 26 49 W.	623	Robrecht.
			N. 12 26 E.	S. 12 26 W.	616	Lowell.
			N. 36 13 W.	S. 36 13 E.	385	Russell.
2	38 09 04.56	76 30 28.60	S. 34 03 E.	N. 34 03 W.	898	Robrecht.
			N. 40 23 E.	S. 40 23 W.	545	Lowell.
			N. 3 11 W.	S. 3 11 E.	125	Russell.
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 09 08.25	76 30 28.86	S. 30 25 E.	N. 30 24 W.	1,005	Robrecht.
			N. 51 05 E.	S. 51 05 W.	463	Lowell.
			N. 4 17 W.	S. 4 17 E.	875	Shehan.
4	38 09 10.60	76 30 24.20	N. 48 08 E.	S. 48 08 W.	316	Lowell.
			N. 13 26 W.	S. 13 26 E.	816	Shehan.
			S. 57 26 W.	N. 57 26 E.	147	Russell.
5	38 09 15.18	76 30 27.62	S. 8 04 W.	N. 8 04 E.	235	Russell.
			N. 80 07 E.	S. 80 07 W.	332	Lowell.
			N. 8 47 W.	S. 8 47 E.	645	Shehan.
6	38 09 18.67	76 30 20.18	N. 29 42 W.	S. 29 42 E.	599	Shehan.
			S. 33 20 W.	N. 33 20 E.	421	Russell.
			S. 64 47 E.	N. 64 47 W.	142	Lowell.
Thence from corner No. 6 along the mean low-water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 09 18.02	76 30 08.56	S. 77 51 W.	N. 77 51 E.	185	Lowell.
			S. 1 32 W.	N. 1 32 E.	1,196	Robrecht.
			N. 83 46 E.	S. 83 46 W.	506	Arbuckle.
8	38 09 14.82	76 29 58.94	N. 56 37 E.	S. 56 37 W.	296	Arbuckle.
			N. 80 59 W.	S. 80 59 E.	442	Lowell.
			S. 74 26 W.	N. 74 25 E.	827	Russell.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SHEHAN—Continued.

(St. George River—Chart No. 24.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
9	38 09 10.59	76 30 01.22	N. 45 13 E.	S. 45 13 W.	434	Arbuckle.
			N. 60 37 W.	S. 60 37 E.	432	Lowell.
			S. 83 44 W.	N. 83 44 E.	740	Russell.
10	38 09 03.57	76 30 12.88	N. 8 19 W.	S. 8 19 E.	453	Lowell.
			N. 69 39 W.	S. 69 39 E.	454	Russell.
			S. 6 41 E.	N. 6 41 W.	714	Robrecht.

LONG.

(St. George River—Chart No. 24.)

1	38 09 20.80	76 30 31.64	S. 73 01 E.	N. 73 01 W.	454	Lowell.
			N. 1 05 E.	S. 1 05 W.	451	Shehan.
			N. 80 37 E.	S. 80 37 W.	439	Wall.
2	38 09 38.47	76 30 36.20	N. 53 23 W.	S. 53 23 E.	611	Chadwick.
			S. 30 43 W.	N. 30 43 E.	610	Wall.
			S. 41 36 E.	N. 41 36 W.	196	Shehan.
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 09 29.00	76 30 17.70	S. 75 42 W.	N. 75 42 E.	830	Wall.
			S. 23 03 W.	N. 23 03 E.	759	Russell.
			S. 67 06 E.	N. 67 06 W.	810	Arbuckle.

CHADWICK.

(St. George River—Chart No. 24.)

1	38 09 28.78	76 30 47.39	S. 3 56 W.	N. 3 56 E.	198	Wall.
			N. 67 08 E.	S. 67 09 W.	464	Shehan.
			N. 15 36 W.	S. 15 36 E.	718	Chadwick.
2	38 09 31.02	76 30 52.19	S. 22 42 E.	N. 22 42 W.	206	Wall.
			N. 79 19 E.	S. 79 19 W.	505	Shehan.
			N. 6 03 W.	S. 6 03 E.	620	Chadwick.
3	38 09 46.26	76 30 47.96	N. 60 07 W.	S. 60 07 E.	206	Chadwick.
			S. 80 52 W.	N. 80 52 E.	478	Guither.
			S. 0 06 E.	N. 0 06 W.	787	Wall.
4	38 09 39.14	76 30 41.50	N. 75 42 W.	S. 75 42 E.	665	Guither.
			S. 17 18 W.	N. 17 18 E.	573	Wall.
			S. 58 04 E.	N. 58 04 W.	319	Shehan.

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MOULDY CREEK.

(Upper Bretons Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 16 00.00	76 37 51.44	N. 1 24 W.	S. 1 24 E.	782	Cedar.
			N. 39 58 W.	S. 39 58 E.	988	Noname.
			S. 68 31 W.	N. 68 31 E.	334	Mouldy.
2	38 16 00.00	76 37 58.74	N. 48 21 E.	S. 48 21 W.	370	Pine.
			N. 30 11 W.	S. 30 11 E.	876	Noname.
			S. 43 35 W.	N. 43 35 E.	168	Mouldy.
3	38 16 28.70	76 38 05.44	S. 51 12 W.	N. 51 12 E.	336	Noname.
			N. 62 17 E.	N. 62 17 W.	398	Cedar.
			N. 21 22 E.	S. 21 22 W.	655	Buzzard.
4	38 16 24.63	76 37 52.08	S. 82 55 W.	N. 82 55 E.	598	Noname.
			S. 24 20 E.	N. 24 20 W.	52	Cedar.
			N. 35 26 E.	S. 35 26 W.	436	Corn.

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## ISLAND.

(Upper Bretons Bay—Chart No. 25.)

1	38 15 59.22	76 38 50.08	S. 83 15 E.	N. 83 14 W.	656	Beau.
			N. 23 09 E.	S. 23 09 W.	270	Healey.
			N. 84 52 W.	S. 84 53 E.	744	Hollow.
2	38 16 05.53	76 38 47.26	S. 55 16 W.	N. 55 16 E.	967	Trees.
			S. 2 03 E.	N. 2 03 W.	889	Lovers.
			N. 41 18 E.	S. 41 18 W.	47	Healey.
3	38 16 04.84	76 38 40.20	S. 55 35 E.	N. 55 35 W.	471	Beau.
			N. 29 49 E.	S. 29 49 W.	166	Belle.
			N. 69 28 W.	S. 69 28 E.	167	Healey.
4	38 16 11.84	76 38 25.36	N. 36 47 E.	S. 36 47 W.	447	Noname.
			S. 73 37 W.	N. 73 37 E.	325	Belle.
			S. 0 36 W.	N. 0 36 E.	503	Beau.
5	38 16 03.00	76 38 19.42	N. 66 14 W.	S. 66 14 E.	513	Belle.
			S. 38 34 W.	N. 38 34 E.	263	Beau.
			S. 62 46 E.	N. 62 45 W.	488	Mouldy.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

PAW PAW HOLLOW.

(Upper Bretons Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 15 46.00	76 38 55.86	N. 48 48 W.	S. 48 48 E.	779	Hollow.
			N. 79 15 W.	S. 79 15 E.	576	Trees.
			S. 48 32 E.	N. 48 32 W.	348	Lovers.
2	38 15 53.84	76 39 09.82	N. 40 59 W.	S. 40 59 E.	328	Hollow.
			S. 51 13 W.	N. 51 13 E.	250	Trees.
			S. 51 56 E.	N. 51 56 W.	803	Lovers.
3	38 16 09.17	76 38 58.40	S. 62 36 W.	N. 62 35 E.	584	Hollow.
			S. 22 04 W.	N. 22 04 E.	2,773	What.
			S. 75 03 E.	N. 75 03 W.	339	Healey.
4	38 16 05.53	76 38 47.26	S. 55 16 W.	N. 55 16 E.	967	Trees.
			S. 2 03 E.	N. 2 03 W.	889	Lovers.
			N. 41 18 E.	S. 41 18 W.	47	Healey.
5	38 15 59.22	76 38 50.08	S. 83 15 E.	N. 83 14 W.	656	Beau.
			N. 23 09 E.	S. 23 09 W.	270	Healey.
			N. 84 52 W.	S. 84 53 E.	744	Hollow.

LOVERS POINT.

(Middle Bretons Bay—Chart No. 25.)

1	38 15 27.30	76 39 02.52	N. 47 33 E.	S. 47 33 W.	593	Lovers.
			N. 27 48 W.	S. 27 48 E.	834	Trees.
			S. 38 50 W.	N. 38 50 E.	1,486	What.
2	38 15 53.84	76 39 09.82	N. 40 59 W.	S. 40 59 E.	328	Hollow.
			S. 51 13 W.	N. 51 13 E.	250	Trees.
			S. 51 56 E.	N. 51 56 W.	803	Lovers.
3	38 15 46.00	76 38 55.86	N. 48 48 W.	S. 48 48 E.	779	Hollow.
			N. 79 15 W.	S. 79 15 E.	576	Trees.
			S. 48 32 E.	N. 48 32 W.	348	Lovers.
4	38 15 27.46	76 38 55.38	N. 32 07 E.	S. 32 07 W.	466	Lovers.
			N. 38 19 W.	S. 38 19 E.	934	Trees.
			S. 43 58 W.	N. 43 58 E.	1,616	What.

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## STONY.

(Middle Bretons Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 15 18.94	76 39 49.00	N. 21 58 W.	S. 21 58 E.	Yards. 423 1,390 930	Paw. Protestant. What.
			S. 54 43 W.	N. 54 43 E.		
			S. 19 07 E.	N. 19 07 W.		
2	38 15 30.80	76 40 39.14	N. 68 57 W.	S. 68 57 E.	363 1,219 1,175	Cherry Cove. Protestant. Paw.
			S. 9 22 E.	N. 9 21 W.		
			S. 89 39 E.	N. 89 39 W.		
3	38 15 36.14	76 40 35.30	S. 83 32 W.	N. 83 32 E.	443 1,387 2,118	Cherry Cove. Protestant. What.
			S. 3 58 E.	N. 3 58 W.		
			S. 40 27 E.	N. 40 26 W.		
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 15 42.60	76 39 42.36	S. 39 36 W.	N. 39 36 E.	525 1,079 705	Paw. What. Trees.
			S. 4 27 E.	N. 4 27 W.		
			N. 71 39 E.	S. 71 39 W.		
5	38 15 38.58	76 39 34.38	N. 89 07 E.	S. 89 07 W.	1,285 581 610	Lovers. Trees. Paw.
			N. 51 59 E.	S. 51 59 W.		
			S. 63 44 W.	N. 63 44 E.		

## GOUGH.

(Middle Bretons Bay—Chart No. 25.)

1	38 14 52.18	76 39 58.20	N. 87 11 E.	S. 87 12 W.	549 1,298 897	What. Paw. Protestant.
			N. 3 48 E.	S. 3 48 W.		
			N. 83 39 W.	S. 83 39 E.		
2	38 14 59.78	76 39 59.20	S. 68 10 E.	N. 68 10 W.	620 1,044 878	What. Paw. Protestant.
			N. 6 12 E.	S. 6 12 W.		
			S. 79 42 W.	N. 79 41 E.		
3	38 15 00.46	76 39 19.05	N. 33 54 E.	S. 33 54 W.	1,573 1,392 1,940	Lovers. Paw. Protestant.
			N. 43 17 W.	S. 43 18 E.		
			S. 84 40 W.	N. 84 40 E.		
4	38 14 56.02	76 39 18.40	N. 30 35 E.	S. 30 35 W.	1,691 1,516 1,949	Lovers. Paw. Protestant.
			N. 39 53 W.	S. 39 54 E.		
			S. 89 05 W.	N. 89 04 E.		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

BLACK WALNUT.

(Lower Bretons Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 14 31.04	76 41 12.92	S. 81 47 W.	N. 81 47 E.	Yards. 1,191 84 412	Newtown. Dunc. Fence.
			S. 3 33 E.	N. 3 33 W.		
			N. 54 56 E.	S. 54 55 W.		
2	38 14 40.99	76 41 27.04	N. 64 31 W.	S. 64 31 E.	749 949 564	Sandbar. Newtown. Dunc.
			S. 57 49 W.	N. 57 49 E.		
			S. 42 23 E.	N. 42 23 W.		
3	38 14 53.04	76 41 10.31	S. 85 43 W.	N. 85 43 E.	1,125 573 1,029	Sandbar. Fence. Protestant.
			S. 28 06 E.	N. 28 06 W.		
			N. 86 06 E.	S. 86 06 W.		
4	38 15 07.04	76 40 27.90	N. 47 48 E.	S. 47 48 W.	1,182 1,129 413	Paw. Cherry Cove. Protestant.
			N. 34 22 W.	S. 34 22 E.		
			S. 14 06 W.	N. 14 06 E.		
5	38 14 59.78	76 39 59.20	S. 68 10 E.	N. 68 10 W.	620 1,044 878	What. Paw. Protestant.
			N. 6 12 E.	S. 6 12 W.		
			S. 79 42 W.	N. 79 41 E.		
6	38 14 52.18	76 39 58.20	N. 87 11 E.	S. 87 12 W.	549 1,298 897	What. Paw. Protestant.
			N. 3 48 E.	S. 3 48 W.		
			N. 83 39 W.	S. 83 39 E.		
7	38 14 44.29	76 39 57.42	N. 26 07 E.	S. 26 07 W.	2,436 1,563 982	Trees. Paw. Protestant.
			N. 2 24 E.	S. 2 24 W.		
			N. 68 10 W.	S. 68 10 E.		

Thence from corner No. 7 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

RAILWAY.

(Lower Bretons Bay—Chart No. 25.)

1	38 14 53.58	76 41 50.42	S. 28 05 W.	N. 28 05 E.	116 1,434 945	Sandbar. Fence. Compton.
			S. 68 39 E.	N. 68 38 W.		
			N. 2 24 E.	S. 2 24 W.		
2	38 14 59.46	76 41 59.28	S. 31 08 E.	N. 31 08 W.	350 2,334 795	Sandbar. Protestant. Compton.
			S. 86 24 E.	N. 86 23 W.		
			N. 20 12 E.	S. 20 12 W.		
3	38 15 32.48	76 41 36.98	S. 40 53 W.	N. 40 53 E.	487 2,145 2,713	Compton. Protestant. Paw.
			S. 54 02 E.	N. 54 02 W.		
			S. 88 37 E.	N. 88 36 W.		
4	38 15 29.21	76 41 19.62	S. 71 43 W.	N. 71 42 E.	821 1,718 761	Compton. Protestant. Cherry Cove.
			S. 47 53 E.	N. 47 53 W.		
			N. 76 00 E.	S. 76 00 W.		
5	38 15 26.92	76 40 41.23	S. 13 20 E.	N. 13 20 W.	1,102 1,236 384	Protestant. Paw. Cherry Cove.
			N. 84 15 E.	S. 84 16 W.		
			N. 47 15 W.	S. 47 15 E.		

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BRETONS BAY.

(Lower Bretons Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 14 25.00	76 41 42.04	S. 86 12 E. N. 17 51 W. N. 85 17 W.	N. 86 11 W. S. 17 51 E. S. 85 17 E.	696 904 406	Grove. Sandbar. Newtown.
2	38 14 38.98	76 42 01.00	S. 12 49 E. S. 66 39 E. N. 30 11 E.	N. 12 49 W. N. 66 39 W. S. 30 11 W.	448 1,306 452	Newtown. Grove. Sandbar.
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 14 48.12	76 41 54.53	S. 5 33 W. S. 51 12 E. N. 33 50 E.	N. 5 33 E. N. 51 11 W. S. 33 50 W.	750 1,318 98	Newtown. Grove. Sandbar.
4	38 14 49.81	76 41 34.62	S. 66 36 E. S. 36 51 W. N. 86 55 W.	N. 66 36 W. N. 36 51 E. S. 86 55 E.	998 1,006 476	Fence. Newtown. Sandbar.
5	38 14 25.80	76 41 31.20	S. 79 48 E. N. 34 11 W. N. 89 28 W.	N. 79 47 W. S. 34 12 E. S. 89 28 E.	413 1,006 692	Grove. Sandbar Newtown.

## BLUE SOW.

(Lower Bretons Bay—Chart No. 25.)

1	38 13 46.40	76 42 40.16	N. 45 50 E. N. 59 56 W. S. 25 57 W.	S. 45 50 W. S. 59 56 E. N. 25 57 E.	805 930 1,938	Kaywood. St. Clement. Heron.
2	38 13 50.86	76 42 44.04	N. 58 54 E. N. 65 47 W. S. 21 32 W.	S. 58 54 W. S. 65 48 E. N. 21 31 E.	795 769 2,030	Kaywood. St. Clement. Heron.
3	38 14 00.95	76 42 26.48	S. 88 47 W. S. 28 30 W. N. 71 48 E.	N. 88 46 E. N. 28 29 E. S. 71 48 W.	1,168 2,540 224	St. Clement. Heron. Kaywood.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 14 08.44	76 42 13.04	S. 38 19 W. S. 88 02 E. N. 35 21 E.	N. 38 19 E. N. 88 03 W. S. 35 21 W.	233 1,574 725	Kaywood. Cedoak. Newtown.
5	38 14 17.82	76 41 56.29	N. 79 38 E. N. 5 21 W. S. 49 47 W.	S. 79 39 W. S. 5 21 E. N. 49 46 E.	1,091 277 772	Grove. Newtown. Kaywood.
6	38 14 13.42	76 41 52.08	N. 70 18 E. N. 18 00 W. S. 63 28 W.	S. 70 19 W. S. 18 00 E. N. 63 28 E.	1,021 446 784	Grove. Newtown. Kaywood.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

HERON ISLAND SOUND.

(Entrance to Bretons and St. Clement Bays—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 13 08.76	76 42 46.00	N. 21 49 E.	S. 21 49 W.	Yards.	Kaywood. St. Clement. Heron.
			N. 20 31 W.	S. 20 31 E.	1,975	
			S. 55 40 W.	N. 55 40 E.	1,853 839	
2	38 13 32.26	76 43 05.00	S. 8 25 W.	N. 8 25 E.	1,280	Heron. Kaywood. St. Clement.
			N. 50 02 E.	S. 50 02 W.	1,615	
			N. 8 40 W.	S. 8 40 E.	956	
3	38 13 47.42	76 41 33.00	N. 37 47 E.	S. 37 48 W.	829	Cedoak. Kaywood. Heron.
			N. 66 29 W.	S. 66 29 E.	1,310	
			S. 56 01 W.	N. 56 00 E.	3,177	

HERON ISLAND REEF.

(Entrance to Bretons and St. Clement Bays—Chart No. 25.)

1	38 12 54.73	76 43 12.04	N. 1 08 E.	S. 1 08 W.	2,209	St. Clement. St. Patrick. Blakistone Island Light.
			N. 30 49 W.	S. 30 50 E.	3,305	
			S. 68 40 W.	N. 68 39 E.	2,592	
2	38 13 07.68	76 43 51.72	S. 44 37 W.	N. 44 36 E.	1,933	Blakistone Island Light. Heron. St. Clement.
			S. 67 32 E.	N. 67 31 W.	1,142	
			N. 31 49 E.	S. 31 50 W.	2,090	
3	38 13 08.36	76 43 24.62	S. 55 56 W.	N. 55 55 E.	2,510	Blakistone Island Light. Heron. St. Clement.
			S. 36 04 E.	N. 36 04 W.	568	
			N. 12 14 E.	S. 12 14 W.	1,785	
4	38 13 01.44	76 43 06.38	N. 31 32 E.	S. 31 33 W.	2,437	Kaywood. St. Clement. Heron.
			N. 3 05 W.	S. 3 05 E.	1,984	
			S. 33 39 W.	N. 33 39 E.	271	

DUKEHART CHANNEL.

(Lower St. Clement Bay—Chart No. 25.)

1	38 12 55.78	76 44 28.62	S. 21 05 W.	N. 21 05 E.	1,049	Blakistone Island Light. Heron. St. Clement.
			S. 89 00 E.	N. 89 00 W.	2,037	
			N. 43 46 E.	S. 43 46 W.	3,008	
2	38 13 04.56	76 45 04.28	S. 24 14 E.	N. 24 14 W.	1,398	Blakistone Island Light. Heron. St. Patrick.
			S. 83 40 E.	N. 83 39 W.	3,004	
			N. 27 16 E.	S. 27 17 W.	2,827	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## DUKEHART CHANNEL—Continued.

(Lower St. Clement Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
3	38 13 12.00	76 45 07.02	S. 22 56 E.	N. 22 55 W.	1,656	Blakistone Island Light.
			S. 79 13 E.	N. 79 12 W.	3,113	Heron.
			N. 62 21 E.	S. 62 22 W.	3,502	St. Clement.
4	38 13 37.94	76 44 32.38	S. 6 34 W.	N. 6 34 E.	2,416	Blakistone Island Light.
			S. 55 43 E.	N. 55 42 W.	2,586	Heron.
			N. 17 48 E.	S. 17 49 W.	1,450	St. Patrick.
5	38 13 25.40	76 43 45.90	S. 41 07 E.	N. 41 07 W.	1,372	Heron.
			N. 38 49 E.	S. 38 49 W.	1,510	St. Clement.
			N. 23 43 W.	S. 23 43 E.	1,970	St. Patrick.

## HORSE.

(Lower St. Clement Bay—Chart No. 25.)

1	38 13 25.40	76 43 45.90	S. 41 07 E.	N. 41 07 W.	1,372	Heron.
			N. 38 49 E.	S. 38 49 W.	1,510	St. Clement.
			N. 23 43 W.	S. 23 43 E.	1,970	St. Patrick.
2	38 13 37.94	76 44 32.38	S. 6 34 W.	N. 6 34 E.	2,416	Blakistone Island Light.
			S. 55 43 E.	N. 55 42 W.	2,586	Heron.
			N. 17 48 E.	S. 17 49 W.	1,450	St. Patrick.
3	38 14 05.42	76 44 22.63	S. 38 14 E.	N. 38 14 W.	3,035	Heron.
			S. 84 47 E.	N. 84 46 W.	1,929	St. Clement.
			N. 22 04 E.	S. 22 04 W.	491	St. Patrick.
4	38 14 11.48	76 43 51.36	S. 70 46 E.	N. 70 46 W.	1,154	St. Clement.
			N. 11 05 W.	S. 11 05 E.	1,075	Canoe.
			N. 68 50 W.	S. 68 50 E.	694	St. Patrick.
5	38 13 56.66	76 43 42.40	S. 21 09 E.	N. 21 09 W.	2,244	Heron.
			N. 81 59 E.	S. 81 59 W.	860	St. Clement.
			N. 49 45 W.	S. 49 45 E.	1,160	St. Patrick.

## ST. CLEMENT ENTRANCE.

(Lower St. Clement Bay—Chart No. 25.)

1	38 13 25.40	76 43 45.90	S. 41 07 E.	N. 41 07 W.	1,372	Heron.
			N. 38 49 E.	S. 38 49 W.	1,510	St. Clement.
			N. 23 43 W.	S. 23 43 E.	1,970	St. Patrick.
2	38 13 56.66	76 43 42.40	S. 21 09 E.	N. 21 09 W.	2,244	Heron.
			N. 81 59 E.	S. 81 59 W.	860	St. Clement.
			N. 49 45 W.	S. 49 45 E.	1,160	St. Patrick.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

ST. CLEMENT ENTRANCE—Continued.

(Lower St. Clement Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
3	38 13 56.94	76 43 20.18	S. 5 54 E.	N. 5 54 W.	2,108	Heron. St. Clement. St. Patrick.
			N. 07 02 E.	S. 67 02 W.	282	
			N. 03 22 W.	S. 63 23 E.	1,652	
4	38 13 33.38	76 43 20.70	S. 10 02 E.	N. 10 01 W.	1,323	Heron. St. Clement. St. Patrick.
			N. 16 51 E.	S. 16 51 W.	947	
			N. 43 37 W.	S. 43 38 E.	2,120	

OLD WRECK.

(Lower St. Clement Bay—Chart No. 25.)

1	38 14 11.48	76 43 51.36	S. 70 46 E.	N. 70 46 W.	1,154	St. Clement. Canoe. St. Patrick.
			N. 11 05 W.	S. 11 05 E.	1,075	
			N. 68 50 W.	S. 68 50 E.	694	
2	38 14 33.42	76 44 07.20	S. 24 47 W.	N. 24 47 E.	539	St. Patrick. St. Clement. Canoe.
			S. 53 27 E.	N. 53 27 W.	1,881	
			N. 34 15 E.	S. 34 15 W.	382	
3	38 14 26.96	76 43 46.24	S. 82 22 E.	N. 82 21 W.	1,124	Roof. Canoe. St. Patrick.
			N. 32 45 W.	S. 32 45 E.	635	
			S. 70 52 W.	N. 70 52 E.	829	

NEWTOWN FLATS.

(Lower St. Clement Bay—Chart No. 25.)

1	38 14 11.48	76 43 51.36	S. 70 46 E.	N. 70 46 W.	1,154	St. Clement. Canoe. St. Patrick.
			N. 11 05 W.	S. 11 05 E.	1,075	
			N. 68 50 W.	S. 68 50 E.	694	
2	38 14 26.96	76 43 46.24	S. 82 22 E.	N. 82 21 W.	1,124	Roof. Canoe. St. Patrick.
			N. 32 45 W.	S. 32 45 E.	635	
			S. 70 52 W.	N. 70 52 E.	829	
3	38 14 56.72	76 43 15.80	S. 14 50 E.	N. 14 50 W.	1,190	Roof. Rails. Woods.
			S. 75 37 E.	N. 75 37 W.	877	
			N. 2 00 W.	S. 2 00 E.	729	
4	38 14 28.41	76 43 25.92	S. 70 57 E.	N. 70 56 W.	607	Roof. Rails. Canoe.
			N. 56 38 E.	S. 56 38 W.	1,340	
			N. 61 16 W.	S. 61 16 E.	1,007	
5	38 14 19.41	76 43 20.79	S. 23 07 E.	N. 23 07 W.	704	St. Clement. Roof. Canoe.
			N. 76 27 E.	S. 76 27 W.	451	
			N. 52 19 W.	S. 52 19 E.	1,288	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued:

## CANOE CREEK.

(Lower St. Clement Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 14 56.72	76 43 15.80	S. 14 50 E. S. 75 37 E. N. 2 00 W.	N. 14 50 W. N. 75 37 W. S. 2 00 E.	1,190 877 729	Roof. Rails. Woods.
2	38 15 04.44	76 43 45.58	S. 26 15 W. S. 37 49 E. N. 58 33 E.	N. 26 15 E. N. 37 49 W. S. 58 33 W.	815 1,789 898	Canoe. Roof. Woods.
3	38 15 14.40	76 43 45.18	S. 19 11 W. S. 31 54 E. N. 80 00 E.	N. 19 11 E. N. 31 54 W. S. 80 01 W.	1,129 2,056 768	Canoe. Roof. Woods.
4	38 15 12.82	76 43 37.82	S. 29 13 W. S. 27 42 E. N. 71 37 E.	N. 29 13 E. N. 27 43 W. S. 71 37 W.	1,160 1,915 591	Canoe. Roof. Woods.
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 15 13.80	76 43 23.60	S. 42 05 W. S. 53 06 E. N. 49 55 E.	N. 42 05 E. N. 53 05 W. S. 49 55 W.	1,410 1,319 237	Canoe. Rails. Woods.
6	38 15 11.94	76 43 10.40	N. 38 05 W. S. 52 48 W. S. 44 00 E.	S. 38 05 E. N. 52 47 E. N. 44 00 W.	274 1,627 1,016	Woods. Canoe. Rails.

## CHAPEL POINT.

(Lower St. Clement Bay—Chart No. 25.)

1	38 14 49.79	76 43 04.26	S. 0 08 W. N. 88 20 E. N. 19 06 W.	N. 0 08 E. S. 88 20 W. S. 19 06 E.	919 542 1,017	Roof. Rails. Woods.
2	38 16 05.22	76 42 21.14	N. 24 02 W. S. 70 30 W. S. 37 37 E.	S. 24 02 E. N. 70 30 E. N. 37 37 W.	325 813 474	Howards. Shipping. Mansion.
3	38 16 06.13	76 42 16.80	N. 42 55 W. S. 71 06 W. S. 23 13 E.	S. 42 55 E. N. 71 06 E. N. 23 13 W.	364 933 443	Howards. Shipping. Mansion.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 14 50.26	76 42 43.85	N. 42 45 W. S. 82 49 W. S. 30 14 W.	S. 42 45 E. N. 82 48 E. N. 30 14 E.	1,280 2,018 1,083	Woods. Canoe. Roof.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

BLUFF WOODS.

(Lower St. Clement Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 15 21.02	76 42 52.78	N. 66 14 E.	S. 66 14 W.	Yards. 762 1,220 644	Chapel. Shipping. Woods.
			N. 3 30 E.	S. 3 30 W.		
			S. 81 56 W.	N. 81 56 E.		
2	38 15 25.78	76 43 07.50	S. 44 28 W.	N. 44 28 E.	352 1,100 1,157	Woods. Chapel. Shipping.
			N. 82 21 E.	S. 82 21 W.		
			N. 23 52 E.	S. 23 52 W.		
3	38 15 39.00	76 43 08.54	S. 17 25 W.	N. 17 25 E.	730 1,156 787	Woods. Chapel. Shipping.
			S. 75 00 E.	N. 75 00 W.		
			N. 38 55 E.	S. 38 55 W.		
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 15 57.17	76 42 49.98	S. 28 33 W.	N. 28 32 E.	1,491 1,105 1,062	Woods. Chapel. Mansion.
			S. 34 20 E.	N. 34 20 W.		
			S. 84 21 E.	N. 84 21 W.		
5	38 16 01.36	76 42 32.60	S. 67 32 E.	N. 67 32 W.	643 460 483	Mansion. Howards. Shipping.
			N. 21 55 E.	S. 21 55 W.		
			S. 73 00 W.	N. 73 00 E.		

MILEYS CREEK.

(Lower St. Clement Bay—Chart No. 25.)

1	38 15 57.17	76 42 49.98	S. 28 33 W.	N. 28 32 E.	1,491 1,105 1,062	Woods. Chapel. Mansion.
			S. 34 20 E.	N. 34 20 W.		
			S. 84 21 E.	N. 84 21 W.		
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 16 10.74	76 43 07.94	S. 69 53 E.	N. 69 52 W.	1,634 1,118 325	Mansion. Howards. Mileys.
			N. 84 09 E.	S. 84 09 W.		
			N. 7 41 E.	S. 7 41 W.		
3	38 16 20.27	76 43 06.31	S. 29 08 E.	N. 29 07 W.	891 958 1,375	Shipping. Bank. Cecl.
			N. 75 00 E.	S. 75 00 W.		
			N. 35 54 E.	S. 35 54 W.		
4	38 16 30.80	76 43 12.02	S. 27 20 E.	N. 27 19 W.	1,276 1,083 539	Shipping. Bank. Profound.
			S. 84 19 E.	N. 84 18 W.		
			N. 22 08 E.	S. 22 08 W.		
5	38 16 16.14	76 42 37.82	S. 77 10 E.	N. 77 10 W.	318 422 770	Howards. Bank. Mileys.
			N. 23 26 E.	S. 23 26 W.		
			N. 79 35 W.	S. 79 35 E.		
6	38 16 01.36	76 42 32.60	S. 67 32 E.	N. 67 32 W.	643 460 483	Mansion. Howards. Shipping.
			N. 21 55 E.	S. 21 55 W.		
			S. 73 00 W.	N. 73 00 E.		

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## ABELL.

(Upper St. Clement Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 16 29.56	76 42 34.58	N. 55 47 W.	S. 55 47 E.	958	Profound. Mileys. Bank.
			S. 69 38 W.	N. 69 37 E.	900	
			S. 51 17 E.	N. 51 17 W.	105	
2	38 16 31.90	76 42 42.34	N. 51 53 W.	S. 51 53 E.	746	Profound. Mileys. Bank.
			S. 58 23 W.	N. 58 23 E.	748	
			S. 63 19 E.	N. 63 19 W.	323	
3	38 16 39.27	76 42 41.18	S. 33 12 E.	N. 33 12 W.	369	Bank. Cecil. Profound.
			N. 16 15 E.	S. 16 15 W.	493	
			N. 71 04 W.	S. 71 04 E.	653	
4	38 16 41.80	76 42 27.48	N. 30 15 W.	S. 30 15 E.	449	Cecil. Profound. Mileys.
			N. 82 40 W.	S. 82 40 E.	990	
			S. 54 53 W.	N. 54 52 E.	1,262	

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## REED POINT.

(Upper St. Clement Bay—Chart No. 25.)

1	38 16 51.30	76 42 39.00	N. 49 52 E.	S. 49 52 W.	105	Cecil. Radec. Profound.
			N. 39 37 W.	S. 39 38 E.	982	
			S. 73 59 W.	N. 73 59 E.	702	
2	38 17 14.60	76 42 56.50	S. 79 41 W.	N. 79 41 E.	164	Radec. Cecil. Place.
			S. 37 12 E.	N. 37 12 W.	901	
			N. 73 37 E.	S. 73 37 W.	778	
3	38 17 16.56	76 43 12.40	N. 82 31 E.	S. 82 32 W.	1,181	Place. Guest. Cobrums.
			N. 28 00 E.	S. 28 01 W.	1,044	
			N. 27 19 W.	S. 27 18 E.	450	
4	38 17 37.48	76 42 34.74	N. 67 01 W.	S. 67 01 E.	554	Guest. Radec. Cecil.
			S. 42 43 W.	N. 42 43 E.	1,090	
			S. 1 17 W.	N. 1 17 E.	1,490	
5	38 17 35.58	76 42 27.40	N. 68 19 W.	S. 68 19 E.	759	Guest. Radec. Cecil.
			S. 51 45 W.	N. 51 44 E.	1,190	
			S. 9 06 W.	N. 9 06 E.	1,447	
6	38 17 29.56	76 42 26.20	N. 56 45 W.	S. 56 45 E.	881	Guest. Radec. Cecil.
			S. 61 05 W.	N. 61 05 E.	1,105	
			S. 12 02 W.	N. 12 02 E.	1,248	

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

REED POINT—Continued.

(Upper St. Clement Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° / "	° / "	° / "	° / "	Yards.	
7	38 17 20.58	76.42 30.10	S. 75 01 W. S. 9 39 W. N. 69 05 E.	N. 75 00 E. N. 9 39 E. S. 69 05 W.	894 934 50	Radec. Cecil. Place.
8	38 17 05.20	76 42 21.18	N. 19 31 W. N. 75 21 W. S. 60 02 W.	S. 19 31 E. S. 75 21 E. N. 60 01 E.	571 1,136 1,327	Place. Radec. Profound.

Thence from corner No. 8 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

GUEST MARSHES.

(Upper St. Clement Bay—Chart No. 25.)

1	38 17 31.74	76 43 03.94	S. 75 18 W. S. 3 27 E. N. 32 55 E.	N. 75 18 E. N. 3 27 W. S. 32 55 W.	445 608 488	Cobrums. Radec. Guest.
2	38 18 01.78	76 43 10.40	N. 11 09 E. N. 42 17 W. S. 54 02 W.	S. 11 09 W. S. 42 17 E. N. 54 02 E.	517 573 524	Stones. Turf. Dynard.
3	38 18 03.38	76 43 01.26	N. 17 38 W. S. 61 32 W. S. 16 29 E.	S. 17 38 E. N. 61 32 E. N. 16 28 W.	475 759 685	Stones. Dynard. Guest.
4	38 17 58.58	76 42 52.80	N. 58 03 W. S. 77 22 W. S. 3 37 W.	S. 58 04 E. N. 77 22 E. N. 3 37 E.	1,006 914 496	Turf. Dynard. Guest.
5	38 17 50.86	76 42 52.06	N. 47 46 W. N. 86 08 W. S. 12 05 W.	S. 47 47 E. S. 86 08 E. N. 12 05 E.	1,179 914 240	Turf. Dynard. Guest.

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 6, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

6	38 17 37.48	76 42 34.74	N. 67 01 W. S. 42 43 W. S. 1 17 W.	S. 67 01 E. N. 42 43 E. N. 1 17 E.	554 1,090 1,490	Guest. Radec. Cecil.
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## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

HARRY JACKS.

(Upper St. Clement Bay—Chart No. 25.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' / "	° / ' / "		
1	38 17 28.39	76 43 20.15	N. 53 05 E.	S. 53 05 W.	87	Guest. Tomakokin. Radec.
			N. 38 47 W.	S. 38 47 E.	533	
			S. 43 25 E.	N. 43 25 W.	680	
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 17 29.96	76 43 30.00	S. 78 34 E.	N. 78 34 W.	267	Cobrums. Guest. Tomakokin.
			N. 63 52 E.	S. 63 52 W.	1,067	
			N. 11 5 W.	S. 11 15 E.	370	
3	38 17 40.70	76 43 32.71	S. 38 47 E.	N. 38 47 W.	533	Cobrums. Guest. Dynard.
			N. 84 01 E.	S. 84 01 W.	1,036	
			N. 22 41 E.	S. 22 41 W.	436	
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 17 59.40	76 43 23.58	S. 18 03 W.	N. 18 03 E.	240	Dynard. Guest. Turf.
			S. 56 22 E.	N. 56 22 W.	945	
			N. 4 04 W.	S. 4 04 E.	506	
5	38 18 01.78	76 43 10.40	N. 11 09 E.	S. 11 09 W.	517	Stones. Turf. Dynard.
			N. 42 17 W.	S. 42 17 E.	173	
			S. 54 02 W.	N. 54 02 E.	524	
6	38 17 31.74	76 43 03.94	S. 75 18 W.	N. 75 18 E.	445	Cobrums. Radec. Guest.
			S. 3 27 E.	N. 3 27 W.	608	
			N. 32 55 E.	S. 32 55 W.	488	

## KEY.

(Upper Wicomico River—Chart No. 26.)

1	38 21 49.83	76 50 31.02	S. 66 37 W.	N. 66 36 E.	1,516	Stoddard. Cohouck. Key.
			S. 14 10 E.	N. 14 10 W.	1,470	
			N. 84 48 E.	S. 84 49 W.	450	
2	38 21 53.40	76 50 55.74	N. 84 01 W.	S. 84 02 E.	1,164	Upper. Stoddard. Key.
			S. 45 34 W.	N. 45 33 E.	1,029	
			S. 85 53 E.	N. 85 53 W.	1,108	
3	38 22 08.99	76 51 08.02	N. 3 01 W.	S. 3 01 E.	865	Barber. Upper. Key.
			S. 64 15 W.	N. 64 15 E.	924	
			S. 67 05 E.	N. 67 04 W.	1,554	
4	38 22 14.18	76 50 40.16	N. 48 43 W.	S. 48 44 E.	1,042	Barber. Upper. Key.
			S. 69 52 W.	N. 69 52 E.	1,675	
			S. 41 33 E.	N. 41 33 W.	1,042	
5	38 22 00.78	76 50 27.60	N. 44 26 W.	S. 44 26 E.	1,598	Barber. Upper. Key.
			S. 86 15 W.	N. 86 15 E.	1,909	
			S. 47 29 E.	N. 47 29 W.	485	

SURVEY OF OYSTER BARS, ST MARYS COUNTY MD

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BOUNDARIES OF NATURAL OYSTER BARS—continued.

COHOUCK.

(Upper Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 20 51.98	76 50 58.86	N. 64 26 E. N. 60 46 W. S. 72 34 W.	S. 64 26 W. S. 60 46 E. N. 72 34 E.	Yards. 1,218 1,004 1,368	Cohouck. Hayden. Burr.
Thence along county boundary, as delineated on chart No. 26, to corner No. 2.						
2	38 21 10.18	76 50 51.08	S. 84 22 E. N. 49 23 W. S. 83 30 W.	N. 84 22 W. S. 49 24 E. N. 83 29 E.	897 1,131 1,090	Cohouck. Stoddard. Hayden.
3	38 21 23.59	76 50 31.46	S. 34 29 E. N. 20 27 E. N. 78 22 W.	N. 34 29 W. S. 26 28 W. S. 78 22 E.	655 1,033 1,409	Cohouck. Key. Stoddard.
4	38 21 16.84	76 50 24.36	S. 30 18 E. N. 13 17 E. N. 71 56 W.	N. 30 18 W. S. 13 17 W. S. 71 56 E.	362 1,187 1,649	Cohouck. Key. Stoddard.
5	38 20 52.00	76 50 29.42	N. 31 08 E. N. 73 33 W. S. 2 27 W.	S. 31 08 W. S. 73 33 E. N. 2 27 E.	613 1,728 1,317	Cohouck. Hayden. Fact.

CHAPTICO LUMPS.

(Upper Wicomico River—Chart No. 26.)

1	38 20 20.70	76 51 13.00	N. 55 17 W. S. 66 14 W. S. 76 42 E.	S. 55 17 E. N. 66 13 E. N. 76 42 W.	1,132 1,660 1,132	Burr. Bowman. Fact.
Thence along county boundary, as delineated on chart No. 26, to corner No. 2.						
2	38 20 51.08	76 50 58.86	N. 64 26 E. N. 60 46 W. S. 72 34 W.	S. 64 26 W. S. 60 46 E. N. 72 34 E.	1,218 1,004 1,368	Cohouck. Hayden. Burr.
3	38 20 26.26	76 50 23.58	N. 6 38 E. N. 78 29 W. S. 25 19 W.	S. 6 38 W. S. 78 29 E. N. 25 19 E.	1,402 2,289 494	Cohouck. Burr. Fact.

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MILLS EAST.

(Upper Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 20 00.00	76 51 11.88	N. 88 54 W. S. 15 50 W. N. 67 44 E.	S. 88 55 E. N. 15 50 E. S. 67 44 W.	Yards. 1,548 1,392 1,157	Bowman. Eedling. Fact.
Thence along county boundary, as delineated on chart No. 26, to corner No. 2.						
2	38 20 20.70	76 51 13.00	N. 55 17 W. S. 66 14 W. S. 76 42 E.	S. 55 17 E. N. 66 13 E. N. 76 42 W.	1,132 1,660 1,132	Burr. Bowman. Fact.
3	38 20 26.26	76 50 23.58	N. 6 38 E. N. 78 29 W. S. 25 19 W.	S. 6 38 W. S. 78 29 E. N. 25 19 E.	1,402 2,280 494	Cohouck. Burr. Fact.
4	38 20 07.08	76 50 45.50	S. 84 40 W. S. 34 24 W. N. 61 47 E.	N. 84 39 E. N. 34 24 E. S. 61 47 W.	2,259 1,911 421	Bowman. Eedling. Fact.

## RUSSELL.

(Middle Wicomico River—Chart No. 26.)

1	38 19 04.42	76 50 28.14	N. 78 10 E. N. 2 14 W. S. 77 22 W.	S. 78 11 W. S. 2 14 E. N. 77 22 E.	961 2,313 1,049	Farr. Fact. Gust.
Thence along county boundary, as delineated on chart No. 26, to corner No. 2.						
2	38 20 00.00	76 51 11.88	N. 88 54 W. S. 15 50 W. N. 67 44 E.	S. 88 55 E. N. 15 50 E. S. 67 44 W.	1,548 1,392 1,157	Bowman. Eedling. Fact.
3	38 20 07.08	76 50 45.50	S. 84 40 W. S. 34 24 W. N. 61 47 E.	N. 84 39 E. N. 34 24 E. S. 61 47 W.	2,259 1,911 421	Bowman. Eedling. Fact.
4	38 19 09.76	76 49 56.97	N. 81 38 E. N. 23 18 W. S. 77 32 W.	S. 81 38 W. S. 23 19 E. N. 77 31 E.	114 2,320 1,895	Farr. Fact. Gust.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

MANAHOWIC CREEK.

(Middle Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 18 24.45	76 50 16.82	° / °	° / °	Yards.	Hedney. Lyon. Farr.
			S. 44 40 W.	N. 44 39 E.	1,189	
			S. 68 42 E.	N. 68 42 W.	1,299	
			N. 22 31 E.	S. 22 31 W.	1,672	
Thence along county boundary, as delineated on chart No. 26, to corner No. 2.						
2	38 19 04.42	76 50 28.14	N. 78 10 E.	S. 78 11 W.	961	Farr.
			N. 2 14 W.	S. 2 14 E.	2,313	Fact.
			S. 77 22 W.	N. 77 22 E.	1,049	Gust.
3	38 19 09.76	76 49 56.97	N. 81 38 E.	S. 81 38 W.	114	Farr.
			N. 23 18 W.	S. 23 19 E.	2,320	Fact.
			S. 77 32 W.	N. 77 31 E.	1,895	Gust.
4	38 18 29.84	76 49 58.88	S. 51 57 W.	N. 51 56 E.	1,667	Hedney.
			S. 48 19 E.	N. 48 18 W.	982	Lyon.
			N. 6 50 E.	S. 6 50 W.	1,372	Farr.

BRAMLEIGH CREEK.

(Middle Wicomico River—Chart No. 26.)

1	38 17 26.40	76 49 42.82	S. 68 36 E.	N. 68 35 W.	1,357	Weiss.
			N. 11 40 E.	S. 11 40 W.	1,520	Lyon.
			S. 80 01 W.	N. 80 00 E.	1,137	Charles.
Thence along county boundary, as delineated on chart No. 26, to corner No. 2.						
2	38 17 55.98	76 50 08.16	N. 63 31 E.	S. 63 32 W.	1,095	Lyon.
			N. 83 52 W.	S. 83 52 E.	1,072	Hedney.
			S. 20 30 W.	N. 20 30 E.	1,275	Charles.
Thence along county boundary, as delineated on chart No. 26, to corner No. 3.						
3	38 18 24.45	76 50 16.82	S. 44 40 W.	N. 44 39 E.	1,189	Hedney.
			S. 68 42 E.	N. 68 42 W.	1,299	Lyon.
			N. 22 31 E.	S. 22 31 W.	1,672	Farr.
4	38 18 29.84	76 49 58.88	S. 51 57 W.	N. 51 56 E.	1,667	Hedney.
			S. 48 19 E.	N. 48 18 W.	982	Lyon.
			N. 6 50 E.	S. 6 50 W.	1,372	Farr.
5	38 18 14.64	76 49 36.28	N. 13 07 W.	S. 13 07 E.	1,926	Farr.
			S. 74 57 W.	N. 74 56 E.	1,980	Hedney.
			S. 43 22 E.	N. 43 22 W.	194	Lyon.
6	38 17 45.78	76 49 28.12	N. 5 45 W.	S. 5 45 E.	837	Lyon.
			S. 60 37 W.	N. 60 36 E.	1,734	Charles.
			S. 37 14 E.	N. 37 13 W.	1,444	Weiss.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## WHITE POINT.

(Lower Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 16 34.94	76 49 13.42	S. 50 45 E. N. 67 32 E. S. 21 15 E.	N. 50 45 W. S. 67 32 W. S. 21 15 W.	Yards. 1,442 1,791 1,330	Prec. Blakistone. Weiss.
Thence along county boundary, as delineated on chart No. 26, to corner No. 2.						
2	38 16 55.66	76 49 32.82	N. 61 31 E. N. 58 48 W. S. 37 53 W.	S. 61 32 W. S. 58 49 E. N. 37 53 E.	1,133 1,621 1,294	Weiss. Lyon. Charles. Hard.
Thence along county boundary, as delineated on chart No. 26, to corner No. 3.						
3	38 17 26.40	76 49 42.82	S. 68 36 E. N. 11 40 E. S. 80 01 W.	N. 68 35 W. S. 11 40 W. N. 80 00 E.	1,357 1,520 1,137	Weiss. Lyon. Charles.
4	38 17 15.96	76 49 12.16	N. 85 26 W. S. 38 14 W. S. 72 17 E.	S. 85 26 E. N. 38 13 E. N. 72 17 W.	1,941 2,172 471	Charles. Hard. Weiss.
5	38 16 52.52	76 49 11.78	N. 34 11 E. N. 64 05 W. S. 55 52 W.	S. 34 11 W. S. 64 06 E. N. 55 52 E.	780 2,157 1,636	Weiss. Charles. Hard.
6	38, 16 51.32	76 48 46.98	S. 15 44 E. N. 82 06 E. N. 17 47 W.	N. 15 44 W. S. 82 06 W. S. 17 47 E.	1,520 961 722	Prec. Blakistone. Weiss.

## WHITE POINT HOLLOW.

(Lower Wicomico River—Chart No. 26.)

1	38 17 00.86	76 48 32.50	N. 58 51 W. S. 0 52 E. S. 71 32 E.	S. 58 52 E. N. 0 52 W. N. 71 31 W.	708 1,785 598	Weiss. Prec. Blakistone.
2	38 17 03.98	76 48 47.40	S. 12 37 E. S. 72 59 E. N. 38 47 W.	N. 12 37 W. S. 72 59 W. S. 38 47 E.	1,937 1,007 335	Prec. Blakistone. Weiss.
3	38 17 04.46	76 49 03.40	S. 50 06 W. S. 24 00 E. N. 41 26 E.	N. 50 05 E. N. 24 00 W. S. 41 26 W.	2,056 2,087 326	Hard. Prec. Weiss.
4	38 17 06.82	76 49 03.16	S. 48 33 W. S. 22 59 E. N. 51 47 E.	N. 48 33 E. N. 22 59 W. S. 51 47 W.	2,112 2,157 207	Hard. Prec. Weiss.
5	38 17 06.90	76 48 44.32	N. 60 53 W. S. 9 44 E. S. 65 58 E.	S. 60 54 E. N. 9 44 W. N. 65 57 W.	334 2,018 965	Weiss. Prec. Blakistone.
6	38 17 03.98	76 48 31.34	N. 67 43 W. S. 0 07 W. S. 61 13 E.	S. 67 43 E. N. 0 07 E. N. 61 13 W.	688 1,891 612	Weiss. Prec. Blakistone.



BOUNDARIES OF NATURAL OYSTER BEDS—continued.

BLAKISTONE.

(Lower Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 16 27.74	76 48 20.84	N. 15 33 E.	S. 15 33 W.	962	Blakistone. Weiss. Prec.
			N. 31 41 W.	S. 31 42 E.	1,742	
			S. 22 57 W.	N. 22 57 E.	725	
2	38 16 29.24	76 48 24.58	N. 22 08 E.	S. 22 09 W.	947	Blakistone. Weiss. Prec.
			N. 29 40 W.	S. 29 41 E.	1,648	
			S. 14 21 W.	N. 14 21 E.	740	
3	38 16 45.88	76 48 22.82	N. 44 33 E.	S. 44 33 W.	443	Blakistone. Weiss. Prec.
			N. 44 44 W.	S. 44 44 E.	1,226	
			S. 10 13 W.	N. 10 13 E.	1,300	
4	38 16 53.58	76 48 16.26	N. 67 34 E.	S. 67 34 W.	146	Blakistone. Weiss. Prec.
			N. 59 29 W.	S. 59 29 E.	1,204	
			S. 14 44 W.	N. 14 43 E.	1,594	
5	38 16 36.50	76 48 16.40	N. 12 27 E.	S. 12 28 W.	646	Blakistone. Weiss. Prec.
			N. 41 02 W.	S. 41 03 E.	1,574	
			S. 22 36 W.	N. 22 35 E.	1,043	

BLUFF POINT.

(Lower Wicomico River—Chart No. 26.)

1	38 15 19.22	76 48 48.98	S. 39 29 W.	N. 39 29 E.	2,005	Cobb Point Bar Light. St. Margaret 2. Prec.
			S. 15 37 E.	N. 15 37 W.	515	
			N. 15 49 E.	S. 15 49 W.	1,707	
2	38 15 20.00	76 49 24.36	N. 71 55 W.	S. 71 55 E.	1,589	Corner. Cobb Point Bar Light. St. Margaret 2.
			S. 11 59 W.	N. 11 59 E.	1,609	
			S. 64 10 E.	N. 64 10 W.	1,200	
3	38 16 34.94	76 49 13.42	S. 50 45 E.	N. 50 45 W.	1,442	Prec. Blakistone. Weiss.
			N. 67 32 E.	S. 67 32 W.	1,791	
			N. 21 15 E.	S. 21 15 W.	1,330	
4	38 16 51.32	76 48 46.98	S. 15 44 E.	N. 15 44 W.	1,520	Prec. Blakistone. Weiss.
			N. 82 06 E.	S. 82 06 W.	961	
			N. 17 47 W.	S. 17 47 E.	722	
5	38 16 20.28	76 48 28.06	N. 20 52 E.	S. 20 52 W.	1,262	Blakistone. Weiss. Prec.
			N. 22 39 W.	S. 22 39 E.	1,879	
			S. 12 19 W.	N. 12 19 E.	426	
6	38 16 09.07	76 48 41.46	S. 81 45 E.	N. 81 45 W.	268	Prec. Blakistone. Hard.
			N. 27 22 E.	S. 27 22 W.	1,753	
			N. 75 43 W.	S. 75 44 E.	2,229	
7	38 15 43.80	76 48 27.89	N. 6 41 W.	S. 6 41 E.	810	Prec. Corner. St. Margaret 2.
			S. 84 09 W.	N. 84 08 E.	3,028	
			S. 17 40 W.	N. 17 40 E.	1,391	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MOUTH OF RIVER.

(Lower Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' "	° / ' "		
1	38 15 02.18	76 49 29.62	N. 51 20 W. S. 11 18 W. N. 86 20 E.	S. 51 21 E. N. 11 18 E. S. 86 20 W.	Yards. 1,752 992 1,223	Corner. Cobb Point Bar Light. St. Margaret 2.
2	38 15 20.20	76 49 35.10	N. 68 20 W. S. 1 46 W. S. 68 48 E.	S. 68 21 E. N. 1 46 E. N. 68 48 W.	1,318 1,581 1,464	Corner. Cobb Point Bar Light. St. Margaret 2.
3	38 15 20.00	76 49 24.36	N. 71 55 W. S. 11 59 W. S. 64 10 E.	S. 71 55 E. N. 11 59 E. N. 64 10 W.	1,589 1,609 1,200	Corner. Cobb Point Bar Light. St. Margaret 2.
4	38 15 19.22	76 48 48.98	S. 39 29 W. S. 15 37 E. N. 15 49 E.	N. 39 29 E. N. 15 37 W. S. 15 49 W.	2,005 515 1,707	Cobb Point Bar Light. St. Margaret 2. Prec.
5	38 15 06.02	76 49 00.28	N. 65 47 W. S. 41 29 W. S. 83 21 E.	S. 65 48 E. N. 41 29 E. N. 83 21 W.	2,353 1,472 442	Corner. Cobb Point Bar Light. St. Margaret 2.

## ST. MARGARET.

(Lower Wicomico River—Chart No. 26.)

1	38 15 08.20	76 48 23.66	N. 5 54 W. S. 76 52 W. S. 37 39 E.	S. 5 54 E. N. 76 51 E. N. 37 38 W.	2,024 549 2,124	Prec. St. Margaret 2. St. Catherine.
2	38 15 14.19	76 48 38.95	N. 6 15 E. S. 48 13 W. S. 21 20 W.	S. 6 15 W. N. 48 13 E. N. 21 20 E.	1,823 2,068 351	Prec. Cobb Point Bar Light. St. Margaret 2.
3	38 15 17.70	76 48 36.38	N. 4 24 E. S. 47 06 W. S. 23 48 W.	S. 4 24 W. N. 47 06 E. N. 23 48 E.	1,608 2,108 487	Prec. Cobb Point Bar Light. St. Margaret 2.
4	38 15 11.36	76 48 21.76	N. 7 43 W. S. 68 26 W. S. 34 53 E.	S. 7 43 E. N. 68 25 E. N. 34 52 W.	1,925 629 2,181	Prec. St. Margaret 2. St. Catherine.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

BULLOCK.

(Lower Wicomico River—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
1	38 14 29.80	76 48 29.04	S. 74 58 E.	N. 74 57 W.	1,492	St. Catherine. St. Margaret 2. Cobb Point Bar Light.
			N. 18 30 W.	S. 18 30 E.	1,234	
			N. 86 13 W.	S. 86 14 E.	1,810	
2	38 14 31.64	76 49 04.42	S. 79 19 E.	N. 79 18 W.	2,423	St. Catherine. St. Margaret 2. Cobb Point Bar Light.
			N. 26 22 E.	S. 26 23 W.	1,237	
			N. 86 14 W.	S. 86 14 E.	866	
3	38 15 02.18	76 49 29.62	N. 51 20 W.	S. 51 21 E.	1,752	Corner. Cobb Point Bar Light. St. Margaret 2.
			S. 11 18 W.	N. 11 18 E.	992	
			N. 86 20 E.	S. 86 20 W.	1,223	
4	38 15 06.02	76 49 00.28	N. 65 47 W.	S. 65 48 E.	2,353	Corner. Cobb Point Bar Light. St. Margaret 2.
			S. 41 29 W.	N. 41 29 E.	1,472	
			S. 83 21 E.	N. 83 21 W.	442	

BULLOCK ISLAND.

(St. Catherine Sound—Chart No. 26.)

1	38 14 46.98	76 47 53.82	N. 66 01 W.	S. 66 02 E.	1,453	St. Margaret 2. St. Catherine. Sound.
			S. 27 32 E.	N. 27 32 W.	1,089	
			S. 85 01 E.	N. 85 01 W.	1,210	
2	38 14 48.06	76 47 50.66	N. 64 42 W.	S. 64 42 E.	1,297	St. Margaret 2. St. Catherine. Sound.
			S. 33 19 E.	N. 33 19 W.	1,200	
			S. 84 02 E.	N. 84 01 W.	1,368	
3	38 14 53.00	76 47 58.22	N. 72 15 W.	S. 72 15 E.	1,272	St. Margaret 2. St. Catherine. Sound.
			S. 27 54 E.	N. 27 54 W.	1,323	
			S. 76 51 E.	N. 76 52 W.	1,357	
4	38 14 52.00	76 47 52.56	N. 72 48 W.	S. 72 48 E.	1,425	St. Margaret 2. St. Catherine. Sound.
			S. 22 30 E.	N. 22 29 W.	1,229	
			S. 76 47 E.	N. 76 46 W.	1,203	

## SURVEY OF OYSTER BARS, ST. MARYS COUNTY, MD.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## ST. CATHERINE.

(St. Catherine Sound—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 14 26.10	76 46 59.42	N. 79 35 E. N. 22 00 W. S. 74 27 W.	S. 79 35 W. S. 22 00 E. N. 74 27 E.	534 645 979	Bailey. Sound. St. Catherine.
2	38 14 34.58	76 47 28.38	S. 17 30 W. S. 81 40 E. N. 59 25 E.	N. 17 30 E. N. 81 40 W. S. 59 25 W.	575 1,309 613	St. Catherine. Bailey. Sound.
3	38 14 41.03	76 47 23.90	S. 20 52 W. S. 70 54 E. N. 76 58 E.	N. 20 52 E. N. 70 54 W. S. 76 58 W.	819 1,245 420	St. Catherine. Bailey. Sound.
4	38 14 30.16	76 46 57.22	S. 85 02 E. N. 33 04 W. S. 68 16 W.	N. 85 02 W. S. 33 04 E. N. 68 16 E.	468 550 1,078	Bailey. Sound. St. Catherine.

## HACKLEY CREEK.

(St. Catherine Sound—Chart No. 26.)

1	38 14 01.84	76 47 06.90	S. 64 45 E. N. 38 21 E. N. 53 15 W.	N. 64 45 W. S. 38 22 W. S. 53 15 E.	574 1,166 928	Waterloo. Bailey. St. Catherine.
2	38 14 11.23	76 47 18.66	S. 55 59 E. N. 60 01 E. N. 61 00 W.	N. 55 59 W. S. 60 02 W. S. 61 00 E.	1,004 1,196 493	Waterloo. Bailey. St. Catherine.
3	38 14 05.18	76 46 52.86	S. 22 09 E. N. 23 36 E. N. 68 22 W.	N. 22 09 W. S. 23 36 W. S. 68 23 E.	395 875 1,202	Waterloo. Bailey. St. Catherine.
4	38 14 02.36	76 46 53.36	S. 31 13 E. N. 22 05 E. N. 64 01 W.	N. 31 13 W. S. 22 05 W. S. 64 02 E.	306 968 1,228	Waterloo. Bailey. St. Catherine.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

WATERLOO.

(St. Catherine Sound—Chart No. 26.)

Corner of bar.	Latitude.	Longitude.	True bearing.		Distance.	U. S. C. & G. S. triangulation station.
			Forward.	Back.		
			° / ' / ''	° / ' / ''		
1	38 13 40.36	76 46 53.82	N. 19 38 E.	S. 19 38 W.	509	Waterloo. Sound. St. Catherine.
			N. 10 21 W.	S. 10 21 E.	2,175	
			N. 40 28 W.	S. 40 29 E.	1,683	
2	38 13 41.20	76 47 06.04	N. 47 43 E.	S. 47 43 W.	670	Waterloo. Sound. St. Catherine.
			N. 1 47 W.	S. 1 47 E.	2,113	
			N. 31 30 W.	S. 31 30 E.	1,468	
3	38 13 48.20	76 46 58.08	N. 52 53 E.	S. 52 53 W.	357	Waterloo. Sound. St. Catherine.
			N. 8 25 W.	S. 8 25 E.	1,896	
			N. 43 56 W.	S. 43 57 E.	1,411	
4	38 13 59.74	76 47 09.87	S. 73 47 E.	N. 73 46 W.	623	Waterloo. Bailey. St. Catherine.
			N. 39 10 E.	S. 39 10 W.	1,271	
			N. 46 43 W.	S. 46 43 E.	913	
5	38 14 01.84	76 47 06.90	S. 64 45 E.	N. 64 45 W.	574	Waterloo. Bailey. St. Catherine.
			N. 38 21 E.	S. 38 22 W.	1,166	
			N. 53 15 W.	S. 53 15 E.	928	
6	38 13 50.24	76 46 52.30	N. 41 45 E.	S. 41 45 W.	196	Waterloo. Bailey. St. Catherine.
			N. 14 24 E.	S. 14 24 W.	1,347	
			N. 50 05 W.	S. 50 06 E.	1,476	

SILVER SPRING.

(St. Catherine Sound—Chart No. 26.)

1	38 13 50.64	76 47 17.50	N. 80 35 E.	S. 80 35 W.	811	Waterloo. Bailey. St. Catherine.
			N. 37 50 E.	S. 37 50 W.	1,636	
			N. 26 21 W.	S. 26 21 E.	1,041	
2	38 14 03.76	76 47 22.22	S. 71 31 E.	N. 71 31 W.	977	Waterloo. Bailey. St. Catherine.
			N. 53 05 E.	S. 53 06 W.	1,415	
			N. 34 27 W.	S. 34 27 E.	595	
3	38 13 50.74	76 47 03.78	N. 73 27 E.	S. 73 28 W.	455	Waterloo. Bailey. St. Catherine.
			N. 26 26 E.	S. 26 26 W.	1,439	
			N. 41 39 W.	S. 41 39 E.	1,245	

## APPENDIXES.

### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*  
SEC. 4. That this act shall take effect from the date of its passage.

[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven. \* \* \*

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[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

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[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of Congress approved March 4, 1909.]

AN ACT Making appropriation for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and ten, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and ten, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of Congress approved June 25, 1910.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eleven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eleven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available fifteen thousand dollars.

[Act of Congress approved March 4, 1911.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and twelve, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects herein-after expressed, for the fiscal year ending June thirtieth, nineteen hundred and twelve, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, thirteen thousand dollars. \* \* \*

[Act of the Legislature of Maryland approved April 2, 1906.]

AN ACT To establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars, and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis, and the said commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie. \* \* \*

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

\* \* \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the said to the Clerks of the Circuit court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks shall be construed in all the courts of the State to be barren bottoms and



open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act; provided, that the said survey and report shall not be construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act.

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the survey, is as follows:

AN ACT Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland*, That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or leveling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>1</sup> *And be it enacted*, That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses (to be by them sworn or affirmed and examined), shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted*, That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

<sup>1</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

## APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from Second Report of Shell Fish Commission.]

## OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland, had a twofold object in view:

1. To encourage an industry in oyster culture upon the *barren bottoms* beneath the tidewaters of the State.
2. To prevent the leasing of *natural oyster bars* for the purpose of oyster culture."

## SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, chartered, and marked with buoys."

## DEFINITION OF A NATURAL OYSTER BAR.

## NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, charting and buoying them, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the commission."

## DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturists, may be made to yield a greater number of oysters than they now produce."

"It should be evident to every one that neither of these definitions could be adopted by the Commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

## THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by *oystermen* on one hand and by *oyster culturists* on the other is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd v. Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed and is as follows:

What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them, and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them,

and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters, within the meaning of the Act of Assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the Act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and can not be located or appropriated by any individual.

#### APPLICATION OF DEFINITION.

Before this definition may be of use in determining, accurately and scientifically, the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors, and these factors must be combined into a practical scheme of investigating the condition of the ground under consideration.

Stated briefly, a *livelihood* is represented by a *sum of money* obtained from the sale, at a fixed *price*, of a certain *quantity of oysters* gathered in a given time from an allotted *area of ground*.

Knowing the value of each of these factors, it becomes possible to calculate the number of oysters an oyster ground must produce per square yard in order that oystermen may secure a livelihood by working upon it.

NOTE.—The factors into which the Commission resolved the livelihood problem, the values assigned to each factor, and the scheme devised for practical use in examining and applying the definition to oyster bottoms are given in outline in their second report under the heading of the preceding extract, and in detail in their first report on pages 32 to 69.

#### APPENDIX C.—SUMMARY OF THE PARTICULAR SURVEYING OPERATIONS WHICH CONSTITUTE AN "OYSTER SURVEY" AS NOW BEING CARRIED ON IN MARYLAND.

*Explanation.*—A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest practical accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

*Triangulation survey.*—Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a framework or foundation. Therefore, a triangulation survey including the permanent marking of the positions of landmarks with monuments and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

*Topographic survey.*—The technical records which establish the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making surveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the leasable bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore, a topographic survey is a necessary operation of a complete oyster survey.

*Hydrographic survey.*—In the settlement of the important question of what is, or what is not, a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture,

information as to the depth of water and the character of the bottom is required. Therefore, a hydrographic survey is a necessary operation of a complete oyster survey.

*Necessary foundation for an oyster survey.*—Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

*Special surveys and investigations pertaining to oysters.*—Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>1</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding boat party in addition to the usual hydrographic work.<sup>2</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells or absence of shells.

The special oyster investigations<sup>3</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affect the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

*Preparation of results.*—The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>4</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for publication by the Government, the preparation of that part of the annual report of the Commission covering the special oyster surveys and investigations, the making of the leasing charts and finished projections, and finally the filing of the oyster charts and records with the courts and the Commission, thus opening a county for oyster culture.

*Summary.*—From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> See pages 104-123 of "First Annual Report of Maryland Shell Fish Commission."

<sup>3</sup> See pages 30-67 and 129-199 of "First Annual Report of Maryland Shell Fish Commission."

<sup>4</sup> No mention is made here of the large amount of administrative work of the commission, which is greatly complicated and increased by the effect of the oyster-survey operations on many thousands of people whose interests are more or less involved; or of the large amount of survey work involved in the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

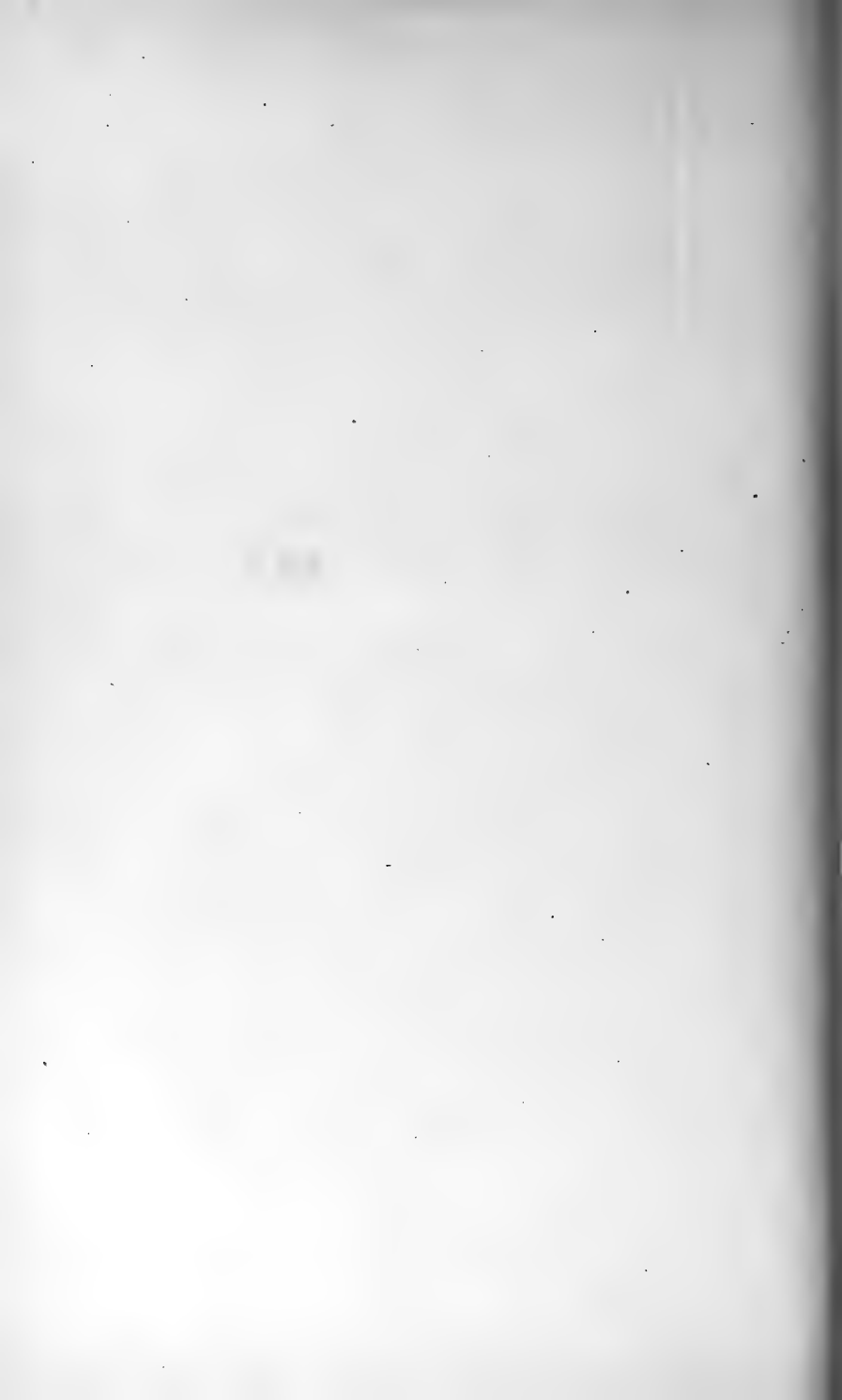
APPENDIX D.—STATISTICS OF RESULTS OF THE COMBINED OYSTER SURVEY OPERATIONS OF THE GOVERNMENT AND STATE.<sup>1</sup>

Operations.	Anne Arundel County.	Somerset County.	Wicomico County.	Worcester County.	Calvert County.	Charles County.	St. Marys County.	Total. <sup>2</sup>
Beginning of field work . . . . .	June 29, 1906	May 2, 1907	Aug. 27, 1907	Nov. 8, 1907	May 2, 1908	Aug. 18, 1908	May 2, 1908	.....
Filing of certified charts and reports . . . . .	June 20, 1907	July 1, 1908	Dec. 1, 1908	Apr. 12, 1909	Dec. 14, 1909	Jan. 27, 1911	July 6, 1911	.....
Natural oyster bars surveyed and delineated . . . . .	91	37	15	28	41	15	124	351
Acres of natural oyster bars . . . . .	33,666	27,506	2,038	1,655	12,393	2,285	25,778	105,291
Crab bottoms surveyed and delineated . . . . .	.....	54	.....	.....	.....	.....	.....	54
Acres of crab bottoms . . . . .	.....	32,108	.....	.....	.....	.....	.....	32,108
Clam beds surveyed and delineated . . . . .	.....	3	.....	.....	.....	.....	.....	3
Acres of clam beds . . . . .	.....	506	.....	.....	.....	.....	.....	506
Boundary buoys located and planted . . . . .	302	154	53	108	140	51	513	1,390
Triangulation landmarks established . . . . .	123	86	30	48	78	42	238	509
Miles of shore line covered by triangulation . . . . .	110	125	46	95	95	32	160	587
Square miles of water covered by triangulation . . . . .	220	375	44	110	157	20	180	1,012
Miles of examination of shell bottom with chain apparatus . . . . .	369	296	58	63	250	38	400	1,474
Oyster investigation stations occupied . . . . .	440	679	162	147	667	113	1,4727	3,080
Tide stations established . . . . .	4	3	1	1	2	1	.....	19
Number of soundings over shell bottoms . . . . .	37,049	17,904	3,387	3,649	11,292	1,631	19,374	94,256
Square miles covered by soundings and chain apparatus . . . . .	58	47	3	3	30	4	57	192
Projections prepared and plotted . . . . .	9	13	2	5	8	3	15	47
Leasing charts prepared . . . . .	13	12	2	3	5	2	16	43
Oyster charts published . . . . .	4	6	2	3	5	1	8	20
Reports published . . . . .	2	2	2	2	2	2	2	9
Progress maps published . . . . .	2	.....	2	2	2	2	2	9

<sup>1</sup> These statistics do not include the large amount of triangulation, topography, and hydrography resulting from previous work of the Coast and Geodetic Survey, which was utilized in the preparation of the published oyster charts and records. Work in Baltimore, Kent, Queen Anne, Talbot, and Dorchester Counties has been finished, but final statistics of results will not be published until these counties are opened for oyster culture.

<sup>2</sup> Less quantities covered by statistics of more than one county.

<sup>3</sup> Total area of natural oyster bars of Connecticut is 5,170 acres.









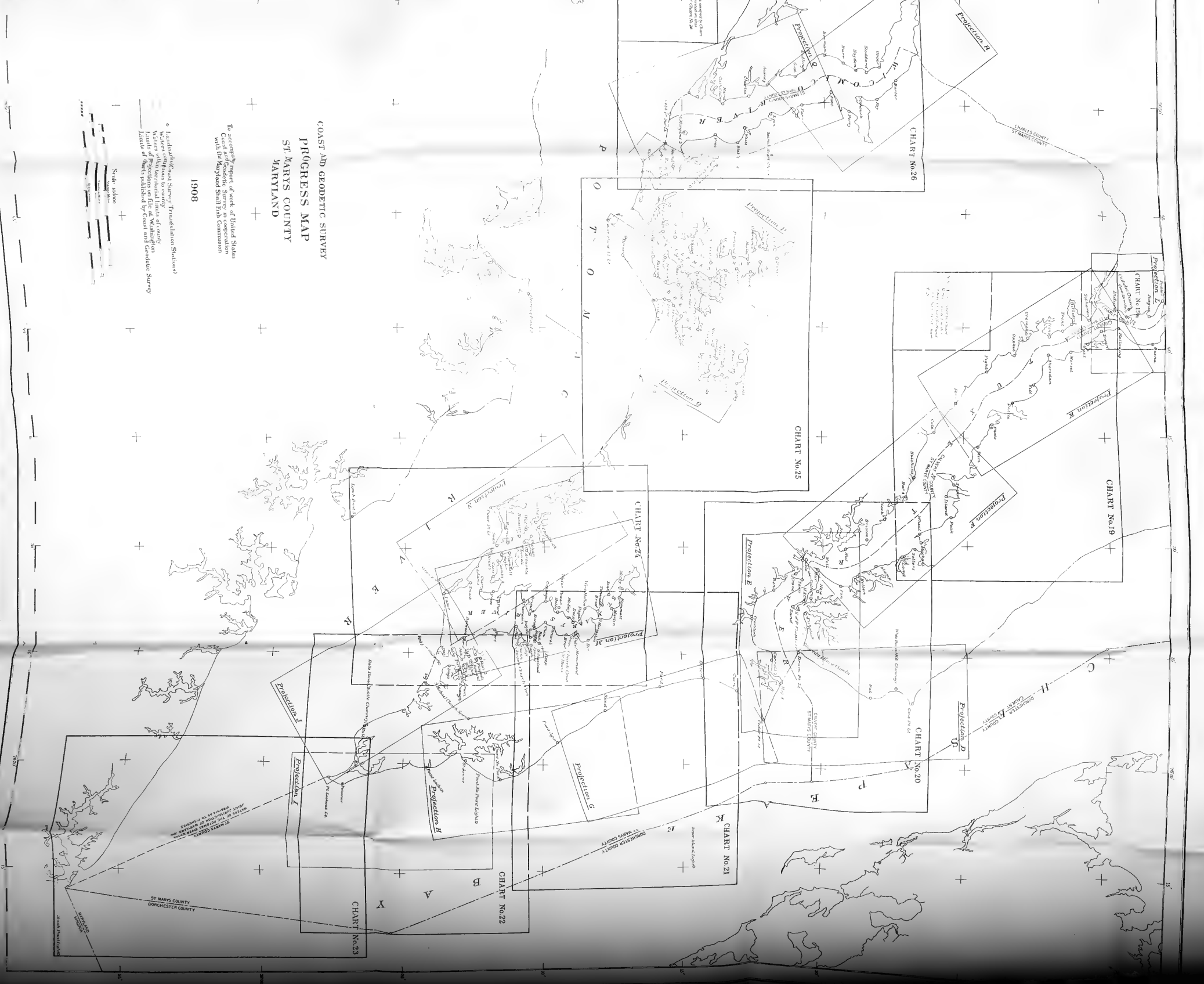
To accompany report of work of United States  
Coast and Geodetic Survey, in Commission  
with the Maryland State Fish Commission

1908

o Tidal high (Coast Survey) (Prestidial on Stations)  
o Tidal low (Coast Survey) (Prestidial on Stations)  
o Water column shown to easterly  
o Water column shown to westerly  
o Limits of projections on the Coast and Geodetic Survey  
o Limits of charts published by Coast and Geodetic Survey

Scale, fathoms

COAST AND GEODETIC SURVEY  
PROGRESS MAP  
ST MARYS COUNTY  
MARYLAND



WASHINGTON MONUMENT  
ST MARYS COUNTY  
DORCHESTER COUNTY

CHARLES COUNTY  
ST MARYS COUNTY

DORCHESTER COUNTY  
ST MARYS COUNTY

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ST MARYS COUNTY

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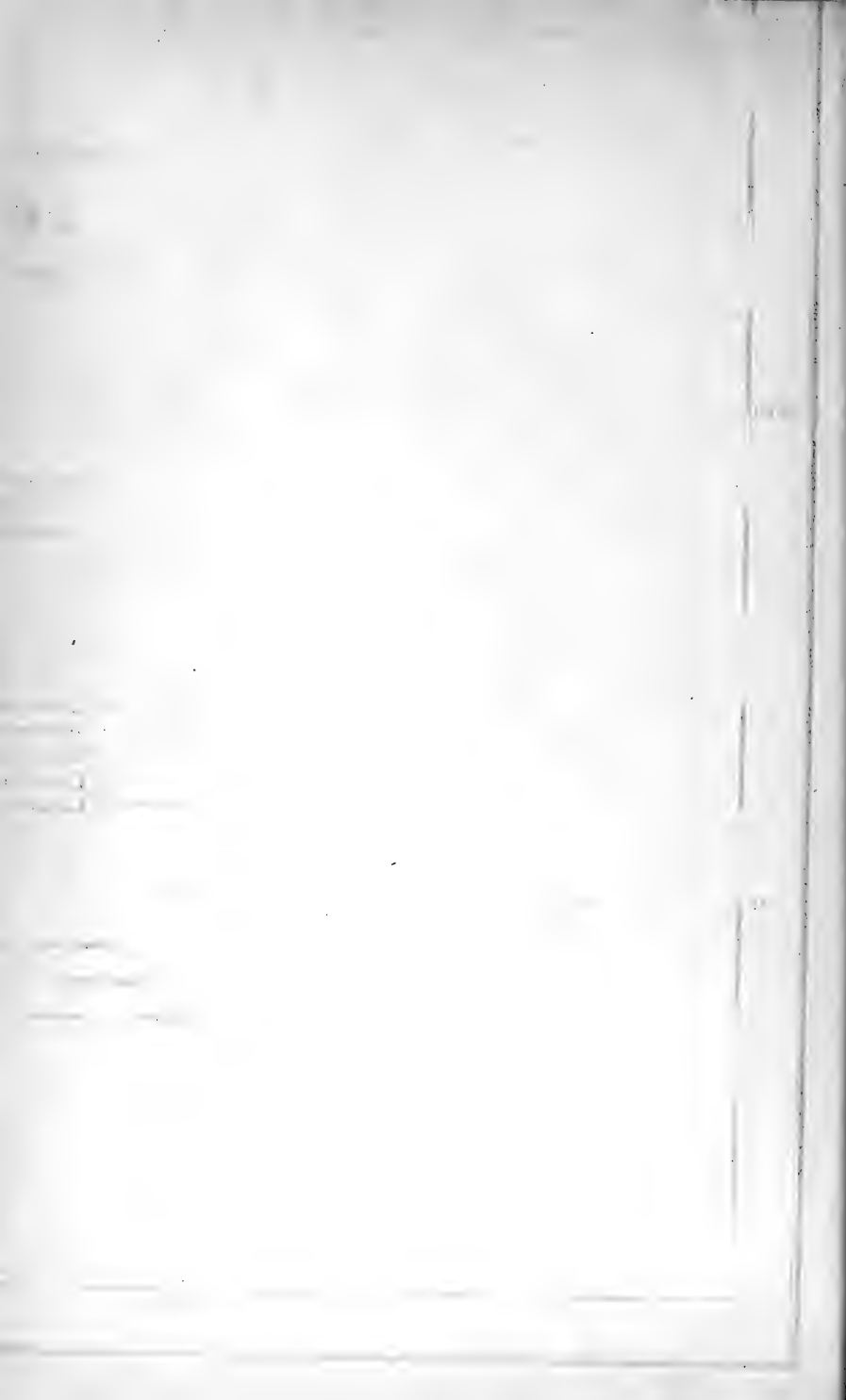
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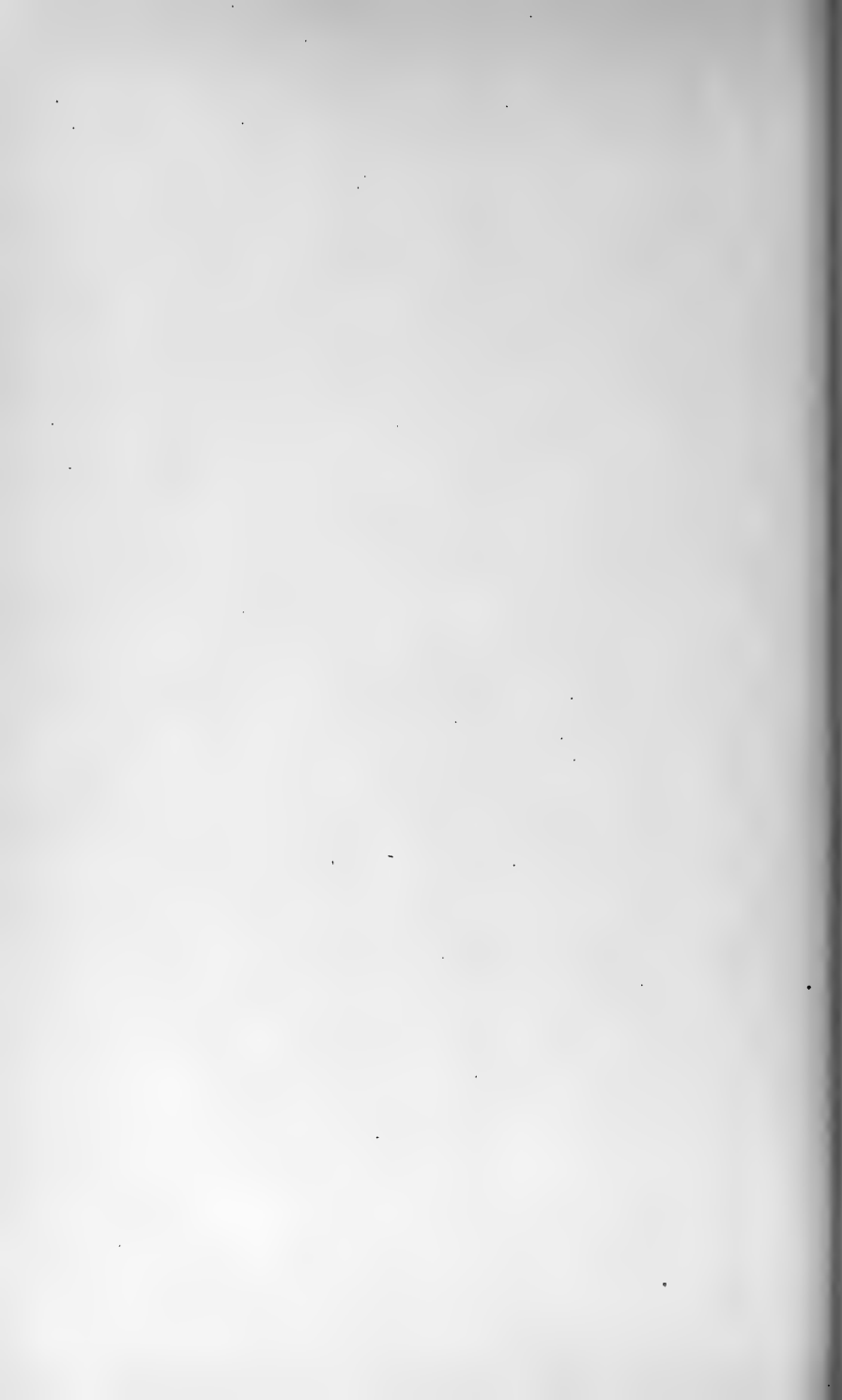
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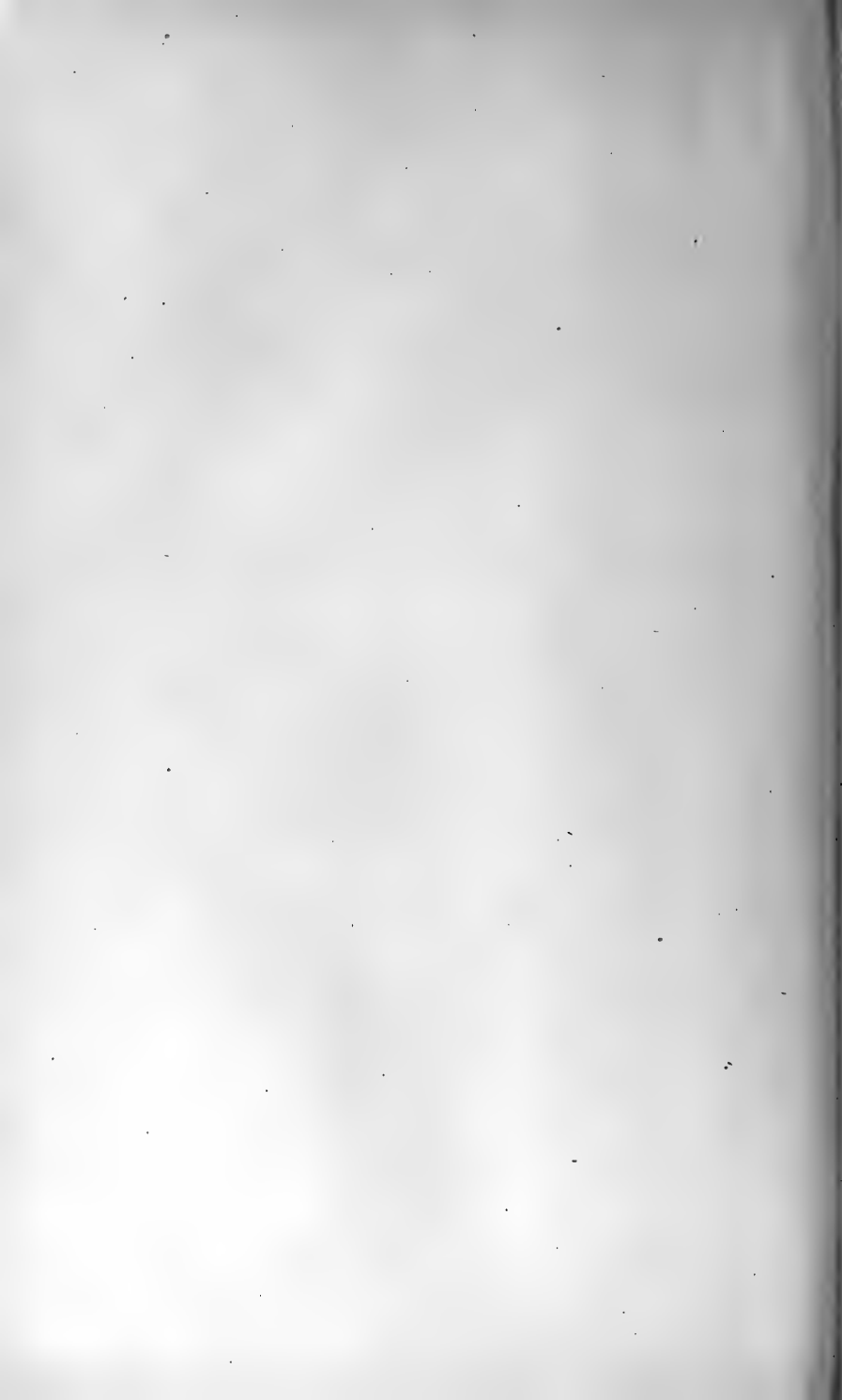
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DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY  
O. H. TITTMANN, Superintendent

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# SURVEY OF OYSTER BARS

## SOMERSET COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND REPORT  
OF WORK OF UNITED STATES COAST AND GEODETIC SUR-  
VEY IN COOPERATION WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND SHELL FISH COMMISSION

By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE

1908

DEPARTMENT OF COMMERCE AND LABOR

Document No. 94

COAST AND GEODETIC SURVEY



## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, June 29, 1908.*

SIR: I have the honor to transmit herewith the report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, and certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, and 1909.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To Hon. OSCAR S. STRAUS,  
*Secretary of Commerce and Labor.*



## CERTIFICATION.

---

ANNAPOLIS, MD., *June 25, 1908.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in the waters of Somerset County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,  
*Chief of Coast and Geodetic Survey Party,*  
*Assistant, Coast and Geodetic Survey.*

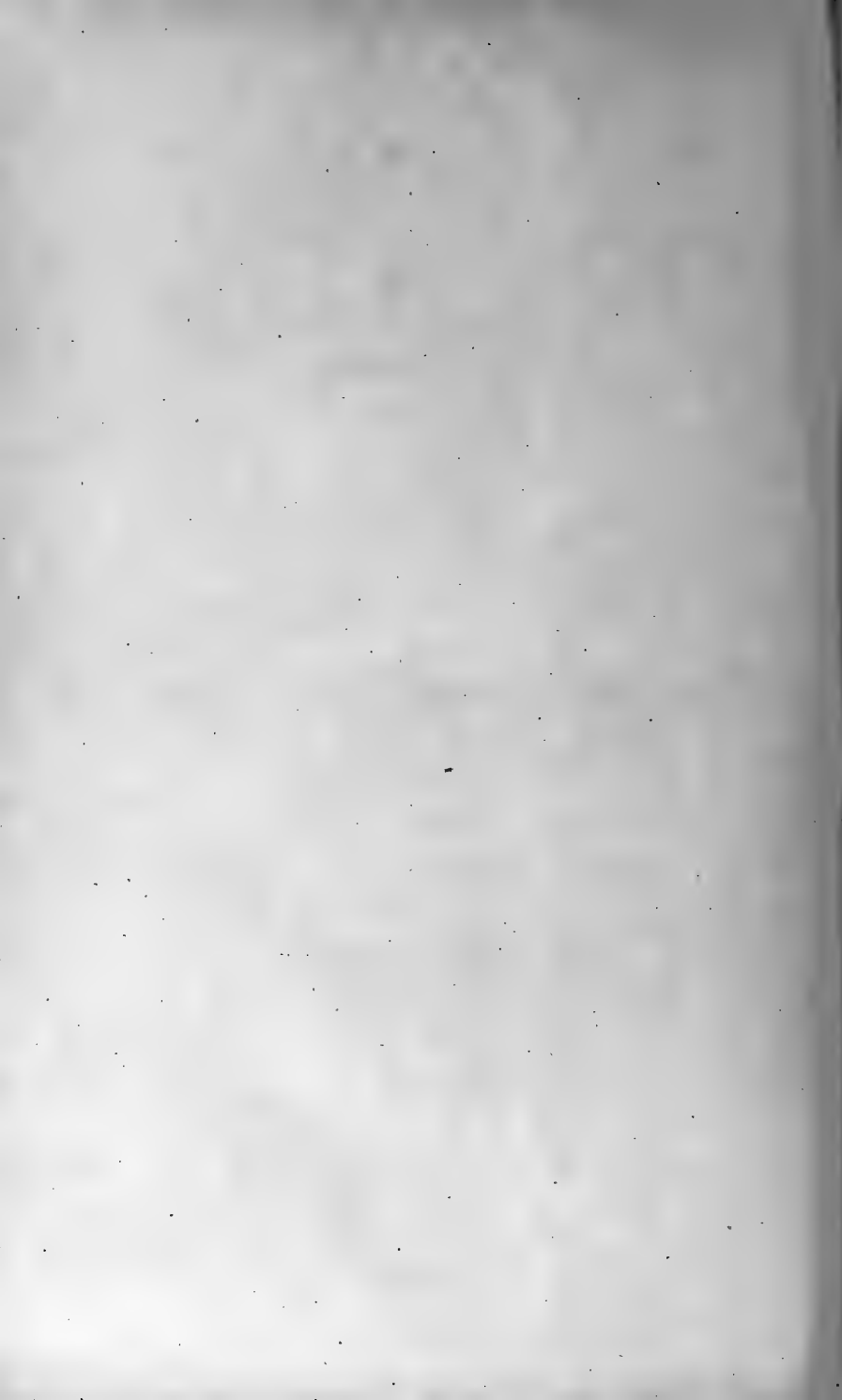
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ANNAPOLIS, MD., *June 25, 1908.*

Examined and certified to be correct.

WALTER J. MITCHELL,  
CASWELL GRAVE,  
BENJAMIN K. GREEN,  
*Maryland Shell Fish Commissioners.*  
SWEPSON EARLE,  
*Hydrographic Engineer.*

NOTE.—As required by law, certified copies of this publication and of the charts of the natural oyster bars of "Somerset County and adjacent waters" were filed in the office of the clerk of the circuit court of Somerset County and in the office of the Board of Shell Fish Commissioners, at Annapolis, on July 1, 1908.



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# SURVEY OF OYSTER BARS, SOMERSET COUNTY, MD.

## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars, crab bottoms, and clam beds of Maryland has been divided between the Government and the State in accordance with the laws <sup>a</sup> authorizing the work and the natural division of the surveying operations of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consist of a series of charts and a technical report for each county surveyed.<sup>b</sup> The charts show all legal boundaries of oyster bars, crab bottoms, and clam beds within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report <sup>c</sup> of the representative of the Coast and Geodetic Survey in charge of the work of that Service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.

The part prepared and issued by the State under the direction of the Shell Fish Commission consists of an annual report <sup>d</sup> of all the operations of the Commission performed under the provisions of the laws of Maryland,<sup>e</sup> including results of biological and economic oyster investigations, methods and results of the hydrographic survey of the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of sur-

<sup>a</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>b</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C. The publications ready for issue are those of Anne Arundel and Somerset counties. Those of Wicomico and Worcester counties are now being prepared.

<sup>c</sup> See page 16 and the progress map attached to this publication.

<sup>d</sup> These reports can be obtained by application to the Shell Fish Commission, Annapolis, Md. They are issued annually in October, and the first report is now available for distribution.

<sup>e</sup> See Appendix D for an extract from the "First Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman Oyster Culture Law."

veying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the Service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an advisor in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>a</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the Bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL REMARKS.

A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland will assist in the interpretation of records contained in the technical part of this report, and will be of interest to the many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with surveying methods on open waters the necessity for the various operations performed are evident, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest attainable accuracy. To others it will be

<sup>a</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, Assistant, Bureau of Fisheries.

sufficient to state that the actual experience gained from oyster surveys in other States has proven that to accurately locate and permanently establish oyster boundaries as is now being done in Maryland is necessary if endless dissatisfaction and future litigation are to be avoided.

Such refinement of survey work as demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a framework or foundation. Therefore, a triangulation survey including the permanent marking of the positions of landmarks with monuments and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

The technical records which established the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the barren bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore, a topographic survey is a necessary operation of a complete oyster survey.

In the settlement of the important question of what is, or what is not, a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore, a hydrographic survey is a necessary operation of a complete oyster survey.

Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of navigational charts.

Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations <sup>a</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms and are carried on by the sounding boat party in addition to their usual hydrographic work.<sup>b</sup> This operation consists of a record of the character of vibration of a wire and chain apparatus which drags over the bottom. The vibrations or lack of vibrations indicating the presence or absence of shells.

The special oyster investigations <sup>c</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important

<sup>a</sup> See Appendix C of this publication for "Statistics of results of combined operations of the Government and State."

<sup>b</sup> See pages 104 to 123 of "First Annual Report of Maryland Shell Fish Commission."

<sup>c</sup> See pages 30 to 67 and 129 to 199 of "First Annual Report of Maryland Shell Fish Commission."

matters as affect the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>a</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for record and publication by the Government, the manufacture and planting of the "State buoys" at all corners of the oyster-bar boundaries, the preparation of that part of the annual report of the Commission covering the oyster investigations, the making of the leasing charts and finished projections, and finally the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

## REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY.

### INSTRUCTIONS.

The two following letters, together with the laws<sup>b</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the Survey at Washington, has proved very beneficial to the work, and is greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,

*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

LAWRENCE O. MURRAY, *Assistant Secretary.*

His excellency HON. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

<sup>a</sup> No mention is made here of the large amount of administrative work of the Commission, which is greatly complicated and increased by the economic and political effect of the oyster-survey operations on many thousands of people whose interests are more or less involved.

<sup>b</sup> For these laws see Appendix A.

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
Washington, July 3, 1906.

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell-Fish Commission of Maryland.

You will consult the commissioners, prepare a programme of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,

*U. S. C. and G. S. Steamer Endeavor, Baltimore, Md.*

ORGANIZATION.

The organization of the party has remained practically unchanged and consists of the chief and the necessary triangulators, computers, and draftsmen.

EQUIPMENT.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster* the Coast and Geodetic Survey party has had the constant use of the large steam launch *Inspector* and several other boats furnished by their own Service, and the occasional use of the Bureau of Fisheries launch *Canvasback*<sup>a</sup> and the steamer *Governor McLane*<sup>b</sup> of the State fishery force.

The greater part of the equipment of instruments for the operations of both the Government and State have been furnished by the Coast and Geodetic Survey and consist of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

CHRONOLOGICAL STATEMENT OF WORK.<sup>c</sup>

On June 20, 1907, the "Charts of Natural Oyster Bars" and report<sup>d</sup> of "Survey of Oyster Bars" for Anne Arundel County were issued and filed, and the survey records and reports for that county have been filed in the archives of the Survey at Washington.

In addition to this work, a Coast and Geodetic Survey signal-building party was engaged in the erection of triangulation signals in Somerset County from May 2 to June 25 in cooperation with a signal-building party of the Shell Fish Commission.

<sup>a</sup> By courtesy of Dr. H. F. Moore, U. S. Bureau of Fisheries.

<sup>b</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>c</sup> The field and office work relating to Somerset County is so intermixed with that of Wicomico County that this statement includes part of the work of the latter county.

<sup>d</sup> See this report for an account of the work from July 3, 1906, to June 20, 1907.

From June 25 to November 6, when the field work in Somerset and Wicomico counties was practically completed, the usual routine of field and office work was followed without material interruption except that resulting from the moving of the house boat *Oyster* from Crisfield to Manokin River on July 13, then to Piney Island on August 27, and to Wicomico River, on August 30, where she remained until her removal to Nanticoke River on September 30.

From this latter date the work in Wicomico County predominated, and when the field surveys were practically completed on November 6 the entire party left by rail for Worcester County, it being impracticable to move the house boat to the waters of that locality.

At the close of the survey work in Worcester County in the last part of December, office work relating to Somerset and Wicomico counties was actively commenced at Baltimore<sup>a</sup> and was continued without material interruption until March 23, 1908, when a subparty went to Worcester and Somerset counties to finish some details of field work in those sections required for the preparation of the technical reports and oyster charts.

The very large amount of work of computation and drafting necessary to make the results of the survey of the previous season available for publication was nearly completed on May 2, when it was transferred to the Government quarters on the house boat *Oyster*, which left Baltimore on the same day with the party and outfit for her anchorage off Solomons Island, in the Patuxent River.

The active field work in Calvert County dates from May 2, but from that time until the filing of this report and the oyster charts of Somerset County the chief of party, in addition to his regular field duties, was frequently at Baltimore and Washington to look after their final preparation for publication.

STATISTICS.<sup>b</sup>

Landmarks and triangulation signals erected.....	60
Monuments planted to mark triangulation stations.....	61
Triangulation stations occupied for observations of horizontal angles.....	66
Old triangulation stations recovered.....	24
New triangulation stations established.....	62
Total old and new triangulation stations marked and described.....	86
Linear miles of shore line covered by triangulation (approximate).....	125
Square miles covered by triangulation (approximate).....	375
Hydrographic projections prepared and completed as records of oyster, crab, and clam boundaries.....	13
Triangles computed.....	209
Geographic positions computed.....	76

<sup>a</sup> Office rooms were furnished for the work of the Government party in the "old court-house" and afterwards in the new custom-house by courtesy of Hon. William F. Stone, collector of customs.

<sup>b</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of Somerset County, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the Commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland.



Corners of oyster, crab, and clam boundaries established by computation.....	506
Back azimuths and distances computed from corners of boundaries to triangulation stations....	1, 518
Descriptions of triangulation stations prepared for publication.....	86
Descriptions of oyster, crab, and clam boundaries prepared for publication.....	94
Total typewritten pages of manuscript prepared for publication of report.....	264
"Charts of Natural Oyster Bars" prepared for publication.....	6
Progress map prepared for publication.....	1

GENERAL STATEMENT.

The results obtained from the work of the Coast and Geodetic Survey in Somerset County in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need no other summary than is indicated by the published "Charts of Natural Oyster Bars" and the scheme of hydrographic projections and triangulation stations shown on the progress map at the beginning of this report.

The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars, but also to the Government for any future work it may do in the regions covered by the oyster survey operations.

The hydrographic projections and published charts were prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various shell-fish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to by published technical descriptions which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County:"

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last sixty-five years.

In fact, when the survey of the oyster bars of Maryland is completed, it is believed that it will stand the test of time and practical use as a working foundation for whatever form the oyster legislation of the future may assume; and that the doing of the work systematically and accurately, once for all, not only means a better foundation of a great oyster industry by irradicably locating the natural oyster bars for the use of the public, but also a better and more permanent superstructure of oyster culture for the individual by the reason of the integrity of the foundation on which it stands.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore of the Bureau of Fisheries, whose efficient cooperation, well-known experience, and scientific knowledge of all matters relating to oysters have been of great value to the work.

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unflinching tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the Commission, who, as editor of the Commission's annual report and commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Benjamin K. Green, treasurer of the Commission, who has looked after the equipment and commissary of the house boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

To Thomas H. Robinson, counsel to the Commission, for courteously furnishing valuable information relating to county boundaries.

And to the many others connected with the Commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

## CHARTS AND MAPS.

### CHARTS OF NATURAL OYSTER BARS.

The charts<sup>a</sup> of the natural oyster bars of "Somerset County and Adjacent Waters," published by the Coast and Geodetic Survey from results of surveys of the Government in cooperation with the Maryland Shell Fish Commission, consist of a series of five sheets covering the eastern shore of Chesapeake Bay from Hooper Strait to the Maryland-Virginia boundary, including Tangier and Pocomoke sounds and numerous other tributaries. They are published on a scale of 1 part in 20,000 (approximately  $3\frac{1}{8}$  inches to a statute mile) and are constructed on polyconic projections and based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars, crab bottoms, clam beds, and other boundaries established by the Commission, and are certified for the purpose of filing in the office of the clerk of the circuit court of Somerset County and in the office of the Commission at Annapolis, as required by the oyster laws of Maryland.

In addition to the oyster-bar and other boundaries, the charts show the location and name of all landmarks (U. S. Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography<sup>b</sup> necessary to make the technical definitions and delineations of boundaries readily understandable

<sup>a</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>b</sup> Much of the details of the inshore topography was obtained from the excellent map of Somerset County prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the U. S. Geological Survey.

both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars, crab bottoms, and clam beds are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, as was generally the case with the crab bottoms, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars and crab bottoms, especially by those not familiar with the use of maps.

The corners of the oyster bars, crab bottoms, and clam beds are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, crab bottoms, or clam beds, as the case may be, these points have two or more numbers, each number corresponding to the bar, bottom, or bed in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the headings of "Boundaries of natural oyster bars," "Boundaries of crab bottoms," and "Boundaries of clam beds."

The landmarks, oyster bars, crab bottoms, and clam beds have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a particular bar, bottom, bed, or landmark which is only known by name, consult the "Contents" and the desired chart and general location will be indicated. To find the name of a bar, bottom, bed, or landmark which is only known by location, consult the progress map at the beginning of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar, bottom, bed, or landmark in question.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shell-fish industries. The 1-fathom contour (6 feet) corresponds in a general way to the outer limits of the crab bottoms, while the waters outside of this curve and inside the 5-fathom contour (30 feet) practically include all the oyster bars surveyed. The 3-fathom contour (18 feet) furnishes the curve of about the average depth of water on the oyster bars and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" and the boundaries of the "waters contiguous to the county" opened up for the leasing with Somerset County are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the oyster bars, crab bottoms, and clam beds were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the

Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart and are usually located within the boundaries of the different areas.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Somerset County, like those for Anne Arundel County, have been prepared under the direction of the hydrographic engineer of the Commission. These charts are constructed on polyconic projections and based on the United States standard datum of the Coast and Geodetic Survey. They are made on the scales of 1 part in 5,000 or 1 part in 10,000, as the needs of oyster culture may require. Anne Arundel County required 13 leasing charts and Somerset County 12 to cover their oyster bottoms.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts have been divided by parallels of latitude and meridians of longitude into small rectangles of 1 acre or 5 acres, as may be best suited to area under consideration, and prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as practicable.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in Annapolis.

#### PROJECTIONS.

The polyconic projections<sup>a</sup> covering Somerset County waters are 13 in number and on the scale of 1 part in 10,000. They were all constructed by draftsmen of the Coast and Geodetic Survey, who also plotted the sextant positions on the smooth projections which determine the location of the legal boundaries of the oyster bars, crab bottoms, or clam beds as delineated by the Shell Fish Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the office of the Shell Fish Commission at Annapolis.

<sup>a</sup> For the scheme of these projections see the progress map at the beginning of this publication.

## PROGRESS MAPS.

The progress map to be found at the beginning of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the U. S. Coast and Geodetic Survey in Somerset County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress map<sup>a</sup> accompanying the "First Annual Report of the Maryland Shell Fish Commission" was prepared under the direction of the hydrographic engineer of the Commission. It is on the scale of 1 part in 400,000 and shows the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey of Maryland.

BOUNDARIES OF COUNTY WATERS.<sup>b</sup>

## WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>c</sup> between the waters "within the territorial limits" of Somerset County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the charts and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:

Commencing at a point defined by the intersection of the channels of Wicomico Creek and Wicomico River; thence with the channel of Wicomico River along the boundary line as laid down on Chart No. 5 of the "Natural Oyster Bars" of Maryland, published by the Coast and Geodetic Survey, to a point defined by the intersection of the channel of Nanticoke River with Wicomico River; thence in a straight line to a point defined by<sup>d</sup> latitude  $38^{\circ} 11' 50''$ 3, and longitude  $75^{\circ} 58' 20''$ 8, situated in upper end of

<sup>a</sup> This map and report can be obtained by application to Maryland Shell Fish Commission, at Annapolis, Md.

<sup>b</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, Superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>c</sup> See "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and the progress map at the beginning of this publication.

<sup>d</sup> Latitudes and longitudes based on the United States standard datum of the U. S. Coast and Geodetic Survey.

Tangier Sound, about  $\frac{1}{8}$  mile <sup>a</sup> east-southeast of Sharkfin Shoal Light,  $2\frac{1}{4}$  miles south of western extremity of Clay Island, and  $1\frac{3}{4}$  miles west-northwest of Halls Point; thence in a straight line along the channel of Tangier Sound to a point defined by latitude  $38^{\circ} 10' 08''.1$ , and longitude  $75^{\circ} 58' 40''.6$ , situated about  $2\frac{3}{8}$  miles south by east of Sharkfin Shoal Light and  $1\frac{1}{8}$  miles west of upper land end of Deal Island; thence in a straight line across Tangier Sound to a point defined by latitude  $38^{\circ} 08' 50''.6$ , and longitude  $76^{\circ} 01' 53''.4$ , situated on a point of land on the southeastern extremity of Bloodworth Island, which is the north point of the Tangier Sound entrance to Holland Straits; thence in a straight line across Holland Straits to a point defined by latitude  $38^{\circ} 06' 39''.9$ , and longitude  $76^{\circ} 03' 17''.8$ , situated on northwest extremity of a small island slightly detached from South Marsh and on north side of Holland Straits entrance to Pry Cove; thence in a straight line to a point defined by latitude  $38^{\circ} 05' 44''.1$ , and longitude  $76^{\circ} 03' 44''.6$ , situated on Pry Island, which is located on south side of Holland Straits entrance to Pry Cove; thence in a straight line to the open waters of the Chesapeake Bay at point defined by latitude  $38^{\circ} 04' 40''.8$ , and longitude  $76^{\circ} 04' 14''.8$ , situated at junction of Holland and Kedge Straits; thence in a straight line along the dividing waters of Chesapeake Bay and Kedge Straits to a point defined by latitude  $38^{\circ} 02' 07''.0$ , and longitude  $76^{\circ} 02' 34''.0$ , situated on the northwest side of Fog Point, which is the south point of the Chesapeake Bay entrance to Kedge Straits; thence along the mean low water line of the Chesapeake Bay shore of Smith Island across the mouth of all inlets less than 100 yards in width to a point defined by latitude  $38^{\circ} 00' 31''.0$ , and longitude  $76^{\circ} 03' 08''.9$ , situated on a point at the extreme northwest entrance to Smith Island Thoroughfare; thence in a straight line across the Chesapeake Bay entrance of Smith Island Thoroughfare and Goose Harbor Cove to a point defined by latitude  $37^{\circ} 59' 30''.0$ , and longitude  $76^{\circ} 03' 09''.6$ , situated on a point at the extreme southwest entrance to Goose Harbor Cove; thence along the mean low water line of Chesapeake Bay shore of Smith Island across the mouth of all inlets less than 100 yards in width to the intersection of the mean low water line and the Maryland-Virginia boundary line; thence in a straight line with the Maryland-Virginia boundary across Smith Island and the waters of Smith Gut, Shanks Creek, and Tylers Creek to a point at a corner of the boundary near the Tangier Sound shore of Smith Island situated on land known locally as Horse Hummock; thence in a straight line with the Maryland-Virginia boundary to point at a corner of the boundary in the middle of Tangier Sound, situated about  $1\frac{1}{8}$  miles southwest by west of James Island Light,  $2\frac{3}{8}$  miles east by south of Horse Hummock, and  $3\frac{1}{4}$  miles northwest of House Island; thence in a straight line with the Maryland-Virginia boundary to a point at a corner of the boundary in the middle of Tangier Sound, situated about  $4\frac{3}{8}$  miles southwest by south of James Island Light,  $3\frac{1}{8}$  miles southeast by east of Horse Hummock, and  $2\frac{5}{8}$  miles west of House Island; thence in a straight line with the Maryland-Virginia boundary across House Island to a corner of the boundary situated in the water between Watkins Point and Green Harbor Island; thence in a straight line with the Maryland-Virginia boundary to a corner of the boundary situated in the middle of Pocomoke Sound about  $4\frac{1}{4}$  miles east of Watkins Point and  $2\frac{5}{8}$  miles south of Watkins Island off entrance to Apes Hole Creek; thence in a straight line with the Maryland-Virginia boundary to a corner of the boundary situated in the middle of Pocomoke Sound about  $2\frac{1}{4}$  miles northwest by west of Saxis Church,  $2\frac{1}{4}$  miles east by south of Watkins Island off entrance to Apes Hole, and 2 miles southwest of extreme end of point between East and Marumscro creeks; thence with the Maryland-Virginia boundary as laid down on "Charts of Natural Oyster Bars" No. 10 along the middle of Pocomoke Sound and Pocomoke River as far as oysters grow.

WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the U. S. Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners in the city of Annapolis," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for the

<sup>a</sup> Statute miles.

leasing with Somerset County, a boundary line between the waters contiguous to but not within the territorial limits of Somerset County and the waters contiguous to but not within the territorial limits of adjacent counties has been established by the Shell Fish Commission. This boundary line<sup>a</sup> has been delineated on the "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and is technically described and defined as follows:

Commencing at a point defined by latitude  $38^{\circ} 04' 40''.8$ , and longitude  $76^{\circ} 04' 14''.8$ , situated on line of territorial limits of county at junction of Holland and Kedge straits; thence in a straight line across waters of Chesapeake Bay to Holland Island Bar Light, the location of which is defined by latitude  $38^{\circ} 04' 07''.3$ , and longitude  $76^{\circ} 05' 45''.9$ ; thence in a straight line across waters of Chesapeake Bay to a point defined by latitude  $38^{\circ} 04' 34''.8$ , and longitude  $76^{\circ} 12' 01''.0$ , situated near the middle of Chesapeake Bay, on northwestern end of a shoal marked by a red buoy of the U. S. Light-House Establishment situated about  $5\frac{5}{8}$  miles west by north of Holland Island Bar Light,  $7\frac{1}{8}$  miles east by north of Point Lookout Light, and  $13\frac{1}{2}$  miles north of Smith Point Light; thence in a straight line with the waters of Chesapeake Bay to a point on Smith Point defined by the corner of the Maryland-Virginia boundary at the intersection of the straight line boundary across Chesapeake Bay and the low-water line of the southern shore of Potomac River; thence with the Maryland-Virginia boundary in a straight line across Chesapeake Bay to the point defined by the intersection of the boundary with the mean low-water line of the Chesapeake Bay shore of Smith Island; thence with territorial limits of county along the Chesapeake Bay shore of Smith Island and waters of entrance to Kedge Straits to point of beginning.

#### LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

##### EXPLANATION OF DESCRIPTIONS OF LANDMARKS.

The oyster laws of Maryland authorizing the surveys to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of locations of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking to find a landmark has only an indefinite idea of its location.

<sup>a</sup> See progress map at the end of this publication

They then gradually proceed from general descriptions of the surroundings of a landmark to the specific details of the character of the center and reference markings. An examination of the descriptions themselves will best indicate the method followed.

The heading of each description is the name by which the landmark or triangulation station is known and designated in all work and records of the Government and State.

Under the heading of "Locality" the first paragraph gives a description of the general locality of the landmark and the serial number of the published "Chart of Oyster Bars" of Maryland which best shows its location. The published charts are on the large scale of 1 part in 20,000, and show the location of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

Under the same heading of "Locality" the second paragraph furnishes the description of the immediate locality of the landmark and refers to the bearing and distance of standard cement monument marking the reference station, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached.

Under the heading of "Marks" a description is given of the character of the markings of the "observed station" and the reference station. It will be noted that, although the "observed station" is the one "occupied" and "observed on" for horizontal angles, and also the one whose geographic position is computed, frequently it is not marked as well as the reference station, and in many instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate these stations on edges of banks and ends of points of land, which in Chesapeake Bay and tributaries generally means that they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the necessity of reference marks, if the frequent reestablishment of a new framework of triangulation is to be avoided.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom, the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

It is the expectation that the reference stations,<sup>a</sup> the character of which is explained above, will be used in many cases in the near future in the place of the "observed sta-

<sup>a</sup> To obtain the geographic positions of any of the "observed stations" or of the "reference stations," application should be made to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.



tions." This has been made possible by the careful measurements of direction and distance of these stations from the "observed station," which are recorded under the heading of "References."

Under the heading of "References" are given the directions and distances of all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or reference station when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the direction of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing <sup>a</sup> of the initial object is always given in parenthesis alongside the name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by compass bearings or for the relocation of corner buoys of oyster-bar boundaries by the method of horizontal angles described in this publication under the heading of "Boundaries of oyster bars."

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters," however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner the accuracy of the directions are indicated by the refinement of direction with which they are recorded.

DESCRIPTIONS OF TRIANGULATION STATIONS.

SENATOR.

Locality.—Western shore of Tangier Sound, on southern side of Holland Straits and on extreme northeast point of South Marsh. (See Charts Nos. 5, 6, and 7.)

Observed station is on marsh land about 35 yards from north side and about 30 yards from east side of point. Myrtle bushes skirt shore, commencing due north, and two small pools of water are near station, one due south about 10 yards and the other southwest about 5 yards. No permanent reference points near station.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	o	,	"	
"Sharkfin Shoal Light" (N $16^{\circ} 20'$ E).....	00	00	00	----- $4\frac{3}{4}$ miles.
Chimney on house to right of "Haines".....	31	30	--	----- $4\frac{3}{4}$ miles.
Left-hand chimney of crab house on Deal Island.....	50	19	--	----- $3\frac{1}{2}$ miles.
Right end of large oyster house on Deal Island.....	81	59	--	----- $3\frac{1}{2}$ miles.
Lone pine tree.....	301	35	--	----- $1\frac{7}{8}$ miles.

<sup>a</sup> The mean magnetic variation for Somerset County for 1908 was  $5^{\circ} 30'$  west of north and increasing at the rate of  $3'$  yearly.

## CRAB.

*Locality.*—Upper end and western shore of Tangier Sound on eastern side of Bloodworth Island about  $2\frac{3}{8}$  miles southeast of Sharkfin Shoal Light House and about halfway between Piney Island Cove to north and Great Cove to south. (See Chart No. 5.)

Observed station is about 15 yards from high-water mark to the northeast and about 35 yards from the shore to the east. A small flat-roof crab house stands about 80 yards to the north-northeast and another crab house about twice the distance in the same direction.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sharkfin Shoal Light" (N 45° 25' E).....	00	00	00	2 $\frac{3}{8}$ miles.
Left end of large white house near Stump				
Point.....	6	11	--	7 $\frac{7}{8}$ miles.
End of roof of white house on bluff.....	31	36	--	6 $\frac{3}{4}$ miles.
End of Deal Island wharf.....	53	03	--	3 $\frac{3}{4}$ miles.
Large white house near red roof one.....	72	35	--	4 $\frac{3}{4}$ miles.
Aspen tree near "Joshua".....	88	06	--	5 $\frac{3}{8}$ miles.
Tall pine tree.....	165	00	40	1 $\frac{1}{2}$ miles.
Near end of flat-roof shanty.....	288	32	--	80 yards.
Flag pole on Brown's crab house.....	299	01	--	150 yards.

## SHARKFIN SHOAL LIGHT.

*Locality.*—Northern end of Tangier Sound about equally distant from entrances of Hooper Strait, Fishing Bay, and Nanticoke River. (See Chart No. 5.)

*Marks.*—Observed station is center point of black lantern on hexagonal screw pile known as "Sharkfin Shoal Light."

*References.*—

	°	'	"	
"Great Shoals Light" (N 81° 45' E).....	00	00	00	5 $\frac{7}{8}$ miles.

## HEAD.

*Locality.*—Upper end of Tangier Sound, on southern part of peninsula known as "Bishops Head," situated between Hooper Strait and Fishing Bay. (See Chart No. 5.)

Observed station is on eastern side marsh land about  $\frac{1}{2}$  mile north of extreme southerly end of Bishops Head and about 15 yards east of two crab houses. It is about 15 yards southwest of high-water mark, behind water bushes which skirt the shore. Cement monument marking reference station is 13.41 meters west from observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sharkfin Shoal Light" (S 60° 41' E).....	00	00	00	2 $\frac{3}{4}$ miles.
Crab-house flagstaff.....	50	30	--	3 $\frac{3}{4}$ miles.
Large pine.....	97	42	--	2 miles.
REFERENCE STATION.....	139	55	40	13.41 meters.
Near gable of 2 $\frac{1}{4}$ -story white house.....	140	24	--	$\frac{1}{4}$ mile.
Chimney on white house.....	156	44	--	$\frac{1}{8}$ mile.
Left side of crab house.....	166	38	--	17.31 meters.
Right side of crab house.....	199	54	--	16.11 meters.
Chimney on yellow house.....	208	28	--	1 $\frac{1}{2}$ miles.
Chimney on end of white house.....	238	53	--	3 miles.
Right side of Nanticoke Point woods.....	326	56	--	7 $\frac{1}{2}$ miles.

## FROG.

*Locality.*—West shore of mouth of Nanticoke River, on the southeasterly point of Clay Island, known as "Frog Point." (See Chart No. 5.)

Observed station is on a marsh point about 25 yards back from extreme end of point, 20 yards from the east side and 25 yards from the west side. Water bushes abound back of station. There are no permanent reference objects near station. Cement monument marking reference station is 13.10 meters north of observed station.

*Marks.*—Observed station is nail in stub flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Sharkfin Shoal Light" (S 41° 25' W).....	00	00	00	3 1/8 miles.
Left tangent of Clay Island.....	35	17	--	1 1/4 miles.
REFERENCE STATION.....	141	45	50	13.10 meters.
Right tangent of Sandy Point.....	177	41	--	3/4 mile.
Chimney on white house with black roof..	179	12	--	2 1/2 miles.
Chimney on near end of large red-roof white house.....	183	02	--	2 1/2 miles.
Stack on canning house.....	184	36	--	2 1/2 miles.
Land end of Nanticoke wharf.....	184	36	--	2 1/2 miles.
End of Nanticoke wharf house.....	186	00	--	2 1/4 miles.
Chimney on ell end of main part of large red-roof white house.....	211	27	--	2 1/4 miles.
Right tangent of Nanticoke Point woods..	238	44	--	2 3/4 miles.
Large square chimney on white house (Dames Quarter).....	264	17	--	4 miles.
Rock Creek poplar tree.....	284	17	--	3 1/2 miles.
Flagstaff on Deal Island wharf.....	322	09	--	4 3/4 miles.

## COW.

*Locality.*—Western shore Nanticoke River on Mink Point about 1/4 mile east of entrance to Cow Creek. (See Chart No. 5.)

Observed station is on a very soft marsh point at the outer edge of water bushes about 5 yards back from the shore to the east, 15 yards from extreme end of point to the southeast, and 15 yards from the shore to the southwest. No permanent reference objects near station. Cement monument marking reference station is 8.68 meters northwest of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	°	'	"	
"Frog" (S 6° 13' W).....	00	00	00	2 miles.
A shanty.....	37	16	--	3/4 mile.
REFERENCE STATION.....	129	19	20	8.68 meters.
White shanty.....	189	53	--	1 mile.
A shanty.....	209	52	--	1/2 mile.
Tangent of land.....	217	43	--	1/2 mile.
Large red roof greenhouse.....	236	48	--	2 1/2 miles.
Windmill.....	243	52	--	2 3/4 miles.
Gambrel of house.....	244	13	--	2 1/2 miles.
Chimney of large greenhouse.....	254	24	--	2 3/4 miles.
Canning house stack.....	257	28	--	1 3/4 miles.
Canning house stack.....	275	26	--	1 1/2 miles.
Near corner of Nanticoke wharf.....	284	49	--	1 1/2 miles.
Large red roof white house.....	297	32	--	2 1/2 miles.
Large red roof white house.....	299	24	--	2 1/2 miles.
Right tangent of Nanticoke woods.....	310	15	--	3 miles.
Left tangent of Sandy Point.....	341	48	--	1 1/4 miles.

## NANTICOKE CHURCH.

*Locality.*—Eastern shore of Nanticoke River in town of Nanticoke, about  $\frac{1}{4}$  mile back from river and  $\frac{3}{4}$  mile northeast of Roaring Point. (See Chart No. 5.)

*Marks.*—Observed station is center point of spire of church known as "Nanticoke Methodist Episcopal Church."

*References.*—None necessary.

## ROAR.

*Locality.*—Eastern shore of Nanticoke River on point of land known as Roaring Point, and about  $\frac{1}{4}$  mile north from outer end of Roaring Point wharf. (See Chart No. 5.)

Observed station is 30 yards to the east of the extreme end of the point and on a sandy knoll about 5 feet above high-water mark. It is about 20 yards back from high-water mark on the north side and about 40 yards back from high-water mark on south side of the point. Pine woods stand about 150 yards inshore from station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Frog" (S 39° 02' W).....	00	00	00	2½ miles.
Two shanties.....	19	17	--	2 miles.
One shanty.....	30	20	--	1¾ miles.
A shanty.....	71	32	--	1¼ miles.
White shanty.....	98	53	--	1¾ miles.
Barn steeple.....	117	41	--	4½ miles.
White shanty behind "Okay".....	121	25	--	2¾ miles.
Red roof house.....	144	42	--	7½ miles.
Twin trees on Ragged Point.....	159	30	--	2 miles.
Chimney on white house.....	175	23	--	1½ miles.
Windmill.....	184	04	--	1 mile.
Gambrel roof house.....	184	32	--	1 mile.
White canning house stack.....	195	11	--	½ mile.
Land end of wharf.....	271	58	--	¼ mile.
Large house.....	293	38	--	1½ miles.
Right tangent of Nanticoke Point woods.....	297	22	--	2½ miles.
Right tangent of Nanticoke wharf.....	304	52	--	¾ mile.
Left tangent of Sandy Point.....	359	51	--	1¾ miles.

## NANTI.

*Locality.*—Eastern side of entrance to Nanticoke River about  $\frac{1}{2}$  mile northwest of Nanticoke Point. (See Chart No. 5.)

Observed station is on grassy land about 2 feet above and 20 yards back from high-water mark. It is about midway between edge of woods on Nanticoke Point and unpainted house near poplars  $\frac{1}{4}$  mile to the north.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sharkfin Shoal Light" (S 65° 14' W).....	00	00	00	5 miles.
Tangent of Sandy Point.....	51	33	--	2¾ miles.
Left end of Nanticoke wharf.....	89	45	--	2 miles.
Near chimney of red roof house.....	96	51	--	¾ mile.
Chimney of unpainted house.....	101	08	--	½ mile.
Near chimney of house nearest woods.....	116	56	--	¼ mile.
Tree high above woods.....	119	53	--	2½ miles.
Right end of heavy woods.....	134	03	--	1¼ miles.
Right end of scant woods.....	147	11	--	¾ mile.

	o	'	"	
Wild cherry tree.....	178	24	--	50 yards.
Left end of woods.....	227	46	--	¼ mile.
Right end of woods.....	269	45	--	¼ mile.
Poplar tree Dames Quarter.....	307	28	--	2¾ miles.
Tangent of Haines Point.....	330	55	--	4½ miles.

WHITE.

*Locality.*—Eastern shore of entrance to Nanticoke River on western part of Nanticoke Point. (See Chart No. 5.)

Observed station is on a sand and grass point about 2 feet above high-water mark, 3 yards from the west side, 15 yards from the south end, and 20 yards from southeast side. Dense pine woods stand about 100 yards to the northwest, open marsh to the northeast, and a clump of about a dozen pine trees in marsh about ¾ mile to the northeast. There is a cove about 40 yards east of the station and another point of land about 100 yards to the southeast. Cement monument marking reference station is 16.63 meters north of observed station.

*Marks.*—Observed station is a nail in a pine stub about 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Great Shoals Light" (S 44° 16' E).....	00	00	00	1¼ miles.
Poplar tree at Dames Quarter.....	65	08	--	2½ miles.
Tangent of Hall Point.....	86	06	--	3¾ miles.
Tangent of Sandy Point.....	164	17	--	3 miles.
Left end of pine woods.....	172	27	--	100 yards.
Right end of pine woods.....	213	21	--	150 yards.
REFERENCE STATION.....	227	29	00	16.63 meters.
Largest tree in clump of about 12 pines.....	247	23	--	¾ mile.
Chimney on cabin on Ellis Point.....	279	05	--	2 miles.
White house.....	311	54	--	½ mile.
Point of land.....	335	02	--	100 yards.

ELLA.

*Locality.*—North shore of Wicomico River on point at east side of entrance to Ellis Bay. (See Chart No. 5.)

Observed station is on a marsh point about 1 foot above high-water mark. It is about 10 yards back from the shore to the west, 20 yards back from the shore to the south, and 20 yards back from the shore to the north. No permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Great Shoals Light" (S 9° 49' W).....	00	00	00	2 miles.
Tangent of land on Mollies Point.....	5	14	--	1 mile.
Watch house.....	26	10	--	½ mile.
Left of woods on Nanticoke Point.....	44	23	--	1½ miles.
Right of woods on Nanticoke Point.....	52	33	--	1¼ miles.
Chimney of white house.....	135	45	--	2 miles.
Chimney of gray house.....	142	43	--	2 miles.
Chimney of white house.....	249	27	--	200 yards.
Mount Vernon Church.....	257	58	--	2¼ miles.
Chimney on middle of white house.....	274	28	--	1¼ miles.
Chimney on cream and brown house.....	290	49	--	1 mile.
Chimney on brown house.....	291	03	--	1 mile.
Smoke pipe of watch house.....	306	57	--	1 mile.

*Survey of Oyster Bars, Somerset County, Md.*

HOLLAND.

*Locality.*—North shore of Wicomico River on Holland Point about  $1\frac{1}{4}$  miles west of Mount Vernon Church, and  $1\frac{1}{4}$  miles east of Ellis Bay. (See Chart No. 5.)

Observed station is on a marsh point about 20 yards north of high-water mark on its extreme end and about 100 yards west of a creek. A small cabin stands about 200 yards to the west.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	1	"	
"Wind" (S 28° 35' W).....	00	00	00	1 $\frac{1}{4}$ miles.
Great Shoals Light.....	4	34	--	2 $\frac{3}{4}$ miles.
Tangent of Mollies Point.....	18	39	--	2 miles.
Left tangent of woods on Nanticoke Point...	34	33	--	2 $\frac{3}{4}$ miles.
Right tangent of woods on Nanticoke Point...	39	28	--	2 $\frac{3}{4}$ miles.
Chimney of house near Ellis Bay.....	46	19	--	1 $\frac{1}{4}$ miles.
Chimney of cabin.....	56	14	--	200 yards.
Chimney on left end of large red roof building..	91	56	--	3 miles.
Large chimney on white house.....	188	31	--	1 $\frac{1}{4}$ miles.
Chimney of slate-colored house.....	230	43	--	1 $\frac{1}{4}$ miles.
Chimney on middle of light-blue house.....	240	48	--	1 mile.
Chimney on 2 $\frac{1}{2}$ -story light-green house.....	266	41	--	$\frac{3}{4}$ mile.
Right chimney on white house.....	317	29	--	$\frac{1}{2}$ mile.

CHILD.

*Locality.*—North shore of Wicomico River about  $\frac{3}{8}$  mile north of Mount Vernon Church. (See Chart No. 5.)

Observed station is on marsh land about 2 feet above and 15 yards back from high-water mark. There is an old wharf about 300 yards to the east and at a point about 100 yards to the north, two creeks join and form a single creek about 20 feet wide which flows into the river at a point about 15 yards west of observed station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	1	"	
"Mount Vernon Church" (S 10° 15' E).....	00	00	00	$\frac{7}{8}$ mile.
Chimney on white house in woods on opposite shore.....	3	23	--	$\frac{3}{4}$ mile.
Chimney on white house on sand bluff on opposite shore.....	15	32	--	$\frac{5}{8}$ mile.
Smoke pipe on large white house.....	19	55	--	$\frac{3}{4}$ mile.
Chimney on brown house.....	48	14	--	1 $\frac{1}{2}$ miles.
Great Shoals Light.....	49	33	--	3 $\frac{3}{4}$ miles.
Tangent of Holland Point.....	62	44	--	1 $\frac{1}{4}$ miles.
Fork of creek.....	183	08	--	100 yards.
Chimney of large house.....	206	39	--	2 miles.
Chimney of another large house.....	238	43	--	$\frac{3}{4}$ mile.
Mount Vernon wharf smoke pipe.....	293	12	--	1 $\frac{1}{2}$ miles.
Large white house in woods.....	324	03	--	$\frac{3}{4}$ mile.
Cream-colored house in woods.....	345	47	--	$\frac{1}{2}$ mile.

CREEK.

*Locality.*—North shore of Wicomico River, about  $\frac{3}{4}$  mile northwest of Mount Vernon wharf and about  $1\frac{1}{8}$  miles northeast of Mount Vernon Church. (See Chart No. 5.)

Observed station is on a marsh grass and sand point making out to the south and about 10 yards from the high-water mark of each of the three sides of the point. About 10 yards west of observed station is the mouth of a creek or drain 10 feet wide which runs only a short distance inland. There are several unpainted houses within 200 yards of observed station and a lone pear tree stands about 200

yards to the north. There is a cultivated field about 150 yards back of station which extends to edge of woods  $\frac{1}{4}$  mile distant.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Mount Vernon Church" (S 30° 39' W).....	00	00	00	1 $\frac{3}{4}$ miles.
Chimney on light-blue house with red blinds	13	46	--	1 $\frac{1}{4}$ miles.
Lone tree.....	72	59	--	1 mile.
Chimney of old unpainted house.....	108	18	--	300 yards.
Chimney of light-green trimmed house.....	135	15	--	200 yards.
Pear tree.....	159	48	--	200 yards.
Left chimney of cream-colored house.....	218	06	--	300 yards.
Tangent of cove.....	224	--	--	30 yards.
Smoke pipe on Mount Vernon wharf.....	282	34	--	$\frac{3}{4}$ mile.
Chimney outside yellow house.....	312	04	--	$\frac{3}{8}$ mile.
Chimney on slate-colored house.....	352	57	--	$\frac{3}{4}$ mile.

END.

Locality.—North shore of Wicomico River, opposite Mount Vernon wharf. (See Chart No. 5.)

Observed station is on marsh land about 3 feet above and about 100 yards north of high-water mark in river and about 75 yards to the northwest of a large creek which runs about 2 miles inland Water shelter skirt shore around station.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Jones" (S 60° 33' W).....	00	00	00	$\frac{3}{4}$ mile.
Chimney on white house.....	7	24	--	1 mile.
Tangent of land.....	12	28	--	1 mile.
Near chimney of cream-colored house.....	68	25	--	$\frac{1}{2}$ mile.
Cupola on red barn.....	155	21	--	$\frac{1}{2}$ mile.
Old-style windmill.....	163	26	--	$\frac{3}{4}$ mile.
Chimney of Whitehaven Hotel.....	171	09	--	1 $\frac{1}{4}$ miles.
Webster's canning house.....	252	28	--	$\frac{1}{2}$ mile.
Right hand chimney on gray house.....	273	42	--	$\frac{1}{2}$ mile.
Left side of Mount Vernon wharf.....	294	13	--	$\frac{1}{4}$ mile.
Stack of Dashiell's canning house.....	304	52	--	$\frac{3}{8}$ mile.
Middle attic window of white house.....	328	54	--	$\frac{1}{2}$ mile.
Chimney outside of yellow house.....	352	12	--	$\frac{1}{2}$ mile.

WALNUT.

Locality.—South shore of Wicomico River, about 175 yards east of Mount Vernon wharf. (See Chart No. 5.)

Observed station is on marsh land about 17 feet from shore and 50 yards west of a small creek. Several large walnut and locust trees stand about 250 yards south of station and 2 houses and 2 sheds about 250 yards to the southwest.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Jones" (S 83° 49' W).....	00	00	00	$\frac{3}{4}$ mile.
Right side of Mount Vernon wharf house.....	17	18	--	175 yards.
Chimney outside of white house.....	46	52	--	1 mile.
Left chimney of gabled house.....	53	47	--	1 mile.
Old style windmill.....	121	00	--	$\frac{1}{2}$ mile.
Left end of roof of Whitehaven wharf.....	136	18	--	1 $\frac{1}{2}$ miles.
Chimney of Whitehaven Hotel.....	136	40	--	1 $\frac{1}{2}$ miles.
Opening between pair of pine trees near Whitehaven.....	140	--	--	1 $\frac{1}{2}$ miles.

## Survey of Oyster Bars, Somerset County, Md.

	°	'	"	
Stack of Webster's canning house.....	187	38	---	300 yards.
Opening between two walnut trees.....	274	--	---	200 yards.
Chimney of Whitlock's house.....	307	37	---	250 yards.
Stack of Dashiell's canning house.....	352	23	---	400 yards.

## JONES.

*Locality.*—South shore of Wicomico River about  $\frac{3}{4}$  mile west of Mount Vernon wharf. (See Chart No. 5.)

Observed station is on a knoll about 25 feet above and 30 yards to south of high-water mark, and about 200 yards to the east of a cove. The knoll on which the station is located is the highest point on the shore in this locality. Several small cabins stand to the northward about 25 yards, and a large lone cedar tree about 35 yards to the southwest.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Ivee" (S 78° 54' W).....	00	00	00	$\frac{3}{4}$ mile.
Large square chimney on four-gable house..	10	05	---	$\frac{1}{4}$ mile.
Cedar tree.....	11	22	---	25 yards.
Tangent of point of land.....	34	54	---	$\frac{1}{8}$ mile.
Nail in blaze in cedar tree.....	62	26	---	20.30 meters.
Chimney on light-green house on opposite shore.....	102	33	---	$\frac{3}{4}$ mile.
White cupola in Whitehaven.....	148	53	---	$2\frac{1}{4}$ mile.
Old style windmill.....	153	31	---	$1\frac{1}{2}$ miles.
Whitehaven Hotel chimney.....	155	48	---	$2\frac{3}{4}$ miles.
Large chimney on yellow house.....	178	37	---	$\frac{1}{4}$ mile.
Chimney on end of brown house.....	216	37	---	$\frac{1}{2}$ mile.
Chimney on white house.....	266	42	---	$\frac{1}{4}$ mile.
Weeping willow.....	307	55	---	$\frac{1}{4}$ mile.
Nail in blaze in cedar tree.....	318	30	---	31.10 meters.

## IVEE.

*Locality.*—Southeast shore of Wicomico River about  $\frac{1}{4}$  mile northwest of Mount Vernon Church (See Chart No. 5.)

Observed station is on grass land about 1 foot above and 10 feet back from high-water mark. A small cove makes in about 100 yards east of station. A small lone pine stands about 110 yards to the east-southeast, and a sand bluff with pine trees about 100 yards to the southwest. Beyond the woods along the beach is a bluff 15 feet high upon which are several houses.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Mount Vernon Church" (S 22° 37' E)....	00	00	00	$\frac{3}{8}$ mile.
White house chimney.....	55	35	---	$\frac{1}{4}$ mile.
Chimney on end of white house.....	209	55	---	2 miles.
Chimney of green-trimmed house near "Creek".....	245	28	---	$1\frac{1}{4}$ miles.
Old style windmill.....	264	47	---	$2\frac{1}{8}$ miles.
Slate-colored house.....	276	22	---	$\frac{1}{2}$ mile.
Chimney on middle of white house beyond woods.....	297	11	---	1 mile.
Lone pine tree.....	317	53	---	110 yards.



MOUNT VERNON CHURCH.

*Locality.*—Southeast side of Wicomico River about  $\frac{3}{8}$  mile back from the shore  $1\frac{1}{2}$  miles south-west of Mount Vernon wharf. (See Chart No. 5.)

Observed station is on main road in Mount Vernon and is situated on the highest point in the vicinity.

*Marks.*—Observed station is center of steeple of Mount Vernon Methodist Church.

*References.*—None necessary.

BALL.

*Locality.*—Southeast shore of Wicomico River on a point of land about 1 mile northeast of Wingate Point. (See Chart No. 5.)

Observed station is on a sand and grass point making out about 100 yards west of a sand bluff. A small creek empties into the river about 10 yards to the east, and three poplars stand about 100 yards to the south. The extreme northern end of the point is about 35 yards from station and the western side is about 10 yards.

*Marks.*—Observed station is center point of triangle on standard cement monument

*References.*—

	o	'	"	
"Holland" (N 20° 03' W).....	00	00	00	$\frac{1}{2}$ mile.
Middle one of five pines.....	107	09	..	100 yards.
Chimney on John Withlock's house.....	137	57	..	100 yards
Left end of pine woods.....	145	33	..	$\frac{1}{2}$ mile.
Right end of pine woods.....	165	04	..	$\frac{1}{2}$ mile.
Chimney on white house.....	183	32	..	$\frac{1}{4}$ mile.
Third poplar.....	209	04	..	100 yards.
Chimney of brown house.....	248	27	..	$\frac{1}{2}$ mile.

WIND.

*Locality.*—Southeast shore of Wicomico River about  $\frac{1}{4}$  mile north of southern end of Wingate Point. (See Chart No. 5.)

Observed station is about 30 yards from high-water mark of Wicomico River on the north side and 20 yards from the west side. An oyster watchhouse stands about 100 yards to the east of the station

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Great Shoals Light" (S 36° 29' W).....	00	00	00	$1\frac{1}{2}$ miles.
Tangent of Mollies Point .....	33	35	..	1 mile.
Left end of woods.....	46	12	..	$1\frac{3}{4}$ miles.
Right end of woods.....	51	45	..	$1\frac{3}{4}$ miles.
Tangent of Ellis Point.....	102	47	..	1 mile.
White house in woods.....	157	19	..	3 miles.
Smoke pipe on watchhouse.....	185	49	..	100 yards.
Chimney of brown house.....	203	38	..	$\frac{1}{2}$ mile.
Chimney of cream-colored house with brown trimmings.....	215	34	..	$\frac{1}{2}$ mile.
Watchhouse.....	308	41	..	$\frac{1}{4}$ mile.
Chimney on 2 $\frac{1}{2}$ -story house.....	342	18	..	3 miles.
Chimney on end of white house Dames Quarter.....	350	57	..	$2\frac{1}{2}$ miles.

LITTLE.

*Locality.*—Southern shore of Monie Bay on second prominent point of marsh about  $\frac{1}{4}$  mile to the west of entrance to Little Monie Creek. (See Chart No. 5.)

Observed station is on a marsh point covered with water bushes and reeds. It is about 1 foot above high-water mark, 7 yards from the west side, 10 yards from the east side, and about 50 yards from extreme end of point. No permanent reference objects near station.

## Survey of Oyster Bars, Somerset County, Md.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	°	'	"	
"Great Shoals Light" (S 83° 43' W).....	00	00	00	2¼ miles.
Left side of woods on Nanticoke Point.....	19	34	--	3¼ miles.
Right side of woods on Nanticoke Point.....	22	24	--	3½ miles.
Tangent of Wingate Point.....	34	39	--	1½ miles.
Chimney on red roof white house.....	60	13	--	1½ miles.
Chimney on near end of white house with brown trimmings.....	62	02	--	1½ miles.
Chimney on red roof white house with green blinds.....	62	43	--	1½ miles.
Left chimney of yellow house trimmed white.....	79	52	--	1½ miles.
Middle of woods.....	80	--	--	1¾ miles.
Large brown house.....	93	55	--	1¾ miles.
Mount Vernon Church.....	102	42	--	1¾ miles.
Tangent of point of land.....	165	47	--	¼ mile.
Tangent of point of land.....	320	16	--	75 yards.
Tangent of land.....	346	47	--	3 miles.

## DOVE.

Locality.—South shore of Monie Bay and about ¼ mile east of entrance to Pigeon Creek. (See Chart No. 5.)

Observed station is on marsh land about 10 yards back from high-water mark not far from water bushes which stand to the east. Cement monument marking reference station is 13.98 meters southeast from observed station. No permanent reference objects near station.

Marks.—Observed station is a nail in pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

References.—	°	'	"	
"Great Shoals Light" (N 57° 41' W).....	00	00	00	1¼ miles.
Left side of Nanticoke Point woods.....	6	56	--	2¾ miles.
Left side of Roaring Point heavy woods.....	19	29	--	5 miles.
High lone pine showing above woods.....	23	36	--	5 miles.
Tangent of Wingate Point.....	52	52	--	2 miles.
Chimney of red roof house.....	67	39	--	2 miles.
Chimney on yellow house with red gable roof.....	84	12	--	3 miles.
Mount Vernon Church.....	86	37	--	3¼ miles.
Tangent of land.....	106	38	--	300 yards.
REFERENCE STATION.....	202	35	50	13.98 meters.
Chimney of white house with dark red trimmings.....	245	21	--	1¼ miles.

## GREAT SHOALS LIGHT.

Locality.—Middle of entrances to Monie Bay and Wicomico River about halfway between Long Point to the south and Mollies Point to the north. (See Chart No. 5.)

Marks.—Observed station is center of black lantern on square screw pile structure known as "Great Shoals Light."

References.—	°	'	"	
"Sharkfin Shoal Light" (S 81° 50' W).....	00	00	00	5¾ miles.

## SHORT.

*Locality.*—Southern shore of entrances to Monie Bay and Wicomico River on Long Point and about 1 mile south-southwest from Great Shoals Light. (See Chart No. 5.)

Observed station is on a sandy knoll on eastern side of entrance to Dames Quarter Creek about 15 feet back from high-water mark on the north side and about 30 feet from east side of point. It is on the highest part of the knoll which is about 5 feet above high-water mark.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sharkfin Shoal Light" (S 89° 03' W)---	00	00	00	5 $\frac{3}{8}$ miles.
Tile pipe in cement ("Long" 1901)-----	23	57	45	63.703 meters.
Nanticoke wharf-----	67	57	--	4 $\frac{1}{8}$ miles.
Left side of Nanticoke woods-----	69	13	--	2 miles.
Yellow house with red blinds-----	74	53	--	3 $\frac{1}{2}$ miles.
Left tangent of Wingate Point-----	124	13	--	2 $\frac{3}{8}$ miles.
Chimney on red roof white house-----	132	39	--	3 miles.
Near chimney of yellow house-----	136	40	--	3 miles.
Chimney on red trimmed house-----	212	49	--	2 miles.
Left tree at Dames Quarter-----	260	37	--	$\frac{1}{4}$ mile.
Chimney on white barn-----	279	45	--	300 yards.
Left chimney on white house-----	320	05	--	200 yards.
Chimney on yellow house-----	341	35	--	200 yards.

## ROOM.

*Locality.*—Upper end and eastern shore of Tangier Sound on Halls Point. (See Chart No. 5.)

Observed station is on a bluff 15 feet high about 5 yards back from its edge. It is about 25 yards east of a clump of mulberry trees and about 15 yards north-northwest of a barn. Locust and mulberry trees stand all about station and locust bushes along the edge of the bluff. A wagon trail runs parallel to the shore about 15 yards back of station. Cement monument marking reference station is 21.45 meters south-southwest of observed station and almost in line with a large mulberry tree.

*Marks.*—Observed station is nail in center of stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sharkfin Shoal Light" (N 70° 00' W)---	00	00	00	2 $\frac{1}{2}$ miles.
Gable on near side of red roof on white house on Bishop's Head-----	3	01	--	5 $\frac{1}{2}$ miles.
Near end of roof of large 2 $\frac{1}{2}$ -story house--	12	53	--	7 $\frac{1}{4}$ miles.
Left tangent of Clay Island-----	39	18	--	3 $\frac{1}{2}$ miles.
Left side of Sandy Point woods-----	70	08	--	4 miles.
Roaring Point wharf-----	85	22	--	5 miles.
Near chimney on end of large red roof white house-----	94	36	--	4 $\frac{1}{4}$ miles.
Right side of Nanticoke woods-----	110	28	--	3 $\frac{3}{4}$ miles.
Mount Vernon Church-----	127	18	--	7 miles.
Near corner of barn-----	137	06	--	15.96 meters.
Right hand corner of barn-----	152	08	--	18.11 meters.
REFERENCE STATION-----	268	30	00	21.45 meters.
Large cedar tree-----	276	30	--	100 yards.
Two-inch iron pipe-----	279	38	30	9.21 meters.

## HAINES.

*Locality.*—Upper end and eastern shore of Tangier Sound on Haines Point, about  $\frac{5}{8}$  mile north of Deal Island Wharf. (See Chart No. 5.)

Observed station is on sand and grass point about 20 yards back and 5 feet above high-water mark. Locust and water bushes stand about 20 yards to the north and the left edge of this clump is about on

line with Sharkfin Shoal Light. A barbwire fence runs 3 yards east of station. Cement monument marking reference station is 9.64 meters east of observed station.

*Marks.*—Observed station is nail in pine stub in center of a drain tile with top broken off below surface. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sharkfin Shoal Light" (N 45° 58' W).....	00	00	00	2½ miles.
Left of bushes.....	39	57		20 yards.
Left of Sandy Point woods.....	53	38		4¾ miles.
Chimney of 2½-story white house trimmed with red.....	75	04		½ miles.
Chimney of unpainted house.....	85	49		350 yards.
Chimney on end of red cottage trimmed white.....	99	00		¾ mile.
REFERENCE STATION.....	123	40	40	9.64 meters.
Pine tree.....	148	37	30	2.14 meters.
Large square chimney on red house.....	152	49		400 yards.
Right one of 5 large pines.....	184	40		300 yards.
Half way between chimneys on store on Deal Island.....	213	08		¾ mile.
Deal Island Church.....	217	00		1½ miles.
Black gum tree.....	223	49		6.70 meters.
Right end of Deal Island wharf.....	234	10		½ mile.
Hooper Straits Light.....	343	34		7½ miles

#### DEAL ISLAND CHURCH.

*Locality.*—Deal Island on main road about ¼ mile from the shore and about ¾ mile south of Laws Thoroughfare. (See Chart No. 5.)

*Marks.*—Observed station is center of steeple on Deal Island Methodist Church.

*References.*—None necessary.

#### BAR.

*Locality.*—Eastern shore of Tangier Sound on western side of Deal Island, about 1 mile northwest of entrance to Lower Thoroughfare and ½ mile south of Middle Creek. (See Charts Nos. 5 and 7.)

Observed station is about 10 yards east of high-water mark on sand and grass land back of sandy beach. The first of many tree stumps which are submerged at high water commence about 100 yards to the north and cat-tails grow abundantly back of station. Cement monument marking reference station is 6.09 meters east of observed station.

*Marks.*—Observed station is a nail in pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sharkfin Shoal Light" (N 19° 40' W).....	00	00	00	4½ miles.
Tangent of Haines Point.....	27	29		2½ miles.
Flag pole on large building on Deal Island wharf.....	28	45		2 miles.
Middle chimney of large gray building.....	37	41		1 mile.
Chimney on white house.....	59	54		400 yards.
Middle chimney on red roof white house.....	79	51		¾ mile.
REFERENCE STATION.....	107	10	00	6.09 meters.
Chimney on white house.....	118	43		500 yards.
Chimney on dark gray house.....	161	57		300 yards.
Right chimney on white four-gabled house with red roof.....	176	39		½ mile.

## JEAN.

*Locality.*—Northern shore of Manokin River on a marsh point on the west side of entrance to Geanquakin Creek. (See Charts Nos. 5 and 7.)

Observed station is on low marsh land about 35 yards back from extreme end, 30 yards from east side and 40 yards from north side of point. Pine woods stand about  $\frac{1}{8}$  mile back from station. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Fairmount Church" (S 39° 13' E).....	00	00	00	3 $\frac{3}{8}$ miles.
Chimney on cabin standing near two others.	145	48	--	$\frac{3}{4}$ mile.
Left end of cabin in woods.....	238	05	--	1 $\frac{1}{4}$ miles.
Chimney of William Muir's store.....	301	07	--	1 $\frac{1}{4}$ miles.
Cupola on barn ("Barn").....	324	58	--	2 $\frac{5}{8}$ miles.
Chimney of house near "Staff".....	358	45	--	1 $\frac{1}{4}$ miles.

## SANDY.

*Locality.*—Northern shore of Manokin River on point of land known as Sandy Point opposite Fishing Island. (See Charts Nos. 5 and 7.)

Observed station is on a sandy point about 5 feet above and 10 yards back from high-water mark on south side of point and about 75 yards from high-water mark on west side. A sandy beach is building out to southward and a heavy clump of myrtle bushes extends from a point about 25 yards west to a point about 75 yards west.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Fairmount Church" (S 7° 54' E).....	00	00	00	2 $\frac{1}{4}$ miles.
Bell tower on oyster house ("Cupola").....	30	58	50	$\frac{3}{8}$ mile.
Flag staff on oyster house ("Staff").....	65	43	50	1 $\frac{1}{8}$ miles.
Chimney on William Muir's store.....	137	42	--	$\frac{3}{4}$ mile.
Chimney on store cabin.....	196	18	--	$\frac{5}{8}$ mile.
Right end of roof.....	254	03	--	1 mile.
Cupola on barn ("Barn").....	307	15	40	$\frac{3}{4}$ mile.

## HOLLAND ISLAND BAR LIGHT.

*Locality.*—Easterly side of Chesapeake Bay off entrance to Kedge Straits, about 2 $\frac{3}{4}$  miles south of Holland Island, 2 $\frac{1}{2}$  miles southwest of South Marsh, and 3 $\frac{3}{4}$  miles northwest of Smith Island. (See Chart No. 6.)

*Marks.*—Observed station is center point of black lantern on hexagonal screw pile structure known as "Holland Island Bar Light."

*References.*—

	o	'	"	
"Solomons Lump Light" (S 72° 06' E).....	00	00	00	4 $\frac{3}{4}$ miles.

## SOLOMONS LUMP LIGHT.

*Locality.*—Kedge Straits about  $\frac{1}{2}$  mile north of Smith Island and about 1 $\frac{1}{2}$  miles south of South Marsh. (See Charts Nos. 6 and 7.)

*Marks.*—Observed station is center of black lantern on square tower on northerly side of a caisson and octagonal structure known as "Solomons Lump Light."

*References.*—

	o	'	"	
"Janes Island Light" (S 42° 12' E).....	00	00	00	7 $\frac{3}{8}$ miles.

## FOG.

*Locality.*—Eastern shore of Chesapeake Bay and southern shore of Kedge Straits on northwest point of Smith Island known as "Fog Point." (See Chart No. 6.)

Observed station is on the north side of a sand and grass point about 1 foot above high-water and about 65 yards from extreme end of point to northeast and 6 yards south-southeast from shore. The

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remains of old "Fog Point Light House" are about 50 yards to west-southwest, and myrtle bushes abound on all sides except on the west side, which is a sandy beach. Cement monument marking reference station is 15.26 meters south from observed station and about in line with a lone cherry tree  $\frac{1}{4}$  mile distant.

*Marks.*—Observed station is nail in center of tile pipe with top flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Solomons Lump Light" (N 59° 22' E)---	00	00	00	----- 1 $\frac{3}{4}$ miles.
Tangent of point of land.....	13	08	--	----- $\frac{3}{4}$ mile.
Large tree near two smaller ones.....	22	41	--	----- 1 $\frac{1}{2}$ miles.
Lone pine tree.....	89	28	--	----- 1 mile.
REFERENCE STATION.....	121	18	30	----- 15.26 meters.
Large lone cherry tree.....	121	26	--	----- $\frac{1}{4}$ mile.
First one of two trees.....	133	43	--	----- $\frac{1}{2}$ mile.
Old light-house foundation.....	193	47	--	----- 50 yards.
First tree on Holland Island.....	272	37	--	----- 5 $\frac{3}{4}$ miles.

## JOSEPH.

*Locality.*—Eastern shore of Chesapeake Bay and western side of Smith Island, about 3 miles southwest from Solomons Lump Light and about  $\frac{1}{2}$  mile north of entrance to Smith Island Thoroughfare (See Charts Nos. 6 and 8.)

Observed station is on marsh land about 30 yards back from edge of sandy shore. There is nothing but marsh grass for  $\frac{1}{4}$  mile on all sides except a slough about 30 yards wide, which begins about 60 yards southeast of observed station and runs south to Smith Island Thoroughfare. Cement monument marking reference station is 38.74 meters northeast of station and is nearly on line with Solomons Lump Light.

*Marks.*—Observed station is nail in stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Solomons Lump Light" (N 40° 47' E) --	00	00	00	----- 3 miles.
REFERENCE STATION.....	00	13	55	----- 38.74 meters.
Tall lone tree.....	20	42	--	----- 1 $\frac{1}{4}$ miles.
Right-hand one of two pines.....	58	35	--	----- $\frac{1}{2}$ mile.
Right end of slough.....	69	43	--	----- 60 yards.
Smith Island North Church.....	103	33	--	----- 1 $\frac{1}{2}$ miles.
Gable on front of 2 $\frac{1}{2}$ -story house.....	109	28	--	----- 1 $\frac{1}{4}$ miles.
"Smith Island Old Church".....	128	01	--	----- 3 $\frac{3}{4}$ miles.

## TERRAPIN.

*Locality.*—Western shore of Tangier Sound on extreme northeast point of Smith Island, known as "Terrapin Sand Point." (See Chart No. 7.)

Observed station is on the northeast side of a marsh point about 50 yards west of the extreme end and 35 yards southwest of high-water mark on northeast side. A clump of myrtle bushes stands on point about 150 yards southwest of the station. There are no permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"James Island Light" (S 37° 40' E) -----	00	00	00	----- 4 $\frac{5}{8}$ miles.
Left end of myrtle bushes.....	65	13	--	----- 150 yards.
Smith Island Church.....	80	25	--	----- 4 miles.
Lone tree to right of another tree.....	85	23	--	----- 7 miles.
Solomons Lump Light.....	169	20	--	----- 3 $\frac{3}{8}$ miles.
Point of this island.....	214	03	--	----- 150 yards.

MILES.

*Locality.*—Western shore of Tangier Sound on eastern side of the lower half of South Marsh. (See Chart No. 7.)

Observed station is on a marsh point making out about 75 yards south of entrance to small creek, which is middle one of three on this shore of the island. Station is about 50 yards south of the north side and about 60 yards west of extreme end of point. A row of myrtle bushes stands east of the station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	1	"	
"Sharkfin Shoal Light" (N 8° 33' E) .....	00	00	00	7½ miles.
Deal Island Church.....	29	26		5¼ miles.
End of roof of white house among trees, Deal Island.....	33	48		4¼ miles.
Tangent of near point of land.....	155	35		¼ mile.
Solomons Lump Light.....	178	56	55	3¼ miles.
Third (first large) tree from left.....	231	57		⅝ mile.
One pine tree.....	330	27		4¼ miles.

JOSHUA.

*Locality.*—Eastern shore of Tangier Sound on western side of Little Island, about ⅓ mile southeast from extreme eastern point of island. (See Chart No. 7.)

Observed station is on northern half of a sand dune about 10 feet above and 20 feet back from high-water mark. The southern half of the sand dune is covered with bushes and scrub trees. A large aspen tree stands about ¼ mile north of the station. Cement monument marking reference station is located on low land 32.06 meters north of observed station, and is nearly on line with large aspen tree.

*Marks.*—Observed station is a nail in pine stub flush with ground and is likely to be disturbed by shifting of sand dune. Reference station is center point of triangle on standard cement monument.

*References.*—

	0	1	"	
"Solomons Lump Light" (S 37° 41' W) ..	00	00	00	5½ miles.
Tall pine tree on opposite shore of Tangier Sound.....	81	48		5½ miles.
Center point of square roof house on Deal Island.....	129	32		1¼ miles.
Large aspen tree.....	160	08		¼ mile.
REFERENCE STATION.....	160	19	20	32.06 meters.
Nail in blaze in peach tree (1½ inches in diameter).....	259	40		30.74 meters.
Tangent point of island.....	290	48		¼ mile.

KELLEY.

*Locality.*—Northern shore of Manokin River on Kelley Island, which is located off point between Fishing Creek and Laws Thoroughfare just inside of entrance to Laws Thoroughfare. (See Chart No. 7.)

Observed station is on a small point making off southern side of a marsh island known as "Kelley Island." It is about 8 yards from the east side and about 12 yards from west side of point. Myrtle bushes grow about 5 yards to west and north of observed station and a crab shanty stands on northern end of island about 100 yards north from station. Cement monument marking reference station is 10.44 meters northeast of observed station.

*Marks.*—Observed station is center of a square wooden box with top just above ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	0	1	"	
"Fairmount Church" (S 70° 41' E).....	00	00	00	6¼ miles.
Pine to left of two others.....	18	38		3¾ miles.
Left end of new house.....	23	37		4 miles.
Aspen tree near "Joshua".....	130	32		2½ miles.

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Chimney on very large white house on Deal Island.....	°	'	"	
Island.....	167	51	--	2 miles.
Crab house on Kelley Island.....	253	29	--	100 yards.
REFERENCE STATION.....	283	57	10	10.44 meters.

## MARSH.

*Locality.*—Northern shore of Manokin River on a small marshy island on eastern side of entrance to Fishing Creek. (See Chart No. 7.)

Observed station is on southern part of a small marshy island about 25 feet from the south side, 30 feet from the northeast side, and 10 feet from west side of the island. Cement monument marking reference station is 24.34 meters northwest of observed station.

*Marks.*—Observed station is a nail in a pine stub in center of square wooden box. Reference station is center point of triangle on standard cement monument.

*References.*—

"Fairmount Church" (S 64° 47' E).....	°	'	"	
Pine to the left of two other pines.....	00	00	00	4 7/8 miles.
Right side of house on Deal Island.....	31	45	--	2 3/4 miles.
REFERENCE STATION.....	143	10	--	2 1/2 miles.
Chimney of cabin in woods.....	222	22	20	24.34 meters.
Right-hand end of crab house.....	306	37	--	2 1/2 miles.
	336	22	--	3/4 mile.

## ST. PIERRE.

*Locality.*—Manokin River on a small marsh island known as "St. Pierre Island." (See Chart No. 7.)

Observed station is on west side of island about 20 yards from the shore to the west and about 30 yards from the shore to the south. A clump of myrtle bushes stand about 15 yards northwest of station, and the shore of a small bay is about 30 yards to the east. Cement monument marking reference station is 7.97 meters east-southeast of observed station and on line to "Fairmount Church."

*Marks.*—Observed station is a nail in pine stub in center of square wooden box. Reference station is center point of triangle on standard cement monument.

*References.*—

"Fairmount Church" (S 59° 49' E).....	°	'	"	
REFERENCE STATION.....	00	00	00	3 3/8 miles.
Chimney on house with two ells.....	00	00	00	7.97 meters.
Pine tree to the left of two others.....	57	15	--	1 3/4 miles.
Left end of roof of white house.....	58	52	--	2 miles.
Left end of crab house near Muddy Cove.....	61	09	--	1 7/8 miles.
Chimney on cabin.....	188	14	--	1 3/4 miles.
Chimney on Muir's store.....	258	54	--	1 1/4 miles.
Right-hand chimney on yellow house.....	301	22	--	2 1/4 miles.
	313	44	--	4 miles.

## LOCUST.

*Locality.*—Western shore of upper Manokin River, about 1/4 mile north of Locust Point. (See Chart No. 7.)

Observed station is on marsh land about 12 yards west from shore of river and about 12 yards north from a small creek. Myrtle bushes extend alongside of river and creek. There are no other permanent reference marks near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

"Barn" (S 12° 48' E).....	°	'	"	
Bell cupola on oyster house ("Cupola").....	00	00	00	7/8 mile.
Chimney on white house.....	52	35	--	1 mile.
Chimney on cabin near "Wab".....	219	20	--	5/8 mile.
North chimney on brick house ("Pen").....	244	22	--	1 1/4 miles.
Chimney of cabin near "Cox".....	267	04	--	1 mile.
	287	22	--	5/8 mile.



## FITZ.

*Locality.*—Northwestern shore of upper Manokin River, about 1 mile northeast from Locust Point. (See Progress Map.)

Observed station is on the edge of the lawn of a large old red brick house owned by Mr. Fitzgerald, about 4 yards west of shore and 23 yards southwest of extreme end of point. Four locust trees, each 8 inches in diameter, stand back of station, and there is a cobblestone about 12 inches in diameter about 2 yards to the east. There is a small pond 20 yards to the north of the station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Fairmount Church" (S 10° 50' W)-----	00	00	00	3 3/8 miles.
Bell cupola on oyster house ("Cupola")---	29	05	--	1 5/8 miles.
Chimney of white house-----	38	35	--	1/2 mile.
Nail in blaze in locust tree (8 inches diame- ter)-----	105	02	--	5.42 meters.
Near corner of brick house-----	139	34	--	100 yards.
Nail in blaze in locust tree (8 inches in di- ameter)-----	208	52	--	6.24 meters
Chimney of unpainted house-----	224	02	--	1/2 mile.
Chimney of cabin near "Wab"-----	237	52	--	1/2 mile.
North chimney on large brick house ("Pen")-----	287	58	20	5/8 mile.

## WAB.

*Locality.*—North shore of upper Manokin River on a point on the western side of entrance to Goose Creek. (See Progress Map.)

Observed station is on a shell and marsh point about 10 feet back from both sides of point and about 3 feet above high-water mark. A small shanty stands directly west of station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Pen" (S 1° 32' E)-----	00	00	00	1/2 mile.
Left-hand corner of shanty-----	80	01	--	19.46 meters.
Next corner of shanty-----	90	58	--	18.77 meters.
Chimney of two-story unpainted house---	107	50	--	250 yards.
Lone pine-----	165	07	--	250 yards.
Chimney on middle of red roof on white house east-----	254	34	--	1/2 mile.
Easterly chimney of white house on op- posite shore-----	280	15	--	1/2 mile.

## PEN.

*Locality.*—Southeastern shore of upper Manokin River on Clifton Point. (See Progress Map.)

Observed station is northern chimney of a large 2 1/2 story, 4-gable roof, brick house belonging to Mr. Pendelton. The house is back from the river, and there are trees between it and the shore.

*Marks.*—Observed station is center of northern chimney on house belonging to Mr. Pendelton.

*References.*—None necessary.

## COX.

*Locality.*—Eastern shore of upper Manokin River on marsh point about 3/4 mile north of entrance to Back Creek. (See Chart No. 7.)

Observed station is about 15 yards east and 10 yards south of high-water mark. A small building stands in the water about 20 feet from bank to the northeast of station, and Bennett's oyster watch-house is about 15 yards east of station.

*Survey of Oyster Bars, Somerset County, Md.*

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Fairmount Church" (S 15° 34' W)-----	00	00	00	2¾ miles.
Cupola on barn ("Barn")-----	10	37	--	¾ mile.
Bell cupola on oyster house ("Cupola")--	43	51	--	1½ miles.
Chimney of white house-----	111	27	--	¾ mile.
West corner of roof brick of house on oppo- site shore near "Fitz"-----	151	33	--	¾ mile.
Cabin near "Wab"-----	189	33	--	¾ mile.
Left corner of watchhouse -----	266	45	--	17. 20 meters.
Near corner of watchhouse -----	274	58	--	14. 13 meters.

GREEN.

*Locality.*—Upper Manokin River on eastern shore about ¼ mile north of entrance to Back Creek. (See Chart No. 7.)

Observed station is on grassy land about 10 yards east of a sandy beach adjoining a marsh point, and is about 3 yards north of curve in road. Two small locust trees stand about 3 yards distant, one to the northwest and the other to the east of station. A cedar tree 10 inches in diameter stands about 10 yards to the south.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Fairmount Church" (S 18° 53' W)-----	00	00	00	2½ miles.
Left chimney of white house-----	7	59	--	¾ mile.
Cupola on barn ("Barn")-----	25	23	50	¾ mile.
Pine tree to the right of two others-----	35	50	--	4½ miles.
William Muir's store chimney-----	84	55	--	1¾ miles.
Nail in blaze on tree (3 inches diameter)--	107	01	--	3. 65 meters.
Chimney on white house-----	126	11	--	¾ mile.
Tangent of point of land-----	141	18	--	100 yards.
Nail in blaze on tree (10 inches diameter).-	342	09	--	8. 90 meters.

BARN.

*Locality.*—South shore of Manokin River on prominent point of land between Wolf Trap and Back creeks. (See Chart No. 7.)

*Marks.*—Observed station is center point of cupola on a large red frame structure used as a barn on farm of Hershel Ford.

*References.*—None necessary.

CUPOLA.

*Locality.*—South shore of Manokin River on north end of Fishing Island. (See Chart No. 7.)

*Marks.*—Observed station is center point of top of bell cupola on Bennett's oyster house.

*References.*—None necessary.

STAFF.

*Locality.*—Southern shore of Manokin River on eastern side of entrance to Broad Creek, about ¼ mile southeast of Cormal Point. (See Chart No. 7.)

*Marks.*—Observed station is flagstaff on eastern end of roof of oyster house on Cox's wharf.

*References.*—None necessary.

FAIRMOUNT CHURCH.

*Locality.*—Town of Upper Fairmount about halfway between Manokin and Big Annemessex rivers. (See Chart No. 7.)

*Marks.*—Observed station is center point of steeple on Fairmount Methodist Church.

*References.*—None necessary.

## PRICKLY.

*Locality.*—Eastern shore of Tangier Sound and southeastern side of entrance to Manokin River on a small point  $\frac{1}{4}$  mile south of Prickly Point. (See Chart No. 7.)

Observed station is on a sandy spot about 5 feet above and 30 yards back from high-water mark on west side and about 35 yards from end of point to northwest. About 10 feet southeast of station is a clump of myrtle bushes, and 7 to 18 yards back of these is a small group of pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"St. Pierre" (N 17° 33' E)-----	00	00	00	----- 3 $\frac{1}{8}$ miles.
Pine tree to left of two others-----	26	54	--	----- 1 $\frac{1}{2}$ miles.
Chimney of gray house-----	39	22	--	----- $\frac{1}{4}$ mile.
Pointed cupola on building through trees--	49	54	--	----- $\frac{3}{4}$ mile.
Near end of roof of house-----	52	25	--	----- 1 mile.
Nail in blaze in tree-----	68	03	--	----- 19.69 meters.
Left end of white house-----	93	46	--	----- 1 $\frac{1}{4}$ miles.
Left end of roof of yellow house-----	101	01	--	----- $\frac{3}{4}$ mile.
Nail in blaze in tree-----	125	29	--	----- 23.07 meters.
Chimney on gray house on next point----	163	02	--	----- $\frac{5}{8}$ mile.
Tangent of point of land-----	332	04	--	----- $\frac{1}{8}$ mile.

## HAS.

*Locality.*—Eastern shore of Tangier Sound on point at north side of entrance to Big Annemessex River about halfway between Porpoise Point and Two Mouth Creek. (See Chart No. 7.)

Observed station is on a sand dune about 10 feet above and 30 yards back from high-water mark to the west. A pool averaging 40 feet by 100 feet stands 50 feet east of observed station. Cement monument marking reference station is 5.21 meters east of observed station and about on line to Fords wharf.

*Marks.*—Observed station is a nail in a pine stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Solomons Lump Light" (S 84° 12' W)---	00	00	00	----- 7 $\frac{3}{4}$ miles.
Tangent of point of land-----	12	02	--	----- $\frac{1}{8}$ mile.
Chimney of house among trees-----	92	10	--	----- 1 $\frac{3}{8}$ miles.
Right end of white house roof-----	117	54	--	----- 2 miles.
Chimney on large unpainted house-----	129	46	--	----- $\frac{3}{4}$ mile.
REFERENCE STATION-----	179	11	45	----- 5.21 meters.
Tower on Odd Fellows Building, Crisfield.	265	50	--	----- 5 $\frac{3}{8}$ miles.

## FORD.

*Locality.*—North shore of Big Annemessex River on south side of Jerico Marshes just east of Muddy Creek. (See Chart No. 7.)

Observed station is chimney on roof of oyster house near Fords wharf. Chimney is a little east of middle of roof.

*Marks.*—Observed station is center of chimney on roof of oyster house.

*References.*—None necessary.

## MOON.

*Locality.*—North shore of Big Annemessex River on point between Moon Bay and Crane Cove. (See Chart No. 7.)

Observed station is on a marsh point about 35 yards from extreme end, 25 yards from east side and 30 yards from south side. A small pool stands about 10 yards south of observed station and a crescent-shaped pool about 10 feet wide and 100 feet long extends from a point about 20 yards west to a point about 20 yards north of station. A row of small myrtle bushes begins at a point directly south of

observed station, extends along shore toward the east, and ends at Moon Bay. Another lot of small myrtle bushes begins at a point about 100 yards west of observed station and extends along the shore to the west. There are no other points of reference near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Ford" (N 75° 41' W) .....	00	00	00	1½ miles.
Eastern end of cabin roof .....	59	06	--	1½ miles.
Chimney on cabin .....	83	12	--	1¾ miles.
Chimney on cabin .....	85	44	--	1¾ miles.
Peak of center gable of red roof house .....	104	45	--	2½ miles.
Near end of old 2½-story house .....	117	00	--	1½ miles.
Western chimney of square roof house .....	189	47	--	1 mile.
Eastern end of white house roof .....	202	18	--	1¼ miles.
Eastern end of roof of large barn .....	229	30	--	1 mile.
Chimney on house ("Colburn") .....	262	16	--	¾ mile.
Chimney on middle of long barn .....	267	16	--	¾ mile.
Tangent of point of land .....	328	28	--	⅝ mile.

#### COLBURN.

*Locality.*—South shore of Big Annesmessex River on southeastern side of entrance to Colburn Creek (See Chart No. 7.)

Observed station is chimney on top of a modern several gable house. House sets alone about halfway between oyster houses to the west and a group of houses to the east.

*Marks.*—Observed station is center of chimney on top of modern several gabled house.

*References.*—None necessary.

#### GEOG.

*Locality.*—South shore of Big Annesmessex River on point on east side of a square-shaped inlet about ¾ mile northeast of the entrance to Jones Creek. (See Chart No. 7.)

Observed station is on marsh land about 50 yards back from extreme end of point, about 20 yards from southeast corner of square-shaped bay and about 25 yards from east shore line. Myrtle bushes extend along shore to the east of station for about 100 yards, and reeds grow 25 yards to the north.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Has" (N 71° 44' W) .....	00	00	00	2¾ miles.
Nearest end of red roof on opposite shore .....	40	43	--	3¾ miles.
Pine tree to the right of two others .....	47	17	--	4¼ miles.
Chimney on oyster house ("Ford") .....	57	22	--	1½ miles.
Center gable of red house .....	109	37	--	3½ miles.
Chimney on middle of dark red oyster house .....	155	25	--	1 mile.

#### FLAT CAP.

*Locality.*—Eastern shore of Tangier Sound and about ½ mile south of Flat Cap Point on south side of entrance to Big Annesmessex River. (See Chart No. 7.)

Observed station is on a sand dune about 10 yards back and 10 feet above high-water mark. A sandy beach extends along shore for about 100 yards in both directions and remainder of land is grassy. A slough begins at a point about 50 yards southeast of observed station and extends south. Cement monument marking reference station is 13.64 meters east of observed station.

*Marks.*—Observed station is a 1½-inch iron pipe with top flush with the surface of the ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Solomons Lump Light" (N 81° 14' W) ..	00	00	00	7¾ miles.
Left end of roof of white house near Prickly Point .....	90	21	--	2½ miles.

	0	'	"	
Right end of long building in woods.....	169	09	--	2½ miles.
REFERENCE STATION.....	179	22	40	13.64 meters.
Tower of Odd Fellows building, Crisfield..	243	06	--	3½ miles.
Lone smokestack on Crisfield Ice Plant....	251	31	--	3¾ miles.
Fish factory stack Janes Island.....	271	36	--	4¼ miles.

SMITH POINT LIGHT.

*Locality.*—Western side of Chesapeake Bay on southern side of entrance to Potomac River and about 3 miles east by south of Smith Point. (See Chart No. 8.)

*Marks.*—Observed station is center point of black lantern on caisson and brick structure known as "Smith Point Light."

*References.*—

	0	'	"	
"Holland Island Bar Light" (N 20° 13' E).....	00	00	00	13¾ miles.

NORTH CHURCH (SMITH ISLAND).

*Locality.*—In town of Ewell on group of marsh islands known as "Smith Island." (See Chart No. 8.)

Observed station is on solid land on south shore of Smith Island Thoroughfare about 1 mile from the eastern shore of Chesapeake Bay.

*Marks.*—Observed station is center point of spire of church known as "Corinth Methodist Episcopal Church."

*References.*—None necessary.

OLD CHURCH (SMITH ISLAND).

*Locality.*—Western side of the group of marsh islands known as "Smith Island" on solid land about ⅜ mile from the eastern shore of Chesapeake Bay and ⅓ mile east of upper end of Shanks Creek at Rhodes Point. (See Chart No. 8.)

*Marks.*—Observed station is center point of spire of church known as "Calvary Methodist Episcopal Church."

*References.*—None necessary.

EWELL CHURCH (SMITH ISLAND).

*Locality.*—In town of Tylerton near the center of the group of marsh islands known as "Smith Island" on solid land about ⅓ mile east of the narrowest part of waters joining Tylers Creek and Tylers Ditch. (See Chart No. 8.)

*Marks.*—Observed station is center point of spire of church known as "Union Methodist Episcopal Church."

*References.*—None necessary.

SHANKS HAMMOCK.

*Locality.*—Eastern shore of Chesapeake Bay on Shanks Island, which is located in Virginia about ¾ mile east of the southern end of Smith Island. (See Chart No. 8.)

Observed station is on the northeast side of the island, on low ground about ½ mile from its northern end about 70 yards back from shore and 110 yards from end of point to east. It is near the southern extremity of a hummock covered with a dense growth of scrub trees and bushes and is about 35 yards north of a pile of brick, the ruins of a house. Cement monument marking reference station is 1.43 meters southwest of observed station.

*Marks.*—Observed station is center of a 4-inch tile pipe with top just below the surface of the ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Smith Point Light" (S 69° 16' W).....	00	00	00	8¾ miles.
Smith Island Corinth Church (North Church)	115	50	00	5 miles

## Survey of Oyster Bars, Somerset County, Md.

	o	'	"	
Smith Island Union Church (Ewell Church).....	130	13	00	3¾ miles.
Horse Hammock poplar.....	161	33	--	3½ miles.
Right tangent of point.....	168	28	--	110 yards.
Pine tree.....	185	39	--	¾ miles.
Stove pipe on large crab house.....	207	07	--	2½ miles.
"Fox Island Poplar".....	214	47	40	7¾ miles.
Pile of brick, the ruins of a house.....	273	--	--	35 yards.
REFERENCE STATION.....	349	06	20	1.43 meters.

## REACH HAMMOCK.

*Locality.*—South end and eastern side of Tangier Sound on Reach Hammock Island, which is located between Smith and Tangier islands about 1 mile east of Fishbone Island. (See Chart No. 9.)

Observed station is on the northeastern end of a small marshy island known as Reach Hammock and is about 5 feet from the present shore line, which is rapidly washing away. It is close to a small fish fertilizer factory which stands on the island. Cement monument marking reference station is 9.10 meters east by south of observed station.

*Marks.*—Observed station is the center of a 6-inch tile pipe with top flush with surface of the ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Fox Island Poplar" (N 77° 04' E).....	00	00	00	4¼ miles.
Left corner of brick work of factory.....	85	07	--	6.68 meters.
Right corner of brick work.....	97	12	--	7.31 meters.
Near corner of shed.....	109	03	--	18.32 meters.
REFERENCE STATION.....	169	02	30	9.10 meters.
Chimney of small house.....	185	08	--	45 yards.
Left edge of house.....	208	51	--	1¼ miles.
Right edge of roof of right-hand house.....	210	01	--	1¼ miles.
Chimney of 2½-story house on Herring Island.....	236	38	--	2 miles.
Tallest pine Smith Island.....	242	39	--	4¼ miles.
Poplar near Horse.....	275	48	--	5 miles.
"Janes Island Light".....	314	55	--	6¾ miles.

## FISHBONE.

*Locality.*—Dividing waters of Chesapeake Bay and Tangier Sound on western side of Fishbone Island, which is located between Smith and Tangier islands. (See Chart No. 9.)

Observed station is on marsh ground about 15 yards from shore to the west and about halfway between northern and southern extremities of island. The station is about level with high-water mark, but there is a slight elevation between station and shore and a small shanty stands about 20 yards to the southwest. Cement monument marking reference station is 10.08 meters south of observed station and about on line with shanty.

*Marks.*—Observed station is a nail in stub flush with surface of ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Janes Island Light" (N 40° 34' E).....	00	00	00	7¼ miles.
"Fox Island Poplar".....	39	19	--	5½ miles.
Chimney on house on Reach Hammock.....	58	49	--	1¼ miles.
REFERENCE STATION.....	158	30	50	10.08 meters.
Near corner of shanty.....	159	49	--	17.44 meters.
Chimney on 2½-story house on Herring Island.....	306	32	--	1¼ miles.
Peak of left house.....	349	32	--	200 yards.
Stove pipe on flat roof shanty.....	356	41	--	200 yards.

HORSE.

*Locality.*—West shore of Tangier Sound on east shore of Smith Island at point known as "Horse Hammock." (See Chart No. 9.)

Observed station is about 10 yards off shore in 2 feet of water at low-tide, between shore and northernmost row of piling. Several trees stand on bank near station. Cement monument marking reference station is 27.12 meters west of observed station and 20 yards back from shore.

*Marks.*—Observed station is stake in water. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Janes Island Light" (N 80° 19' E).....	00	00	00	4¼ miles.
Somers Cove Light.....	1	30	00	6½ miles.
High pile.....	15	27	30	8.41 meters.
Fox Island Poplar.....	49	25	50	6¼ miles.
Left tangent of Smiths Island.....	106	45	--	150 yards.
Near corner of old cedar.....	146	02	--	32.42 meters.
Blaze in tree.....	155	41	--	14.21 meters.
Blaze in tree.....	166	27	--	25.92 meters.
REFERENCE STATION.....	174	15	30	27.12 meters.
Blaze in poplar.....	174	40	30	45.74 meters.
Pile extending above row of piles.....	309	08	--	16.66 meters.
High pile.....	333	03	--	9.80 meters.
Ice factory stack.....	355	07	--	7¼ miles.
Fish factory stack.....	358	04	--	5¾ miles.

JANES ISLAND LIGHT.

*Locality.*—Tangier Sound off entrance to Little Annessex River. (See Chart No. 9.)

*Marks.*—Observed station is center of black lantern on hexagonal screw pile structure known as "Janes Island Light."

*References.*—

	°	'	"	
"Solomons Lump Light" (N 42° 08' W)....	00	00	00	7¾ miles.

SOMERS COVE LIGHT.

*Locality.*—Little Annessex River at entrance to Crisfield Harbor. (See Chart No. 9.)

*Marks.*—Observed station is center of spindle on top of black lantern on square screw pile structure known as "Somers Cove Light."

*References.*—

	°	'	"	
"Janes Island Light" (S 84° 41' W).....	00	00	00	2¼ miles.

EMMANUEL CHURCH.

*Locality.*—City of Crisfield, about ¾ mile east of Crisfield Harbor. (See Chart No. 9.)

*Marks.*—Observed station is center of steeple on church known as "Emmanuel Methodist Episcopal Church."

*References.*—None necessary.

MOUNT PLEASANT CHURCH.

*Locality.*—City of Crisfield, about 1 mile from Crisfield Harbor. (See Chart No. 9.)

*Marks.*—Observed station is center of steeple on brick church on Main street known as "Mount Pleasant Methodist Protestant Church."

*References.*—None necessary.

ASBURY CHURCH.

*Locality.*—In town of Lawsonia, about 1½ miles from Crisfield Harbor. (See Chart No. 9.)

*Marks.*—Observed station is center of very slender steeple on church known as "Asbury Methodist Episcopal Church."

*References.*—None necessary.

## BEACON.

*Locality.*—Between Tangier and Pocomoke sounds, on small island just north of Great Fox Island known as "House Island." (See Chart No. 9.)

Observed station is about 100 yards south of extreme northern shore and about 30 yards from west shore of island. The shore of an inlet which makes into eastern side of island is about 15 feet northwest of observed station. Cement monument marking reference station is 4.12 meters west of observed station. A temporary wooden beacon stands 0.40 meters south of observed station.

*Marks.*—Observed station is center of a 6-inch tile pipe set in cement and projecting above ground about 6 inches. Reference station is center point of triangle on standard cement monument.

*NOTE.*—What was taken to be center mark of old "Beacon" of 1898 is a 2-inch iron pipe projecting above ground with three stubs projecting 3 feet above ground which were apparently used to support instrument. Wooden sills supported by 10-inch piles form a square with the 2-inch pipe in center.

*References at observed station.*—

	°	'	"	
"James Island Light" (N 11° 01' W).....	00	00	00	3¾ miles.
Fish factory stack.....	22	49	--	4¼ miles.
"Asbury Church Spire".....	51	32	15	6 miles.
"Sam".....	92	42	05	1¼ miles.
Chimney of highest building on Fox Island	171	16	--	1¼ miles.
"Fox Island Poplar".....	194	26	--	1 mile.
2-inch iron pipe ("Beacon 1898").....	200	28	15	7.26 meters.
Wooden beacon.....	222	46	00	0.40 meters.
REFERENCE STATION (cement monument).	299	20	40	4.12 meters.

*References at 2-inch iron pipe ("Beacon 1898").*—

	°	'	"	
"James Island Light" (N 11° 01' W).....	00	00	00	3¾ miles.
Fish factory stack.....	22	20	--	4¼ miles.
"Ashbury Church Spire".....	51	30	--	6 miles.
"Sam".....	92	27	--	1¼ miles.
Chimney on highest building on Fox Island	171	07	--	1¼ miles.
"Fox Island Poplar".....	194	23	--	1 mile.
REFERENCE STATION (Cement monument).	353	13	50	8.875 meters
"Beacon" (OBSERVED STATION).....	20	35	00	7.26 meters.
Wooden beacon.....	19	26	--	6.89 meters.

## FOX ISLAND POPLAR.

*Locality.*—Eastern shore of lower Tangier Sound on western side of Great Fox Island about half-way between the northern and southern ends of the island. (See Chart No. 9.)

Observed station is a very prominent lone Lombardy poplar situated on solid land about ⅓ mile inshore from Tangier Sound.

*Marks.*—Observed station is center of a lone Lombardy poplar tree.

*References.*—None necessary.

## SAM.

*Locality.*—Western end and northern shore of Pocomoke Sound on north side of the entrance to Cedar Straits about ⅓ mile north of Green Harbor Island. (See Chart No. 9.)

Observed station is on marsh land between two clumps of water bushes about 10 yards back from extreme high-water mark and 15 yards back from ordinary high-water mark. A slough passes about 100 yards north of station and there are several pools 50 yards north of station. Cement monument marking reference station is 2.81 meters north of observed station. "Watkins Point" of the Maryland-Virginia boundary is in the water between "Sam" and Green Harbor Island.

*Marks.*—Observed station is center of iron pipe projecting 4 inches above ground. Reference station is center point of triangle on standard cement monument.



References.—

	°	'	"	
"James Island Light" (N 27° 30' W).....	00	00	00	4 miles.
Fish factory stack.....	23	56	--	4 miles.
Ice factory stack.....	40	46	--	4¾ miles.
REFERENCE STATION.....	41	35	50	2.81 meters.
East.....	95	03	--	3 miles.
Point of land.....	142	16	--	50 yards.
Left tangent of small island.....	175	18	--	300 yards.
Right tangent of small island.....	202	59	--	300 yards.
Left chimney on Fox Island.....	239	15	--	1¾ miles.
Chimney on middle of large building on Fox Island.....	241	08	--	1¾ miles.
"Fox Island Poplar".....	253	24	--	1¾ miles.
Large clump of trees on Fox Island.....	264	21	--	1¾ miles.

WATERMELON HUMMOCK.

Locality.—Northern shore of Pocomoke Sound in midst of a large tract of marsh land lying between Apes Hole Creek and Broad Creek about 2½ miles southeast of Somers Cove Light. (See Chart No. 9.)

Observed station is in midst of marsh near a clump of trees which stand about 25 yards to the north. It is about 150 yards southwest of a wide part of the upper end of Massey Creek.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Somers Cove Light" (N 51° 30' W).....	00	00	00	2½ miles.
Nail in blaze in pine.....	46	55	30	21.00 meters.
Nail in blaze in pine.....	83	47	30	11.36 meters.
Cedar tree.....	235	19	--	100 yards.
"Fox Island Poplar".....	278	51	--	4¾ miles.

EAST.

Locality.—North shore of Pocomoke Sound between Apes Hole and Broad creeks on a detached marsh point on east side of entrance to Cow Gap Creek. (See Chart No. 9.)

Observed station is on southerly part of a small marsh island separated about 200 yards from point of mainland. Water bushes cover northerly part of the island. Observed station is about 13 yards south of shore, 14 yards west of shore, 36 yards north of shore, and 5 yards east of shore. Cement monument marking reference station is 6.38 meters southeast of observed station.

Marks.—Observed station is a spike in a cement filled tile pipe with top even with surface of marsh. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"James Island Light" (N 62° 19' W).....	00	00	00	5¼ miles.
Fish factory stack.....	16	06	--	4¾ miles.
Somers Cove Light.....	20	18	00	3½ miles.
Tall tree.....	40	27	--	1¾ miles.
Point of land east.....	143	19	--	35 yards.
REFERENCE STATION.....	212	04	00	6.38 meters.
Pole at oyster house.....	277	12	--	3½ miles.
Right chimney of first house on Fox Island.....	298	31	--	4½ miles.
Point of land west.....	305	25	--	200 yards.
Cabin chimney.....	313	09	--	¼ mile.

## MONKEY.

*Locality.*—North side of Pocomoke Sound on a small island known as "Watkins Island" off entrance to Apes Hole Creek. (See Chart No. 9.)

Observed station is in the middle of a small islet about 12 yards by 4 yards which is covered with marsh grass and awash at high water. It is very solid ground on top but soft beneath and island will probably be washed away in a few years.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Scot" (N 77° 17' E).....	00	00	00	3¾ miles.
Chimney of Stirling's watch house.....	9	27	--	¾ mile.
Left hand chimney of Matthews red roof house on Saxis Island.....	22	01	--	5 miles.
Chimney of shanty near "Mos".....	68	46	--	4½ miles.
Ducking blind.....	134	36	--	200 yards.
Ducking blind.....	280	40	--	200 yards.
Peak of brown house.....	302	18	--	2¼ miles
Windmill on barn.....	315	48	--	2½ miles.
Cupola of red house.....	336	49	--	5¼ miles.

## SCOT.

*Locality.*—North shore of Pocomoke Sound on extreme southern point of marsh land between East and Marumscoc creeks. (See Chart No. 10.)

Observed station is on a marsh point about 25 yards back from extreme end of point, 30 yards back from west side of point, and 20 yards from south side. It is surrounded by a thick and high clump of water bushes which extend along the shore to the eastward. There are no permanent reference objects near station. Cement monument marking reference station is 11.66 meters northeast of observed station.

*Marks.*—Observed station is an inverted spike in cement which is flush with ground and covers the top of a 6-inch tile pipe. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Old" (N 83° 00' E).....	00	00	00	2½ miles.
First red house (near Oil).....	30	17	--	3¾ miles.
2½-story white house.....	57	17	--	2¼ miles.
Chimney on 4-gable house.....	70	31	--	2¼ miles.
"Saxis Church".....	80	59	35	2¾ miles.
Chimney of Stirling's watch house.....	172	55	--	2½ miles.
Large tree.....	181	32	--	5¼ miles.
REFERENCE STATION.....	317	31	40	11.66 meters.
Chimney of brown house.....	314	56	--	2¼ miles.
Chimney of oyster house.....	358	57	--	2½ miles.

## OLD.

*Locality.*—North shore of Upper Pocomoke Sound on point of land halfway between Marumscoc Creek (called "Old Johns Creek" on navigation charts) and Williams Point. (See Chart No. 10.)

Observed station is about 150 yards east of John T. Handy's wharf and about 15 feet back. It is on a narrow strip of marsh land which is wearing away by wave action, and thick water bushes stand east and west of station. Three large pine trees stand about ⅓ mile north by east and several oyster houses about 200 yards to the west. Cement monument marking reference station is 11.57 meters north by east of observed station and about on line with largest of three large pines mentioned above.

*Marks.*—Observed station is spike in cement which is flush with ground and covers the top of a 6-inch tile pipe. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Scot" (S 83° 02' W).....	00	00	00	2½ miles.
Chimney of Richardson's oyster house.....	12	41	--	1¾ miles.
End of wharf.....	16	41	--	150 yards.
Chimney of dwelling house.....	37	53	--	125 yards.
Largest of three pine trees.....	110	40	--	¾ mile.
Tree to right of three pine trees.....	112	00	--	¾ mile.
REFERENCE STATION.....	112	36	50	11.57 meters.
Chimney of dilapidated white house.....	162	43	--	250 yards.
Nearest gable of first faded red roof house.....	250	03	--	2 miles.
Nearest end of peak of Matthew's house on Saxis Island.....	310	21	--	2½ miles.
Right tangent of Saxis Island.....	313	21	--	2½ miles.

WILL.

Locality.—North shore of Pocomoke River on peninsula known as "Williams Point." (See Chart No. 10.)

Observed station is on the highest part of Williams Point about ⅜ mile north of extreme southern end of point and well back from both shores. A clump of bushes and two small cedar trees stand about 40 yards to the north and two medium-sized cedar trees about 300 yards to the west. A drainage creek with mouth on easterly side of peninsula runs almost completely around observed station, passing about 50 feet to the south.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Old" (N 71° 18' W).....	00	00	00	1¾ miles.
Cedar tree.....	7	33	--	300 yards.
Persimmon tree.....	20	24	--	320 yards.
Nail in blaze in cedar tree.....	153	21	20	34.30 meters.
Cedar tree near "Oil".....	297	13	--	1¾ miles.
Cedar tree.....	357	55	--	300 yards.

CUP.

Locality.—Virginia side of Pocomoke River on solid land about ¼ mile back from shore and ⅓ mile from nearest bend of Holden Creek. (See Chart No. 10.)

Observed station is octagonal cupola on unpainted barn on land known as "Jolly's Neck Farm." Barn stands near many cedar trees and south of another large unpainted building.

Marks.—Observed station is center point of top of cupola on barn.

References.—None necessary.

SUMMER.

Locality.—South and Virginia shore of mouth of Pocomoke River about ¾ mile south of Williams Point, on point known locally as "Sand Bar Point." (See Chart No. 10.)

Observed station is on sandy part of marsh land about 20 feet back from high-water mark on north and west sides of point. There are no permanent reference marks near station.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Will" (N 7° 06' E).....	00	00	00	1¾ miles.
Chimney of large white house.....	15	39	--	2¾ miles.
Large high tree.....	25	42	--	3 miles.
Large high tree (opposite shore).....	37	08	--	2 miles.
Southerly chimney of large house.....	79	39	--	1¾ miles.
Chimney on ell of red roof house.....	119	48	--	½ mile.
First pine tree in half dozen or more.....	161	25	--	½ mile.
Larger chimney of white house near woods.....	199	52	--	½ mile.
Federman's windmill.....	241	11	--	½ mile.

*Survey of Oyster Bars, Somerset County, Md.*

	°	'	"	
Peak of Federman's store.....	274	53	--	¾ mile.
"Oil".....	281	01	15	1 mile.
Lone tree.....	317	52	--	2½ miles.

OIL.

*Locality.*—South and Virginia shore of upper end of Pocomoke Sound on a point of land known as "Pig Point," located about 1½ miles southwest of Williams Point. (See Chart No. 10.)

Observed station is on western side of a marsh point covered with sand about 2 feet above and 30 feet east of ordinary high-water mark, 5 feet east of extreme high-water mark, 100 feet south of ordinary high-water mark, and about 3 feet south of extreme high-water mark. Water bushes skirt shore to east and north and sand beach curves to southwest. On next point about ¼ mile southwest are two trees. Cement monument marking reference station is 46.18 meters south of observed station.

*Marks.*—Observed station is spike in center of 6-inch tile pipe filled with cement with top flush with surface. Reference station is center of triangle on standard cement monument.

*References.*—

	°	'	"	
"Will" (N 47° 10' E) .....	00	00	00	1½ miles.
Large lone tree.....	17	43	--	2½ miles.
Peak of roof of Federman's store.....	70	03	--	¾ mile.
Chimney on oyster house.....	78	07	--	¼ mile.
Large tree.....	84	47	--	¼ mile.
Windmill on Federman's barn.....	90	19	--	¾ mile.
Chimney outside of cabin.....	100	50	--	¼ mile.
Persimmon tree.....	123	12	--	¼ mile.
REFERENCE STATION.....	137	50	40	46.18 meters.
Tree.....	179	50	--	¼ mile.
Point of land.....	186	10	--	100 yards.
"Saxis Church".....	193	28	--	2¾ miles.
Wharf.....	209	32	--	2¾ miles.
Chimney of white house.....	277	54	--	2½ miles.
Highest chimney in group of white houses.....	290	20	--	1¾ miles.
High long leaf pine.....	295	53	--	2 miles.
Westerly end of barn .....	352	40	--	2 miles.

WHARF.

*Locality.*—Southeast and Virginia side of Pocomoke Sound about ½ mile offshore of Saxis Island and about ¾ mile north-northwest of "Saxis Church." (See Chart No. 10.)

Observed station is on northwest end of house on detached pile structure called Saxis Pier.

*Marks.*—Observed station is flag pole on northwest end of peak of pier house on Saxis Island pier

*References.*—

	°	'	"	
"Saxis Church" (S 26° 10' E) .....	00	00	00	¾ mile.

SAXIS CHURCH.

*Locality.*—Southeast and Virginia shore of Pocomoke Sound on solid land known as "Saxis Island" about 3¼ miles from shore of sound and ½ mile northeast of mouth of Starling Creek. (See Chart No. 10.)

*Marks.*—Observed station is center point of spire on church known as Southern Methodist Episcopal Church.

*References.*—None necessary.

MOS.

*Locality.*—Eastern extremity of marsh land between Pocomoke Sound and Messongo Creek on a point of land locally called "Fishing Point." (See Chart No. 10.)

Observed station is on the western extremity of marsh point and about 1⁄8 mile east of the eastern extremity of a small island. It is about 2 feet above and 8 feet back from ordinary high-water on north

side and 45 feet from western end of point. A crab-packing shanty stands about 8 yards to eastward of observed station.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—	o	'	"	
"Monkey" (N 35° 23' W).....	00	00	00	4½ miles.
Point of Island.....	33	01	--	¾ mile.
"Saxis Church".....	82	06	10	2⅝ miles.
Right edge of woods on Saxis Island.....	86	11	--	2½ miles.
Left corner of crab house.....	98	58	--	6.74 meters.
Right corner of crab house.....	128	43	--	6.37 meters.
Point of land on Burntwood Island.....	163	01	--	2 miles.
Chimney on shanty.....	301	38	--	200 yards.

### BOUNDARIES OF OYSTER BARS.

#### EXPLANATION OF DESCRIPTIONS OF BOUNDARIES.

The oyster bars of Somerset County are 37 in number, and their total area, as marked out by buoys placed by the hydrographic engineer of the Commission, is 27,566 acres. As provided by law, the boundaries of the oyster bars are all straight lines, but they inclose areas of all shapes from triangles to complicated fourteen-sided figures, and of all sizes from 3,083 acres to 10 acres.<sup>a</sup> The sides vary in length from 130 to 6,800 yards, and in some cases the corners of the boundaries are practically at the triangulation stations from which they are located, while in other instances they are over 13,600 yards from the landmarks most available for the purpose of fixing their positions.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made, and the magnitude of the work, with the consequent need of fixed and uniform methods, has made the problem of describing the boundaries one of considerable difficulty and importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the Commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and future.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in the county.

At the top of each tabular form is given the legal name of the oyster bar to be described, its general locality, and the serial number of the "Charts of Oyster Bars" of Maryland on which its legal boundaries are shown.

The first column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar; but where a corner of one oyster bar is identical with the

<sup>a</sup> For similar statistics for other counties that have been surveyed, see Appendix C of this publication.

corner of the boundaries of one or more other oyster bars, crab bottoms, or clam beds, only the number of the corner of the oyster bar being described in the table is given in this column.

The second and third columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the Commission as the primary technical definition of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations of the Survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural causes or by acts of vandals desiring to defeat the purposes of the oyster laws of Maryland.

The fourth and fifth columns, under the general heading of "True bearing"<sup>a</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

The sixth column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

The seventh and last column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>b</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication, under the heading of "Description of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars. One, to determine whether the buoys marking

<sup>a</sup> The mean magnetic variation of Somerset County for 1908 was 5° 30' west of north, and increasing at the rate of 3' yearly.

<sup>b</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington.

the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

(1) *Triangulation*.—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the Commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer, having a single sextant, the three-point method can be used, but not until the two angles determining the position of any buoy have been derived from the "Forward bearing" given in the tabular forms describing the boundaries of the oyster bars. For example, take "Turtle Egg Island" bar, which is the first one described in this publication, and assume that "Corner No. 3," is to be examined as to its position. The angle between the two landmarks "Senator" and "Deal Island Church" as determined from right to left from the forward bearings from this corner is  $128^{\circ} 39'$  and the angle between "Deal Island Church" and "Crab" is  $99^{\circ} 30'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor ("position finder"), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative positions that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the

chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant then the other until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic locations of points are attained; in fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the Commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State fishery force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer takes compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>a</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks for which the bearings are published have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used by getting their bearings directly from the chart by parallel rulers or a protractor and then applying them in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding

<sup>a</sup>The mean magnetic variation of Somerset County for 1908 was 5° 30' west of north and increasing at the rate of 3' yearly.



“back” bearing (corrected for local magnetic declination), given in the fourth column of the tables opposite the “corner” in question and on line with the name of the “station” being occupied. The direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

The instrument is placed over a “triangulation station,” the name of which appears in the last column of the tabular description opposite the “corner” in question. The telescope is then pointed to the landmark indicated in the “Descriptions of landmarks” as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the “back” bearing of the questionable boundary “corner” from the landmark being occupied is taken out. The angle calculated from the “back” bearing and the bearing given in parentheses alongside the zero landmark in the “Descriptions of landmarks” is then set off on the transit, and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

BOUNDARIES OF NATURAL OYSTER BARS.

TURTLE EGG ISLAND.

(Upper Tangier Sound—Charts Nos. 5 and 7.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 05 49.58	76 00 03.78	S 77 38 W	N 77 38 E	609	Miles.
			S 12 54 W	N 12 53 E	6113	Solomons Lump Light
			N 65 07 E	S 65 09 W	5553	Joshua.
2	38 06 24.78	76 00 21.47	S 5 22 W	N 5 22 E	1323	Miles.
			N 78 12 E	S 78 14 W	5629	Joshua.
			N 10 01 W	S 10 01 E	3400	Senator.
3	38 08 42.38	76 00 20.00	S 26 01 W	N 26 01 E	1437	Senator.
			N 77 22 E	S 77 24 W	5582	Deal Island Church.
			N 22 08 W	S 22 08 E	3984	Crab.
4	38 08 37.36	75 59 11.44	N 69 02 E	S 69 03 W	3878	Deal Island Church.
			N 40 45 W	S 40 46 E	5095	Crab.
			S 65 28 W	N 65 27 E	2700	Senator.
5	38 05 57.12	75 59 10.20	S 79 13 W	N 79 12 E	2059	Miles
			S 24 12 W	N 24 11 E	6812	Solomons Lump Light
			N 60 02 E	S 60 03 W	4168	Joshua.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MUD.

(Upper Tangier Sound—Chart No. 5.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 08 37.36	75 59 11.44	N 69 02 E	S 69 03 W	3878	Deal Island Church. Crab. Senator.
			N 40 45 W	S 40 46 E	5095	
			S 65 28 W	N 65 27 E	2700	
2	38 08 42.38	76 00 20.00	S 26 01 W	N 26 01 E	1437	Senator. Deal Island Church. Crab.
			N 77 22 E	S 77 24 W	5582	
			N 22 08 W	S 22 08 E	3984	
3	38 09 06.39	76 00 41.00	S 1 56 W	N 1 56 E	2102	Senator. Deal Island Church. Crab.
			N 86 05 E	S 86 07 W	6019	
			N 18 06 W	S 18 06 E	3030	
4	38 09 26.74	76 00 23.48	S 10 55 W	N 10 55 E	2838	Senator. Deal Island Church. Crab.
			S 87 10 E	N 87 07 W	5546	
			N 32 41 W	S 32 41 E	2607	
5	38 09 53.08	75 59 18.00	N 67 28 W	S 67 29 E	3411	Crab. Senator. Deal Island Church.
			S 31 50 W	N 31 49 E	4325	
			S 72 57 E	N 72 58 W	3970	

## OLD ORCHARD.

(Upper Tangier Sound—Chart No. 5.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 09 12.58	75 58 01.68	N 83 29 E	S 83 30 W	1775	Deal Island Church. Haines. Senator.
			N 26 24 E	S 26 24 W	3064	
			S 61 51 W	N 61 53 E	4893	
2	38 09 15.60	75 58 21.20	N 87 31 E	S 87 32 W	2285	Deal Island Church. Haines. Senator.
			N 35 27 E	S 35 28 W	3245	
			S 57 34 W	N 57 33 E	4495	
3	38 10 06.90	75 58 19.19	S 42 53 W	N 42 52 E	5651	Senator. Deal Island Church Haines.
			S 53 49 E	N 53 49 W	2761	
			N 63 27 E	S 63 28 W	2044	
4	38 10 09.70	75 57 15.91	N 9 57 E	S 9 58 W	831	Haines. Crab. Deal Island Church.
			N 83 20 W	S 83 17 E	6445	
			S 17 31 E	N 17 31 W	1809	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

HAINES.

(Upper Tangier Sound—Chart No. 5.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 10 06.90	75 58 19.19	S 42 53 W	N 42 52 E	Yards. 5651 2761 2044	Senator. Deal Island Church. Haines.
			S 53 49 E	N 53 49 W		
			N 63 27 E	S 63 28 W		
2	38 11 13.65	75 58 16.39	N 39 44 W	S 39 45 E	2367 4993 2206	Sharkfin Shoal Light. Crab. Haines.
			S 73 37 W	N 73 35 E		
			S 52 40 E	N 52 40 W		
3	38 12 08.36	75 57 32.19	S 46 31 E	N 46 30 W	2365 6723 4252	Room. White. Frog.
			N 61 58 E	S 62 00 W		
			N 13 21 E	S 13 22 W		
4	38 11 16.19	75 57 05.79	S 5 03 W	N 5 03 E	1429 1023 5903	Haines. Room. Frog.
			N 82 39 E	S 82 39 W		
			N 2 43 E	S 2 43 W		
5	38 10 46.46	75 57 43.66	S 85 02 W	N 85 00 E	5683 3230 978	Crab. Deal Island Church. Haines.
			S 23 24 E	N 23 24 W		
			S 64 30 E	N 64 30 W		
6	38 10 09.70	75 57 15.91	N 9 57 E	S 9 58 W	831 6445 1809	Haines. Crab. Deal Island Church.
			N 83 20 W	S 83 17 E		
			S 17 31 E	N 17 31 W		

HALLS POINT.

(Upper Tangier Sound—Chart No. 5.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 11 16.19	75 57 05.79	S 5 03 W	N 5 03 E	1429 1023 5903	Haines. Room. Frog.
			N 82 39 E	S 82 39 W		
			N 2 43 E	S 2 43 W		
2	38 12 08.36	75 57 32.19	S 46 31 E	N 46 30 W	2365 6723 4252	Room. White. Frog.
			N 61 58 E	S 62 00 W		
			N 13 21 E	S 13 32 W		
3	38 12 22.96	75 57 04.02	S 24 30 E	N 24 30 W	2330 5830 3653	Room. White. Frog.
			N 62 46 E	S 62 48 W		
			N 3 39 E	S 3 39 W		
4	38 12 10.72	75 55 55.59	N 47 32 E	S 47 33 W	4560 4357 1909	White. Frog. Room.
			N 21 22 W	S 21 22 E		
			S 26 35 W	N 26 35 E		
5	38 11 52.57	75 55 45.84	N 40 04 E	S 40 05 W	4824 5022 1563	White. Frog. Room.
			N 21 34 W	S 21 35 E		
			S 45 28 W	N 45 28 E		
6	38 11 47.98	75 56 30.40	S 4 22 E	N 4 22 W	944 5762 4870	Room. White. Frog.
			N 48 07 E	S 48 09 W		
			N 7 48 W	S 7 49 E		

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## ROCK CREEK.

(Upper Tangier Sound—Chart No. 5.)

Corner of bar	Latitude ° ' "	Longitude ° ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 12 11.80	75 55 19.92	S 45 58 W	N 45 57 E	2509	Room. Short. White.
			N 89 35 E	S 89 36 W	3363	
			N 38 27 E	S 38 28 W	3884	
2	38 12 17.40	75 55 28.62	S 39 07 W	N 39 07 E	2492	Room. Short. White.
			S 87 23 E	N 87 20 W	3598	
			N 42 51 E	S 42 52 W	3892	
3	38 12 20.98	75 55 15.54	S 43 05 W	N 43 04 E	2812	Room. Short. White.
			S 84 59 E	N 84 57 W	3259	
			N 40 04 E	S 40 05 W	3572	

## EVANS.

(Entrance to Wicomico River—Chart No. 5.)

Corner of bar	Latitude ° ' "	Longitude ° ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 12 11.13	75 55 00.80	N 89 04 E	S 89 05 W	2854	Short. White. Room.
			N 31 53 E	S 31 54 W	3610	
			S 53 20 W	N 53 20 E	2883	
2	38 12 36.31	75 54 44.50	S 46 54 W	N 46 53 E	3762	Room. Short. White.
			S 71 39 E	N 71 38 W	2550	
			N 33 37 E	S 33 38 W	2661	
3	38 12 50.97	75 53 52.76	S 38 49 E	N 38 49 W	1664	Short. Great Shoals Light. White.
			N 89 20 E	S 89 20 W	1755	
			N 3 14 E	S 3 14 W	1725	
4	38 12 38.84	75 53 10.40	S 5 22 W	N 5 22 E	892	Short. Great Shoals Light. White.
			N 55 41 E	S 55 41 W	761	
			N 25 48 W	S 25 48 E	2367	
5	38 12 24.72	75 53 38.75	S 58 26 E	N 58 26 W	787	Short. Great Shoals Light. White.
			N 56 47 E	S 56 48 W	1652	
			N 6 02 W	S 6 02 E	2621	

## BUOY.

(Entrance Wicomico River—Chart No. 5.)

Corner of bar	Latitude ° ' "	Longitude ° ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 12 30.79	75 52 38.34	S 73 13 E	N 73 12 W	1765	Dove. Great Shoals Light. Short.
			N 17 45 W	S 17 45 E	736	
			S 56 38 W	N 56 38 E	1121	
2	38 12 45.82	75 52 36.80	N 53 50 W	S 53 50 E	328	Great Shoals Light. Short. Dove.
			S 41 02 W	N 41 01 E	1489	
			S 58 21 E	N 58 21 W	1938	
3	38 12 48.43	75 52 23.80	N 80 10 W	S 80 10 E	620	Great Shoals Light. Short. Dove.
			S 47 31 W	N 47 31 E	1795	
			S 49 43 E	N 49 43 W	1708	
4	38 12 32.26	75 52 22.18	N 45 08 W	S 45 08 E	923	Great Shoals Light. Short. Dove.
			S 64 00 W	N 64 00 E	1520	
			S 66 04 E	N 66 04 W	1376	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

WINGATE.

(Lower Wicomico River—Chart No. 5.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 14 01.31	75 51 58.41	N 70 14 E	S 70 14 W	379	Wind. Holland. Ella.
			N 38 53 E	S 38 53 W	2099	
			N 31 47 W	S 31 47 E	1307	
2	38 14 05.12	75 52 02.63	S 61 19 E	N 61 19 W	536	Wind. Holland. Ella.
			N 43 31 E	S 43 32 W	2077	
			N 30 23 W	S 30 22 E	1138	
3	38 14 21.26	75 51 40.50	N 41 12 E	S 41 12 W	1277	Holland. Ella. Wind.
			N 69 23 W	S 69 24 E	1245	
			S 8 26 W	N 8 26 E	810	
4	38 14 12.82	75 51 33.60	N 27 50 E	S 27 50 W	1409	Holland. Ella. Wind.
			N 61 48 W	S 61 49 E	1529	
			S 30 21 W	N 30 21 E	598	

MOUNT VERNON WHARF.

(Middle Wicomico River—Chart No. 5.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 15 10.22	75 48 29.18	S 77 45 E	N 77 44 W	175	Walnut. End. Jones.
			N 6 01 W	S 6 01 E	434	
			S 81 02 W	N 81 02 E	1138	
2	38 15 13.76	75 48 30.30	N 50 26 W	S 50 26 E	1342	Creek. Jones. Walnut.
			S 74 50 W	N 74 50 E	1134	
			S 52 02 E	N 52 02 W	254	
3	38 15 15.14	75 48 19.08	N 49 44 W	S 49 44 E	411	End. Jones. Walnut.
			S 76 09 W	N 76 09 E	1435	
			S 25 44 W	N 25 44 E	225	
4	38 15 18.76	75 48 09.97	N 75 29 W	S 75 29 E	574	End. Jones. Walnut.
			S 74 07 W	N 74 06 E	1701	
			S 46 18 W	N 46 18 E	470	
5	38 15 14.18	75 48 08.56	N 63 19 W	S 63 19 E	665	End. Jones. Walnut.
			S 79 28 W	N 79 28 E	1702	
			S 65 41 W	N 65 41 E	414	

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## GEORGES.

(Middle Manokin River—Charts Nos. 5 and 7.)

Corner of bar	Latitude			Longitude			True bearing				Distance	U. S. C. & G. S. triangulation station
							Forward		Back			
	°	'	"	°	'	"	°	'	°	'	Yards.	
1	38	07	34.98	75	50	51.58	S 61 04 E	N 61 02 W	4965	Fairmount Church.		
							N 13 42 E	S 13 42 W	2314	Jean.		
							N 53 58 W	S 53 58 E	1054	St. Pierre.		
2	38	07	37.55	75	51	09.09	S 62 39 E	N 62 37 W	5417	Fairmount Church.		
							N 35 54 W	S 35 54 E	659	St. Pierre.		
							N 68 19 W	S 68 20 E	3245	Marsh.		
3	38	08	15.04	75	50	56.73	S 44 25 W	N 44 25 E	1023	St. Pierre.		
							S 71 55 E	N 71 55 W	2350	Staff.		
							N 37 21 E	S 37 22 W	1130	Jean.		
4	38	08	41.22	75	50	12.44	N 88 14 W	S 88 14 E	492	Jean.		
							S 33 12 E	N 33 11 W	1927	Staff.		
							S 78 31 E	N 78 30 W	2791	Sandy.		
5	38	08	46.80	75	50	02.99	S 76 56 W	N 76 56 E	766	Jean.		
							S 24 03 E	N 24 02 W	1972	Staff.		
							S 60 07 E	N 60 07 W	2594	Cupola.		
6	38	08	42.06	75	49	27.21	S 89 33 W	N 89 33 E	1698	Jean.		
							S 62 07 W	N 62 05 E	3508	St. Pierre.		
							S 5 13 W	N 5 13 E	1647	Staff.		
7	38	08	22.52	75	49	17.98	N 71 37 W	S 71 38 E	2054	Jean.		
							S 21 56 W	N 21 56 E	1059	Staff.		
							S 65 43 E	N 65 43 W	1153	Cupola.		
8	38	08	22.89	75	48	50.33	S 48 42 W	N 48 42 E	1507	Staff.		
							S 32 51 E	N 32 51 W	579	Cupola.		
							N 83 32 E	S 83 33 W	551	Sandy.		
9	38	08	18.77	75	48	36.40	S 60 21 W	N 60 21 E	1729	Staff.		
							S 9 19 W	N 9 19 E	352	Cupola.		
							N 41 21 E	S 41 21 W	268	Sandy.		
10	38	08	13.78	75	48	46.70	S 60 47 W	N 60 46 E	1407	Staff.		
							S 50 31 E	N 50 31 W	282	Cupola.		
							N 50 42 E	S 50 42 W	583	Sandy.		
11	38	08	16.22	75	49	44.00	N 55 34 W	S 55 34 E	1517	Jean.		
							S 73 49 W	N 73 48 E	2762	St. Pierre.		
							S 21 08 E	N 21 08 W	825	Staff.		
12	38	08	07.26	75	50	47.14	S 64 16 W	N 64 16 E	1078	St. Pierre.		
							N 20 20 E	S 20 20 W	1237	Jean.		
							S 76 43 E	N 76 43 W	2034	Staff.		

BOUNDARIES OF NATURAL OYSTER BARS—continued.  
SOUTHWEST MIDDLEGROUND.

(Chesapeake Bay—Off Smith Island—Charts Nos. 6 and 8.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 58 56.46	76 10 01.95	S 87 36 E	N 87 31 W	12019	Old Church (Smith Island). Joseph. Holland Island Bar Light.
			N 70 20 E	S 70 24 W	11802	
			N 33 04 E	S 33 07 W	12510	
2	38 01 24.82	76 10 20.36	S 66 14 E	N 66 09 W	13658	Old Church (Smith Island). Joseph. Holland Island Bar Light.
			S 84 49 E	N 84 44 W	11653	
			N 53 10 E	S 53 13 W	9142	
3	38 00 48.20	76 08 02.85	S 64 10 E	N 64 07 W	9810	Old Church (Smith Island). Joseph. Holland Island Bar Light.
			N 88 43 E	S 88 46 W	7940	
			N 28 33 E	S 28 34 W	7642	
4	37 59 25.92	76 07 29.61	S 79 18 E	N 79 15 W	8083	Old Church (Smith Island). Joseph. Holland Island Bar Light.
			N 67 17 E	S 67 20 W	7643	
			N 16 15 E	S 16 16 W	9882	

KEDGE STRAITS.

(Chesapeake Bay—Off Kedge Straits—Chart No. 6.)

	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 02 59.23	76 05 02.83	S 67 03 E	N 67 01 W	4415	Fog. Solomons Lump Light. Holland Island Bar Light.
			S 88 09 E	N 88 07 W	6613	
			N 26 34 W	S 26 34 E	2566	
2	38 03 44.58	76 05 27.95	S 55 28 E	N 55 26 W	5735	Fog. Solomons Lump Light. Holland Island Bar Light.
			S 76 33 E	N 76 30 W	7485	
			N 31 59 W	S 31 59 E	902	
3	38 04 06.44	76 04 14.42	N 89 20 W	S 89 21 E	2438	Holland Island Bar Light. Fog. Solomons Lump Light.
			S 34 50 E	N 34 48 W	4858	
			S 64 59 E	N 64 57 W	5869	
4	38 03 23.36	76 04 01.96	S 16 38 E	N 16 38 W	5279	Joseph. Fog. Solomons Lump Light.
			S 43 55 E	N 43 54 W	3519	
			S 78 21 E	N 78 19 W	5092	

OYSTER CREEK.

(Outer Kedge Straits—Chart No. 6.)

	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 03 41.17	76 02 30.87	N 80 23 W	S 80 25 E	5272	Holland Island Bar Light. Fog. Solomons Lump Light.
			S 0 14 E	N 0 14 W	3138	
			S 57 31 E	N 57 30 W	3033	
2	38 04 09.14	76 04 01.30	S 88 43 W	N 88 42 E	2789	Holland Island Bar Light. Fog. Solomons Lump Light.
			S 30 43 E	N 30 42 W	4745	
			S 62 38 E	N 62 36 W	5595	
3	38 04 34.32	76 04 32.26	S 65 05 W	N 65 04 E	2164	Holland Island Bar Light. Fog. Solomons Lump Light.
			S 33 24 E	N 33 24 W	5903	
			S 59 26 E	N 59 24 W	6730	

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## OYSTER CREEK—Continued.

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
4	38 04 40.76	76 04 14.80	S 65 04 W	N 65 03 E	2677	Holland Island Bar Light. Fog. Solomons Lump Light.
			S 28 28 E	N 28 27 W	5840	
			S 55 41 E	N 55 39 W	6452	
5	38 05 10.20	76 04 00.70	S 52 53 W	N 52 52 E	3516	Holland Island Bar Light. Fog. Solomons Lump Light.
			S 21 25 E	N 21 24 W	6593	
			S 46 56 E	N 46 54 W	6780	
6	38 05 01.98	76 03 40.24	S 61 10 W	N 61 08 E	3823	Holland Island Bar Light. Fog. Solomons Lump Light.
			S 17 38 E	N 17 37 W	6150	
			S 45 21 E	N 45 20 W	6195	
7	38 04 29.16	76 03 45.49	S 77 04 W	N 77 02 E	3293	Holland Island Bar Light. Fog. Solomons Lump Light.
			S 22 50 E	N 22 50 W	5160	
			S 54 28 E	N 54 27 W	5587	
8	38 04 13.84	76 02 35.49	S 87 31 W	N 87 29 E	5080	Holland Island Bar Light. Fog. Solomons Lump Light.
			S 1 50 E	N 1 50 W	4241	
			S 44 28 E	N 44 27 W	3826	

## MUSSEL HOLE.

(Middle Tangier Sound—Chart No. 7.)

	Latitude	Longitude	True bearing		Yards.	
			Forward	Back		
1	38 02 36.76	75 59 41.02	N 10 41 W	S 10 41 E	6483	Miles. Solomons Lump Light. Terrapin.
			N 74 37 W	S 74 38 E	2045	
			S 35 44 E	N 35 43 W	4150	
2	38 02 44.55	76 00 05.88	N 5 03 W	S 5 03 E	8320	Miles. Solomons Lump Light. Terrapin.
			N 77 56 W	S 77 57 E	1337	
			S 40 22 E	N 40 21 W	4766	
3	38 03 07.81	75 59 52.42	N 31 17 E	S 31 19 W	9118	Joshua. Miles. Solomons Lump Light.
			N 9 34 W	S 9 35 E	5399	
			S 73 09 W	N 73 09 E	1742	
4	38 03 40.94	75 59 32.90	N 18 38 W	S 18 38 E	4440	Miles. Solomons Lump Light. Terrapin.
			S 53 27 W	N 53 27 E	2723	
			S 21 45 E	N 21 44 W	5957	
5	38 05 49.58	76 00 03.78	S 77 38 W	N 77 38 E	609	Miles. Solomons Lump Light. Joshua.
			S 12 54 W	N 12 53 E	6113	
			N 65 07 E	S 65 09 W	5553	
6	38 05 57.12	75 59 10.20	S 79 13 W	N 79 12 E	2059	Miles. Solomons Lump Light. Joshua.
			S 24 12 W	N 24 11 E	6812	
			N 60 02 E	S 60 03 W	4168	
7	38 02 50.94	75 58 34.94	N 26 41 W	S 26 42 E	6596	Miles. Solomons Lump Light. Terrapin.
			N 89 00 W	S 89 02 E	3734	
			S 9 44 E	N 9 44 W	3904	



BOUNDARIES OF NATURAL OYSTER BARS—continued.

CHAIN SHOAL.

(Upper Tangier Sound—Chart No. 7.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 05 54.32	75 58 05.33	N 40 52 E	S 40 52 W	2877	Joshua. Senator. Miles.
			N 43 56 W	S 43 58 E	6077	
			S 85 29 W	N 85 28 E	3763	
2	38 06 41.67	75 58 29.59	S 77 05 E	N 77 06 W	2594	Joshua. Senator. Miles.
			N 52 06 W	S 52 07 E	4525	
			S 58 43 W	N 58 42 E	3633	
3	38 07 49.53	75 58 13.70	N 82 59 W	S 83 00 E	4024	Senator. Miles. Joshua.
			S 40 12 W	N 40 11 E	5466	
			S 50 57 E	N 50 56 W	2711	
4	38 07 49.58	75 58 08.32	N 83 15 W	S 83 16 E	4167	Senator. Miles. Joshua.
			S 41 19 W	N 41 18 E	5561	
			S 48 56 E	N 48 55 W	2603	
5	38 07 49.36	75 57 48.36	N 83 55 W	S 83 53 E	4695	Senator. Miles. Joshua.
			S 45 14 W	N 45 13 E	5920	
			S 40 02 E	N 40 01 W	2224	
6	38 06 20.96	75 57 51.84	N 50 00 E	S 50 01 W	1988	Joshua. Senator. Miles.
			N 52 46 W	S 52 47 E	5748	
			S 73 53 W	N 73 52 E	4279	
7	38 06 02.66	75 57 29.40	N 26 02 E	S 26 02 W	2108	Joshua. Senator. Miles.
			N 51 38 W	S 51 40 E	6599	
			S 83 06 W	N 83 04 E	4744	

PINEY ISLAND WEST.

(Middle Tangier Sound—Chart No. 7.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	Station
			Forward	Back		
1	38 02 51.48	75 56 30.20	N 77 42 E	S 77 44 W	6823	Has. Joshua. Solomons Lump Light
			N 4 28 W	S 4 28 E	8366	
			N 89 36 W	S 89 39 E	7059	
2	38 03 50.44	75 57 18.84	N 5 47 E	S 5 49 W	6401	Joshua. Miles. Solomons Lump Light.
			N 52 05 W	S 52 07 E	6326	
			S 71 23 W	N 71 21 E	6080	
3	38 05 48.86	75 57 49.50	N 31 45 E	S 31 46 W	2776	Joshua. Miles. Solomons Lump Light.
			S 88 33 W	N 88 32 E	4174	
			S 39 48 W	N 39 46 E	7724	
4	38 05 56.82	75 57 19.40	N 17 29 E	S 17 30 W	2194	Joshua. Miles. Solomons Lump Light
			S 85 43 W	N 85 41 E	4990	
			S 42 49 W	N 42 47 E	8456	
5	38 05 42.60	75 56 59.66	N 2 58 E	S 2 58 W	2574	Joshua. Miles. Solomons Lump Light.
			N 88 52 W	S 88 54 E	5502	
			S 47 38 W	N 47 36 E	8492	
6	38 02 52.53	75 55 46.18	N 75 32 E	S 75 34 W	5672	Has. Joshua. Solomons Lump Light.
			N 12 23 W	S 12 24 E	8504	
			N 89 54 W	S 89 57 E	8234	

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## PINEY ISLAND SWASH.

(Lower Manokin River—Chart No. 7.)

Cor- ner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	38	06	30.82	75	55	43.81	N 51 16 E	S 51 18 W	5513	Marsh. Kelley. Joshua.
							N 27 09 E	S 27 08 W	3826	
							N 63 23 W	S 63 24 E	2111	
2	38	06	40.44	75	56	03.80	N 57 07 E	S 57 05 W	5756	Marsh. Kelley. Joshua.
							N 36 29 E	S 36 28 W	3832	
							N 65 22 W	S 65 23 E	1491	
3	38	06	55.34	75	55	50.46	N 59 39 E	S 59 41 W	5201	Marsh. Kelley. Joshua.
							N 36 43 E	S 36 44 W	3216	
							N 86 02 W	S 86 01 E	1715	
4	38	07	20.78	75	55	27.89	N 65 32 E	S 65 33 W	4260	Marsh. Kelley. Joshua.
							N 37 32 E	S 37 32 W	2170	
							S 72 17 W	N 72 16 E	2427	
5	38	07	54.55	75	53	44.94	S 89 25 E	N 89 21 W	3765	St. Pierre. Marsh. Kelley.
							N 61 07 E	S 61 07 W	1296	
							N 67 43 W	S 67 44 E	1534	
6	38	07	37.14	75	53	26.26	N 80 28 E	S 80 30 W	3313	St. Pierre. Marsh. Kelley.
							N 27 45 E	S 27 45 W	1369	
							N 58 38 W	S 58 37 E	2256	
7	38	06	40.66	75	54	52.43	N 43 15 E	S 43 16 W	4279	Marsh. Kelley. Joshua.
							N 7 00 E	S 7 00 W	3096	
							N 79 19 W	S 79 20 E	3314	
8	38	06	59.58	75	55	20.55	N 56 02 E	S 65 05 W	4439	Marsh. Kelley. Joshua.
							N 24 50 E	S 24 49 W	2683	
							S 89 27 W	N 89 26 E	2508	

## SANDY POINT.

(Middle Manokin River—Chart No. 7.)

Cor- ner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	38	08	08.44	75	48	27.90	N 70 53 E	S 70 53 W	2070	Green Sandy. Cupola.
							N 5 09 W	S 5 09 E	553	
							N 89 48 W	S 89 48 E	283	
2	38	08	13.78	75	48	46.70	S 60 47 W	N 60 46 E	1407	Staff. Cupola. Sandy.
							S 50 31 E	N 50 31 W	282	
							N 50 42 E	S 50 42 W	583	
3	38	08	18.77	75	48	36.40	S 60 21 W	N 60 21 E	1729	Staff. Cupola. Sandy.
							S 9 19 W	N 9 19 E	352	
							N 41 21 E	S 41 21 W	268	
4	38	08	16.04	75	48	08.80	N 74 07 E	S 74 07 W	1502	Green. Sandy. Cupola.
							N 62 18 W	S 62 18 E	631	
							S 72 08 W	N 72 08 E	832	
5	38	08	10.17	75	48	07.23	N 66 13 E	S 66 14 W	1536	Green. Sandy. Cupola.
							N 50 43 W	S 50 43 E	775	
							S 86 04 W	N 86 04 E	836	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

CORMAL.

(Middle Manokin River—Chart No. 7.)

Corner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	''	°	'	''	Forward	Back		
1	38	07	33.63	75	50	42.00	S 60 03 E	N 60 01 W	4720	Fairmount Church. Staff. Jean.
							N 70 06 E	S 70 07 W	1959	
							N 7 16 E	S 7 16 W	2313	
2	38	07	34.98	75	50	51.58	S 61 04 E	N 61 02 W	4965	Fairmount Church Jean. St. Pierre.
							N 13 42 E	S 13 42 W	2314	
							N 53 58 W	S 53 58 E	1054	
3	38	08	07.26	75	50	47.14	S 64 16 W	N 64 16 E	1078	St. Pierre. Jean. Staff.
							N 20 20 E	S 20 20 W	1237	
							S 76 43 E	N 76 43 W	2034	
4	38	08	16.22	75	49	44.00	N 55 34 W	S 55 34 E	1517	Jean. St. Pierre. Staff.
							S 73 49 W	N 73 48 E	2762	
							S 21 08 E	N 21 08 W	825	
5	38	08	13.78	75	48	46.70	S 60 47 W	N 60 46 E	1407	Staff. Cupola. Sandy.
							S 50 31 E	N 50 31 W	282	
							N 50 42 E	S 50 42 W	583	
6	38	07	59.80	75	49	18.22	N 74 32 E	S 74 33 W	1098	Cupola. Sandy. Staff.
							N 56 53 E	S 56 53 W	1538	
							S 60 59 W	N 60 59 E	445	
7	38	08	08.57	75	49	29.28	S 80 27 W	N 80 26 E	3087	St. Pierre. Staff. Cupola.
							S 10 28 W	N 10 28 E	521	
							S 89 51 E	N 89 51 W	1352	
8	38	08	09.18	75	49	54.96	S 47 56 E	N 47 55 W	794	Staff. Sandy. Jean.
							N 76 59 E	S 77 00 W	2329	
							N 41 13 W	S 41 13 E	1457	
9	38	08	05.77	75	49	58.00	S 58 07 E	N 58 07 W	790	Staff. Sandy. Jean.
							N 74 46 E	S 74 47 W	2435	
							N 35 58 W	S 35 59 E	1499	
10	38	08	00.34	75	49	53.88	S 67 21 E	N 67 20 W	607	Staff. Jean. St. Pierre.
							N 35 20 W	S 35 21 E	1708	
							S 84 23 W	N 84 23 E	2402	
11	38	07	52.81	75	50	00.00	N 88 26 E	S 88 26 W	734	Staff. Jean. St. Pierre.
							N 26 36 W	S 26 37 E	1843	
							N 89 30 W	S 89 31 E	2227	
12	38	07	45.55	75	50	26.40	N 79 29 E	S 79 30 W	1451	Staff. Jean. St. Pierre.
							N 3 42 W	S 3 42 E	1896	
							N 80 10 W	S 80 11 E	1546	

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MARSHY ISLAND.

(Lower Manokin River—Chart No. 7.)

Corner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	38	04	49.82	75	53	40.47	S 17 05 E	N 17 04 W	6283	Flat Cap. Has. Prickly.
							S 40 08 E	N 40 08 W	3321	
							N 63 55 E	S 63 56 W	2225	
2	38	05	17.10	75	54	19.78	S 22 41 E	N 22 40 W	7505	Flat Cap. Has. Prickly.
							S 42 41 E	N 42 40 W	4704	
							N 88 54 E	S 88 55 W	3047	
3	38	05	50.40	75	54	24.20	S 71 25 E	N 71 24 W	3338	Prickly. Marsh. Joshua.
							N 24 23 E	S 24 25 W	5282	
							N 60 03 W	S 60 05 E	4626	
4	38	07	04.22	75	53	18.62	N 61 34 E	S 61 36 W	3483	St. Pierre. Marsh. Kelley.
							N 10 35 E	S 10 35 W	2362	
							N 42 56 W	S 42 57 E	3113	
5	38	07	38.06	75	52	23.58	N 72 05 E	S 72 05 W	1679	St. Pierre. Marsh. Kelley.
							N 41 08 W	S 41 09 E	1568	
							N 72 23 W	S 72 25 E	3763	
6	38	07	37.55	75	51	09.09	S 62 39 E	N 62 37 W	5417	Fairmount Church. St. Pierre. Marsh.
							N 35 54 W	S 35 54 E	659	
							N 68 19 W	S 68 20 E	3245	
7	38	07	34.98	75	50	51.58	S 61 04 E	N 61 02 W	4965	Fairmount Church. Jean. St. Pierre.
							N 13 42 E	S 13 42 W	2314	
							N 53 58 W	S 53 58 E	1054	
8	38	07	03.79	75	51	10.99	S 74 29 E	N 74 27 W	5046	Fairmount Church. St. Pierre. Marsh.
							N 11 21 W	S 11 22 E	1705	
							N 51 45 W	S 51 46 E	3775	
9	38	07	05.36	75	52	17.32	S 78 03 E	N 78 01 W	6776	Fairmount Church. St. Pierre. Marsh.
							N 41 28 E	S 41 29 W	2161	
							N 27 41 W	S 27 42 E	2579	
10	38	05	46.90	75	53	38.71	S 64 08 E	N 64 08 W	2169	Prickly. Marsh. Joshua.
							N 11 07 E	S 11 08 W	5024	
							N 65 03 W	S 65 05 E	5757	

Survey of Oyster Bars, Somerset County, Md.

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BOUNDARIES OF NATURAL OYSTER BARS—continued.

DRUM POINT.

(Lower Manokin River—Chart No. 7.)

Corner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
				Forward		Back				
	°	'	"	°	'	"	°	'	Yards.	
1	38	04	32.62	75	53	15.53	S 12 16 E	N 12 16 W	5552	Flat Cap. Has. Prickly.
							S 37 08 E	N 37 07 W	2445	
							N 40 34 E	S 40 35 W	2052	
2	38	04	49.82	75	53	40.47	S 17 05 E	N 17 04 W	6283	Flat Cap. Has. Prickly
							S 40 08 E	N 40 08 W	3321	
							N 63 55 E	S 63 56 W	2225.	
3	38	05	46.90	75	53	38.71	S 64 08 E	N 64 08 W	2169	Prickly. Marsh. Joshua.
							N 11 07 E	S 11 08 W	5024	
							N 65 03 W	S 65 05 E	5757	
4	38	07	05.36	75	52	17.32	S 78 03 E	N 78 01 W	6776	Fairmount Church. St. Pierre. Marsh.
							N 41 28 E	S 41 29 W	2161	
							N 27 41 W	S 27 42 E	2579	
5	38	07	03.79	75	51	10.99	S 74 29 E	N 74 27 W	5046	Fairmount Church. St. Pierre. Marsh.
							N 11 21 W	S 11 22 E	1705	
							N 51 45 W	S 51 46 E	3775	
6	38	07	34.98	75	50	51.58	S 61 04 E	N 61 02 W	4965	Fairmount Church. Jean. St. Pierre.
							N 13 42 E	S 13 42 W	2314	
							N 53 58 W	S 53 58 E	1054	
7	38	07	33.63	75	50	42.00	S 60 03 E	N 60 01 W	4720	Fairmount Church. Staff. Jean.
							N 70 06 E	S 70 07 W	1959	
							N 7 16 E	S 7 16 W	2313	
8	38	07	22.98	75	50	41.10	S 63 50 E	N 63 48 W	4530	Fairmount Church. Staff. Jean.
							N 60 34 E	S 60 35 W	2088	
							N 5 48 E	S 5 48 W	3761	
9	38	07	14.55	75	50	47.49	S 67 59 E	N 67 57 W	4569	Fairmount Church. Staff. St. Pierre.
							N 56 37 E	S 56 38 W	2382	
							N 36 18 W	S 36 18 E	1624	
10	38	06	59.16	75	50	46.00	S 74 06 E	N 74 05 W	4361	Fairmount Church. Staff. St. Pierre.
							N 46 49 E	S 46 50 W	2673	
							N 28 43 W	S 28 43 E	2084	
11	38	06	35.34	75	51	56.97	S 86 18 E	N 86 15 W	6100	Fairmount Church. St. Pierre. Marsh.
							N 18 40 E	S 18 40 W	2778	
							N 27 50 W	S 27 51 E	3728	
12	38	06	05.78	75	52	32.34	S 6 36 E	N 6 36 W	1593	Prickly. Fairmount Church. St. Pierre.
							N 85 04 E	S 85 07 W	7056	
							N 26 46 E	S 26 47 W	4064	
13	38	05	56.46	75	53	00.24	S 36 05 E	N 36 04 W	1569	Prickly. St. Pierre. Marsh.
							N 33 08 E	S 33 09 W	4708	
							N 0 41 W	S 0 41 E	4607	
14	38	05	01.80	75	52	41.83	N 19 48 E	S 19 49 W	6149	St. Pierre. Marsh. Joshua.
							N 4 50 W	S 4 50 E	6473	
							N 59 37 W	S 59 39 E	7808	

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## PRICKLY POINT.

(Mouth Manokin River—Chart No. 7.)

Corner of bar	Latitude		Longitude		True bearing		Distance Yards.	U. S. C. & G. S. triangulation station		
	°	'	°	'	Forward	Back				
1	38	04	28.72	75	53	19.95	S 13 47 E	N 13 46 W	5452	Flat Cap. Has. Prickly.
							S 41 06 E	N 41 05 W	2426	
							N 40 40 E	S 40 41 W	2228	
2	38	04	50.38	75	54	16.08	S 24 53 E	N 24 52 W	6641	Flat Cap. Has. Prickly.
							S 50 24 E	N 50 22 W	4011	
							N 71 58 E	S 71 59 W	3100	
3	38	05	17.10	75	54	19.78	S 22 41 E	N 22 40 W	7505	Flat Cap. Has. Prickly.
							S 42 41 E	N 42 40 W	4704	
							N 88 54 E	S 88 55 W	3047	
4	38	04	49.82	75	53	40.47	S 17 05 E	N 17 04 W	6283	Flat Cap. Has. Prickly.
							S 40 08 E	N 40 08 W	3321	
							N 63 55 E	S 63 56 W	2225	
5	38	04	32.62	75	53	15.53	S 12 16 E	N 12 16 W	5552	Flat Cap. Has. Prickly.
							S 37 08 E	N 37 07 W	2445	
							N 40 34 E	S 40 35 W	2052	

## PINEY ISLAND EAST.

(Middle Tangier Sound—Chart No. 7.)

Corner of bar	Latitude		Longitude		True bearing		Distance Yards.	U. S. C. & G. S. triangulation station		
	°	'	°	'	Forward	Back				
1	38	03	05.04	75	54	16.59	S 48 39 E	N 48 37 W	3742	Flat Cap. Has. Joshua.
							N 72 14 E	S 72 15 W	3260	
							N 28 06 W	S 28 08 E	8939	
2	38	04	19.61	75	54	49.20	S 36 25 E	N 36 23 W	6196	Flat Cap. Has. Prickly.
							S 69 05 E	N 69 03 W	4255	
							N 62 28 E	S 62 30 W	4320	
3	38	04	12.34	75	53	21.76	S 15 49 E	N 15 48 W	4929	Flat Cap. Has. Prickly.
							S 52 10 E	N 52 10 W	2079	
							N 33 47 E	S 33 48 W	2698	
4	38	03	23.75	75	53	02.85	S 15 11 E	N 15 10 W	3216	Flat Cap. Has. Joshua.
							N 72 18 E	S 72 19 W	1194	
							N 40 24 W	S 40 27 E	9527	

Survey of Oyster Bars, Somerset County, Md.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

HARRIS.

(Middle Tangier Sound—Chart No. 7.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 02 37.94	75 54 04.81	S 58 00 E N 55 38 E N 27 13 W	N 57 59 W S 55 39 W S 27 15 E	2942 3380 9894	Flat Cap. Has. Joshua.
2	38 03 05.04	75 54 16.59	S 48 39 E N 72 14 E N 28 06 W	N 48 37 W S 72 15 W S 28 08 E	3742 3260 8939	Flat Cap. Has. Joshua.
3	38 03 23.75	75 53 02.85	S 15 11 E N 72 18 E N 40 24 W	N 15 10 W S 72 19 W S 40 27 E	3216 1194 9527	Flat Cap. Has. Joshua.
4	38 02 40.04	75 52 45.88	S 13 26 E N 58 48 E N 20 28 E	N 13 26 W S 58 49 W S 20 28 W	1675 5484 1961	Flat Cap. Ford. Has.

BIG ANNEMESSEX.

(Big Annessex River—Chart No. 7.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 02 50.93	75 51 45.86	N 51 20 E N 31 53 W S 31 14 W	S 51 21 W S 31 53 E N 31 14 E	3959 1731 2336	Ford. Has. Flat Cap.
2	38 03 16.52	75 51 49.69	N 63 14 E N 53 14 W S 21 12 W	S 63 15 W S 53 14 E N 21 12 E	3576 1014 3066	Ford. Has. Flat Cap.
3	38 03 45.06	75 51 07.58	S 30 17 W S 55 12 E N 72 37 E	N 30 17 E N 55 11 W S 72 37 W	4426 3314 2170	Flat Cap. Geog. Ford.
4	38 03 51.42	75 49 12.66	N 66 25 W S 9 16 W S 43 22 E	S 66 25 E N 9 16 E N 43 21 W	1084 2134 2420	Ford. Geog. Colburn.
5	38 03 08.18	75 48 47.60	S 73 07 E N 44 50 E N 41 17 W	N 73 06 W S 44 50 W S 41 18 E	1039 1650 2517	Colburn. Moon. Ford.
6	38 03 03.08	75 48 54.81	S 83 45 E N 45 17 E N 35 27 W	N 83 45 W S 45 17 W S 35 27 E	1193 1908 2533	Colburn. Moon. Ford.
7	38 03 17.77	75 49 31.17	S 8 47 E N 69 58 E N 17 40 W	N 8 47 W S 69 59 W S 17 40 E	982 2475 1646	Geog. Moon. Ford.
8	38 03 05.44	75 50 32.58	S 72 45 E N 29 50 E N 71 07 W	N 72 44 W S 29 50 W S 71 08 E	1872 2287 3031	Geog. <b>H</b> Ford. Has.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## CHURCH CREEK.

(Chesapeake Bay—Off Smith Island—Chart No. 8.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 58 41.19	76 04 16.61	N 89 55 E N 60 15 E N 22 06 E	S 89 56 W S 60 16 W S 22 07 W	2791 4167 7531	Old Church (Smith Island). North Church (Smith Isl'd). Fog.
2	37 58 53.37	76 05 41.59	S 85 25 E N 74 16 E N 37 49 E	N 85 23 W S 74 18 W S 37 52 W	5075 6114 8316	Old Church (Smith Island). North Church (Smith Isl'd). Fog.
3	37 59 53.49	76 05 47.45	S 65 00 E S 86 31 E N 49 10 E	N 64 58 W N 86 28 W S 49 12 W	5755 6053 6945	Old Church (Smith Island). North Church (Smith Isl'd). Fog.
4	38 00 01.79	76 04 12.09	S 44 32 E S 79 28 E N 32 29 E	N 44 31 W N 79 27 W S 32 30 W	3807 3557 5050	Old Church (Smith Island). North Church (Smith Isl'd). Fog.

## PHILIBYS.

(Lower Tangier Sound—Chart No. 9.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 56 57.88	75 54 49.54	N 59 04 E N 15 01 W N 86 25 W	S 59 05 W S 15 01 E S 86 28 E	4041 1771 7711	Somers Cove Light. Janes Island Light. Horse.
2	37 57 10.16	75 55 47.46	N 71 38 E N 39 59 E N 89 24 W	S 71 40 W S 40 00 W S 89 26 E	5281 1692 6149	Somers Cove Light. Janes Island Light. Horse.
3	37 57 36.68	75 54 13.91	N 74 05 W S 1 46 W N 73 00 E	S 74 05 E N 1 46 E S 73 01 W	1467 7833 2629	Janes Island Light. Fox Island Poplar. Somers Cove Light.
4	37 57 06.76	75 54 25.70	S 0 37 E N 57 52 E N 37 49 W	N 0 37 W S 57 53 W S 37 50 E	6821 3341 1786	Fox Island Poplar. Somers Cove Light. Janes Island Light.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

GREAT ROCK.

(Lower Tangier Sound—Chart No. 9.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 55 03.68	75 55 47.80	S 40 19 E	N 40 18 W	3504	Fox Island Poplar. Janes Island Light. Horse.
			N 11 09 E	S 11 10 W	5668	
			N 54 48 W	S 54 51 E	7514	
2	37 55 04.91	75 56 45.03	S 54 27 E	N 54 26 W	4665	Fox Island Poplar. Janes Island Light. Horse.
			N 25 26 E	S 25 27 W	6112	
			N 47 05 W	S 47 07 E	6298	
3	37 56 05.24	75 56 31.32	N 58 03 E	S 58 06 W	7286	Somers Cove Light. Janes Island Light. Horse.
			N 32 56 E	S 32 57 W	4153	
			N 65 38 W	S 65 40 E	5465	
4	37 57 10.16	75 55 47.46	N 71 38 E	S 71 40 W	5281	Somers Cove Light. Janes Island Light. Horse.
			N 39 59 E	S 40 00 W	1692	
			N 89 24 W	S 89 26 E	6149	
5	37 56 57.88	75 54 49.54	N 59 04 E	S 59 05 W	4041	Somers Cove Light. Janes Island Light. Horse.
			N 15 01 W	S 15 01 E	1771	
			N 86 25 W	S 86 28 E	7711	

FOX ISLAND.

(Lower Tangier Sound—Chart No. 9.)

	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 54 26.23	75 56 53.80	S 70 45 E	N 70 43 W	4269	Fox Island Poplar Janes Island Light. Horse.
			N 22 44 E	S 22 45 W	7398	
			N 38 03 W	S 38 05 E	7103	
2	37 55 04.91	75 56 45.03	S 54 27 E	N 54 26 W	4665	Fox Island Poplar. Janes Island Light. Horse.
			N 25 26 E	S 25 27 W	6112	
			N 47 05 W	S 47 07 E	6298	
3	37 55 03.68	75 55 47.80	S 40 19 E	N 40 18 W	3504	Fox Island Poplar. Janes Island Light. Horse.
			N 11 09 E	S 11 10 W	5668	
			N 54 48 W	S 54 51 E	7514	
4	37 54 29.34	75 56 05.26	S 61 02 E	N 61 01 W	3124	Fox Island Poplar. Janes Island Light. Horse.
			N 13 06 E	S 13 06 W	6898	
			N 45 57 W	S 45 59 E	7894	

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## STONE.

(Northern Pocomoke Sound—Chart No. 9.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 55 41.57	75 48 32.21	S 85 52 E	N 85 49 W	8251	Saxis Church. Monkey. East.
			N 7 51 E	S 7 51 W	2676	
			N 88 43 W	S 88 44 E	2467	
2	37 55 53.60	75 48 43.03	S 83 19 E	N 83 15 W	8577	Saxis Church. Monkey. East.
			N 16 15 E	S 16 15 W	2339	
			S 80 51 W	N 80 50 E	2206	
3	37 56 11.53	75 48 29.22	N 65 24 E	S 65 27 W	7473	Scot. Monkey. East.
			N 9 52 E	S 9 53 W	1666	
			S 69 26 W	N 69 25 E	2720	
4	37 56 01.22	75 48 05.47	N 60 42 E	S 60 45 W	7065	Scot. Monkey. East.
			N 9 56 W	S 9 56 E	2021	
			S 79 11 W	N 79 10 E	3238	
5	37 55 50.76	75 47 52.93	S 82 49 E	N 82 46 W	7237	Saxis Church. Monkey. East.
			N 16 16 W	S 16 16 E	2439	
			S 85 52 W	N 85 53 E	3525	
6	37 55 45.79	75 48 13.64	N 2 58 W	S 2 58 E	2517	Monkey. East. Fox Island Poplar.
			S 88 19 W	N 88 18 E	2964	
			S 67 30 W	N 67 27 E	10680	

## WATKINS.

(Northern Pocomoke Sound—Chart No. 9.)

	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 56 01.22	75 48 05.47	N 60 42 E	S 60 45 W	7065	Scot. Monkey. East.
			N 9 56 W	S 9 56 E	2021	
			S 79 11 W	N 79 10 E	3238	
2	37 56 11.53	75 48 29.22	N 65 24 E	S 65 27 W	7473	Scot. Monkey. East.
			N 9 52 E	S 9 53 W	1666	
			S 69 26 W	N 69 25 E	2720	
3	37 56 25.34	75 48 44.22	N 69 49 E	S 69 52 W	7666	Scot. Monkey. East.
			N 30 16 E	S 30 16 W	1362	
			S 56 29 W	N 56 28 E	2573	
4	37 56 41.98	75 48 17.81	N 72 12 E	S 72 15 W	6816	Scot. Monkey. East.
			N 1 46 W	S 1 46 E	614	
			S 55 12 W	N 55 11 E	3472	
5	37 56 42.70	75 47 54.58	N 70 40 E	S 70 43 W	6220	Scot. Monkey. East.
			N 47 16 W	S 47 17 E	870	
			S 59 59 W	N 59 58 E	4009	
6	37 56 25.57	75 47 39.00	N 64 12 E	S 64 14 W	6057	Scot. Monkey. East.
			N 42 06 W	S 42 06 E	1574	
			S 69 50 W	N 69 48 E	4141	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

LONG POINT.

(Northern Pocomoke Sound—Chart No. 9.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	37 56 25.34	75 48 44.22	N 69 49 E	S 69 52 W	7666	Scot. Monkey. East.
			N 30 16 E	S 30 16 W	1362	
			S 56 29 W	N 56 28 E	2573	
2	37 57 00.82	75 48 42.30	S 73 37 W	N 73 36 E	2931	Watermelon Hummock. East Monkey.
			S 40 01 W	N 40 00 E	3418	
			S 88 09 E	N 88 08. W	635	
3	37 57 02.80	75 48 31.38	S 73 57 W	N 73 56 E	3229	Watermelon Hummock. East. Monkey.
			S 42 50 W	N 42 49 E	3660	
			S 75 31 E	N 75 31 W	354	
4	37 56 50.20	75 48 38.72	S 80 50 W	N 80 49 W	2945	Watermelon Hummock. East. Saxis Church.
			S 45 25 W	N 45 24 E	3218	
			S 70 55 E	N 70 52 W	8892	
5	37 56 41.98	75 48 17.81	N 72 12 E	S 72 15 W	6816	Scot. Monkey. East.
			N 1 46 W	S 1 46 E	614	
			S 55 12 W	N 55 11 E	3472	

GUNBY.

(Middle Pocomoke Sound—Chart No. 10.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	37 56 11.06	75 46 07.04	S 11 50 E	N 11 50 W	4762	Mos. Saxis Church. Scot.
			S 69 55 E	N 69 54 W	4634	
			N 43 49 E	S 43 51 W	4330	
2	37 56 28.98	75 46 40.33	S 19 31 E	N 19 31 W	5586	Mos. Saxis Church. Scot.
			S 67 17 E	N 67 15 W	5681	
			N 57 03 E	S 57 04 W	4632	
3	37 56 48.98	75 46 15.36	S 11 25 E	N 11 24 W	6059	Mos. Saxis Church. Scot.
			S 57 54 E	N 57 52 W	5399	
			N 60 11 E	S 60 12 W	3712	
4	37 56 35.02	75 45 34.66	S 1 10 E	N 1 10 W	5470	Mos. Saxis Church. Scot.
			S 55 28 E	N 55 27 W	4231	
			N 42 40 W	S 42 41 E	3150	

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—CONTINUED.

## MARUMSCO.

(Middle Pocomoke Sound—Chart No. 10.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 56 45.40	75 44 30.51	S 15 24 W S 32 50 E N 62 44 E	N 15 23 E N 32 49 W S 62 46 W	6034 3272 5484	Mos. Saxis Church. Old.
2	37 57 27.13	75 45 13.96	S 3 30 W S 35 13 E N 70 33 E	N 3 30 E N 35 12 W S 70 33 W	7239 5087 1678	Mos. Saxis Church. Scot.
3	37 57 39.07	75 43 56.62	N 72 05 W S 10 47 E N 79 58 E	S 72 05 E N 10 47 W S 79 59 W	597 4641 4032	Scot. Saxis Church. Old.
4	37 56 55.12	75 43 48.54	S 11 58 E N 59 49 E N 23 11 W	N 11 58 W S 59 50 W S 23 11 E	3146 4344 1781	Saxis Church. Old. Scot.

## KITTS CREEK WEST.

(Upper Pocomoke Sound—Chart No. 10.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 58 18.42	75 42 32.72	S 66 44 W S 13 08 W S 70 09 E	N 66 43 E N 13 07 E N 70 08 W	2964 6044 1841	Scot. Saxis Church. Old.
2	37 58 26.98	75 42 47.64	S 57 53 W S 8 58 W S 66 47 W	N 57 52 E N 8 58 E N 66 46 E	2744 6251 2316	Scot. Saxis Church. Old.
3	37 58 32.00	75 42 41.52	S 56 48 W S 10 10 W S 61 09 E	N 56 47 E N 10 10 E N 61 09 W	2973 6445 2244	Scot. Saxis Church. Old.
4	37 58 26.82	75 42 27.42	S 63 06 W S 13 47 W S 60 15 E	N 63 04 E N 13 47 E N 60 14 W	3212 6353 1831	Scot. Saxis Church. Old.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## KITTS CREEK EAST.

(Upper Pocomoke Sound—Chart No. 10.)

Corner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station	
	°	'	"	°	'	"	Forward	Back			
1	37	57	58.16	75	41	47.71	S 82 56 W	N 82 54 E	3954	Scot. Saxis Church. Old.	
							S 26 20 W	N 26 19 E			5805
							N 83 45 E	S 83 45 W			533
2	37	58	15.78	75	42	26.14	S 69 32 W	N 69 31 E	3093	Scot. Saxis Church. Old.	
							S 14 57 W	N 14 57 E			6001
							S 70 59 E	N 70 58 W			1645
3	37	58	24.01	75	42	20.96	S 65 54 W	N 65 52 E	3327	Scot. Saxis Church. Old.	
							S 15 31 W	N 15 30 E			6305
							S 60 08 E	N 60 08 W			1634
4	37	58	16.70	75	42	09.59	S 71 35 W	N 71 34 E	3520	Scot. Saxis Church. Old.	
							S 18 51 W	N 18 51 E			6158
							S 63 00 E	N 63 00 W			1249
5	37	58	06.40	75	41	41.59	S 79 25 W	N 79 23 E	4159	Scot. Saxis Church. Old.	
							S 26 33 W	N 26 32 E			6131
							S 59 00 E	N 59 00 W			426

## BOUNDARIES OF CRAB BOTTOMS.

## EXPLANATION OF DESCRIPTIONS OF BOUNDARIES.

The laws providing for the survey of the oyster bars of Maryland also contain a section which requires "an accurate survey of and delineation upon the maps and charts aforesaid of all bottoms of the tributaries of the Chesapeake Bay where grass grows and it is profitable to scrape for soft shell or shedder crabs, and shall have such bottoms properly designated by permanent objects on the shore, as provided hereinbefore for natural oyster beds, bars, and rocks, which said crabbing sections shall be exempt from leasing for oyster culture."

The crab bottoms of Somerset County are the first ones to be surveyed in Maryland,<sup>a</sup> and as far as known such a survey is altogether a new problem which differs<sup>b</sup> in many ways from that of a survey of oyster bars.

In a general way it can be stated that the boundaries of the crab bottoms as established by the Maryland Shell Fish Commission and delineated on the "Charts of Oyster Bars," published by the Coast and Geodetic Survey, are confined to waters between the 1-fathom contour (6 feet depth of water) and the shore line. Therefore, in most cases the mean low water line of the shore has been adopted as an inner boundary for the

<sup>a</sup> Anne Arundel County has no crab bottoms within the meaning of the law.

<sup>b</sup> See pages 69 to 70 of "First Annual Report of Maryland Shell Fish Commission" for description of "Survey of crabbing grounds."

crab bottoms, but the same system of straight lines and numbered corners used to delineate the oyster bars has been retained for defining the offshore water boundaries.

There are 54 individual "crab bottoms" in Somerset County exempt from leasing for oyster culture which have been surveyed and delineated under separate names by the Commission, and their total area as determined by the hydrographic engineer of the Commission is 32,108 acres. The largest of these bottoms is 2,182 acres and the smallest 23 acres.

The boundaries of the crab bottoms of Somerset County as established by the Shell Fish Commission and shown on the Coast and Geodetic Survey charts and projections and on the "leasing charts" of the Commission are technically defined and described by a method but little different from that used for the description of the boundaries of oyster bars.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all crabbing bottoms in the county.

At the top of each tabular form is given the legal name of the crab bottom to be described, its general locality, and the serial numbers of the "Charts of Oyster Bars" of Maryland on which its boundaries are shown.

The first column, under the heading of "Corner of bottom," gives the number corresponding to the corner of the boundary as shown on the charts. These numbers have been assigned to the corners of the crab bottoms in a slightly different manner from that used in describing the oyster bars, although both proceed in a clockwise direction around their boundaries. In delineating the crab bottoms it was generally planned to have both the first and last corners fall on land, thus making the mean low-water line of the shore between these two corners form the connecting boundary, as is always stated in such cases in a note at the bottom of the tabular descriptions. Where a corner of one bottom is identical with the corners of one or more other crab bottoms, oyster bars, or clam beds, only the number of the crab bottom being described in the table is given in this column.

The second and third columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the Commission as the primary technical definitions of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations of the Survey, even though all the landmarks and buoys used for their original location have been destroyed.

The fourth and fifth columns, under the general heading of "True bearing" <sup>a</sup> and the specific headings of "Forward" and "Back," give bearings measured from a true north and south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column.

<sup>a</sup> The mean magnetic variation of Somerset County for 1908 was 5° 30' west of north and increasing at the rate of 3' yearly.

The sixth column, under the heading of "Distance," gives the three computed distances in yards from the corner of the crab bottom noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

The seventh and last column, under the heading of "U. S. C. & G. S. triangulation station," gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bottom" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication, under the heading of "Descriptions of landmarks."

The descriptive note of the shore line boundary which usually follows the description of the last corner on the tabular form and sometimes between intermediate corners which happen to fall on land requires no explanation, other than to state that the laws of Maryland reserve to riparian owners all waters of "any creek, cove, or inlet less than one hundred yards in width at its mouth at low tide."

SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the crab bottoms as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey, but as they are practically the same as those required for the relocation of oyster-bar boundaries the description of the "Surveying methods for relocation of boundaries" under the heading of "Boundaries of oyster bars" in this publication will be sufficient to indicate several methods that can be used in the relocation of crab-bottom boundaries.

BOUNDARIES OF CRAB BOTTOMS.

DEEP BANKS.

(Inner Holland Straits—Charts Nos. 5 and 6.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 07 32.98	76 02 06.20	S 40 11 W S 36 24 E N 64 29 E	N 40 10 E N 36 23 W S 64 30 W	9076 4494 2435	Holland Island Bar Light. Miles. Senator.
2	38 07 45.04	76 02 35.76	S 34 36 E S 40 39 E N 77 51 E	N 34 36 E N 40 38 W S 77 52 W	8920 5303 3054	Holland Island Bar Light. Miles. Senator.
3	38 08 50.58	76 01 53.42	S 32 59 W S 20 28 E S 49 51 E	N 32 56 E N 20 27 W N 49 50 W	11384 6653 2431	Holland Island Bar Light. Miles Senator.
4	38 08 04.09	76 00 43.66	S 5 43 E S 70 11 E N 80 42 E	N 5 43 W N 70 09 W S 80 45 W	4689 6484 5117	Miles. Joshua. Bar.

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## HOLLAND STRAITS.

(West Tangier Sound—Charts Nos. 5, 6, and 7.)

Corner of bottom	Latitude		Longitude		True bearing				Distance	U. S. C. & G. S. triangulation station
					Forward		Back			
	°	'	"	°	'	"	°	'	Yards.	
1	38	08	04.09	76	00	43.66	S 5 43 E	N 5 43 W	4689	Miles. Joshua. Bar.
							S 70 11 E	N 70 09 W	6484	
							N 80 42 E	S 80 45 W	5117	
2	38	08	50.58	76	01	53.42	S 32 59 W	N 32 56 E	11384	Holland Island Bar Light. Miles. Senator.
							S 20 28 E	N 20 27 W	6653	
							S 49 51 E	N 49 50 W	2431	
3	38	09	26.74	76	00	23.48	S 10 55 W	N 10 55 E	2838	Senator. Deal Island Church. Crab.
							S 87 10 E	N 87 07 W	5546	
							N 32 41 W	S 32 41 E	2607	
4	38	09	06.39	76	00	41.00	S 1 56 W	N 1 56 E	2102	Senator. Deal Island Church. Crab.
							N 86 05 E	S 86 07 W	6019	
							N 18 06 W	S 18 06 E	3030	
5	38	08	42.38	76	00	20.00	S 26 01 W	N 26 01 E	1437	Senator. Deal Island Church. Crab.
							N 77 22 E	S 77 24 W	5582	
							N 22 08 W	S 22 08 E	3984	

## PUNGERS CREEK.

(West Upper Tangier Sound—Charts Nos. 5, 6, and 7.)

Corner of bottom	Latitude		Longitude		True bearing				Yards.	Miles. Joshua. Bar.
	°	'	"	°	'	"	°	'		
1	38	08	04.09	76	00	43.66	S 5 43 E	N 5 43 W	4689	Miles. Joshua. Bar.
							S 70 11 E	N 70 09 W	6484	
							N 80 42 E	S 80 45 W	5117	
2	38	08	42.38	76	00	20.00	S 26 01 W	N 26 01 E	1437	Senator. Deal Island Church. Crab.
							N 77 22 E	S 77 24 W	5582	
							N 22 08 W	S 22 08 E	3984	
3	38	06	24.78	76	00	21.47	S 5 22 W	N 5 22 E	1323	Miles. Joshua. Senator.
							N 78 12 E	S 78 14 W	5629	
							N 10 01 W	S 10 01 E	3400	
4	38	05	49.58	76	00	03.78	S 77 38 W	N 77 38 E	609	Miles. Solomons Lump Light. Joshua.
							S 12 54 W	N 12 53 E	6113	
							N 65 07 E	S 65 09 W	5553	
5	38	05	46.97	76	00	23.58	S 66 27 E	S 66 29 W	6072	Joshua. Senator. Miles.
							N 6 36 W	S 6 36 E	4654	
							S 57 11 W	N 57 11 E	80	

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.



BOUNDARIES OF CRAB BOTTOMS—continued.

LAW'S THOROUGHFARE NORTH.

(Northeast Tangier Sound—Inside Deal Island—Chart No. 5.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 10 00.83	75 56 45.32	N 30 58 W	S 30 58 E	1304	Haines.
			S 58 13 W	N 58 10 E	7468	Senator.
			S 10 46 W	N 10 46 E	1449	Deal Island Church.
2	38 10 12.78	75 56 36.20	N 51 57 W	S 51 57 E	1160	Haines.
			S 56 39 W	N 56 37 E	7889	Senator.
			S 15 42 W	N 15 42 E	1897	Deal Island Church.

Thence from corner No. 2 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

DEAL ISLAND.

(East Upper Tangier Sound—Charts Nos. 5 and 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 07 50.57	75 57 26.57	N 85 01 W	S 85 03 E	5269	Senator.
			S 48 40 W	N 48 38 E	6371	Miles.
			S 26 00 E	N 26 00 W	1940	Joshua.
2	38 07 49.36	75 57 48.36	N 83 55 W	S 83 53 E	4695	Senator.
			S 45 14 W	N 45 13 E	5920	Miles.
			S 40 02 E	N 40 01 W	2224	Joshua.
3	38 07 49.58	75 58 08.32	N 83 15 W	S 83 16 E	4167	Senator.
			S 41 19 W	N 41 18 E	5561	Miles.
			S 48 56 E	N 48 55 W	2603	Joshua.
4	38 08 20.24	75 58 12.82	N 74 45 E	S 74 45 W	1071	Bar.
			N 46 20 E	S 46 21 W	2848	Deal Island Church.
			S 82 17 W	N 82 15 E	4054	Senator.
5	38 08 47.88	75 57 40.59	S 15 01 E	N 15 01 W	674	Bar.
			N 49 18 E	S 49 18 W	1585	Deal Island Church.
			N 12 37 E	S 12 37 W	3666	Haines.
6	38 08 50.96	75 57 21.51	N 36 43 E	S 36 43 W	1160	Deal Island Church.
			N 4 49 E	S 4 49 W	3486	Haines.
			S 23 52 W	N 23 52 E	825	Bar.

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## LAWS THOROUGHFARE SOUTH.

(North Manokin River—Inside of Deal Island—Charts Nos. 5 and 7.)

Corner of bottom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station	
	°	'	"	°	'	"	Forward	Back			
1	38	08	17.58	75	54	13.80	S 73 20 W	N 73 20 E	680	Kelley.	
							S 25 36 E	N 25 35 W	6683		Prickly.
							S 85 28 E	N 85 27 W	1909		
2	38	07	54.55	75	53	44.94	S 89 25 E	N 89 21 W	3765	St. Pierre.	
							N 61 07 E	S 61 07 W	1296		Marsh.
							N 67 43 W	S 67 44 E	1534		
3	38	07	20.78	75	55	27.89	N 65 32 E	S 65 33 W	4260	Marsh.	
							N 37 32 E	S 37 32 W	2170		Kelley.
							S 72 17 W	N 72 16 E	2427		
4	38	07	33.58	75	55	38.18	S 60 08 W	N 60 07 E	2350	Joshua.	
							S 48 31 E	N 48 29 W	6856		Prickly.
							N 51 05 E	S 51 05 W	2052		

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## MARSH ISLAND.

(North Shore Manokin River—Charts Nos. 5 and 7.)

Corner of bottom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station	
	°	'	"	°	'	"	Forward	Back			
1	38	08	13.09	75	53	02.32	S 68 00 W	N 67 57 E	6675	Joshua.	
							S 9 29 E	N 9 29 W	5957		Prickly.
							S 75 49 E	N 75 48 W	2712		
2	38	07	54.55	75	53	44.94	S 89 25 E	N 89 21 W	3765	St. Pierre.	
							N 61 07 E	S 61 07 W	1296		Marsh.
							N 67 43 W	S 67 44 E	1534		
3	38	08	17.58	75	54	13.80	S 73 20 W	N 73 20 E	680	Kelley.	
							S 25 36 E	N 25 35 W	6683		Prickly.
							S 85 28 E	N 85 27 W	1909		

Thence from corner No. 3 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF CRAB BOTTOMS—continued.

ST. PIERRE.

(North Shore Manokin River—Charts Nos. 5 and 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 08 13.08	75 51 18.98	S 10 30 W	N 10 30 E	676	St. Pierre. Cupola. Jean.
			S 87 56 E	N 87 54 W	4276	
			N 52 58 E	S 52 59 W	1601	
2	38 08 15.04	75 50 56.73	S 44 25 W	N 44 25 E	1023	St. Pierre. Staff. Jean.
			S 71 55 E	N 71 55 W	2350	
			N 37 21 E	S 37 22 W	1130	
3	38 07 37.55	75 51 09.09	S 62 39 E	N 62 37 W	5417	Fairmount Church. St. Pierre. Marsh.
			N 35 54 W	S 35 54 E	659	
			N 68 19 W	S 68 20 E	3245	
4	38 07 38.06	75 52 23.58	N 72 05 E	S 72 05 W	1679	St. Pierre. Marsh. Kelley.
			N 41 08 W	S 41 09 E	1568	
			N 72 23 W	S 72 25 E	3763	
5	38 07 37.14	75 53 26.26	N 80 28 E	S 80 30 W	3313	St. Pierre. Marsh. Kelley.
			N 27 45 E	S 27 45 W	1369	
			N 58 38 W	S 58 37 E	2256	
6	38 07 54.55	75 53 44.94	S 89 25 E	N 89 21 W	3765	St. Pierre. Marsh. Kelley.
			N 61 07 E	S 61 07 W	1296	
			N 67 43 W	S 67 44 E	1534	
7	38 08 13.09	75 53 02.32	S 68 00 W	N 67 57 E	6675	Joshua. Prickly. St. Pierre.
			S 9 29 E	N 9 29 W	5957	
			S 75 49 E	N 75 48 W	2712	

Thence from corner No. 7 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

GEANQUAKIN.

(North Shore Manokin River—Charts Nos. 5 and 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 09 02.82	75 50 09.12	S 39 08 W	N 39 09 E	920	Jean. Staff. Sandy.
			S 22 26 E	N 22 26 W	2531	
			S 64 07 E	N 64 06 W	2942	
2	38 08 41.22	75 50 12.44	N 88 14 W	S 88 14 E	492	Jean. Staff. Sandy.
			S 33 12 E	N 33 11 W	1927	
			S 78 31 E	N 78 30 W	2791	
3	38 08 15.04	75 50 56.73	S 44 25 W	N 44 25 E	1023	St. Pierre. Staff. Jean.
			S 71 55 E	N 71 55 W	2350	
			N 37 21 E	S 37 22 W	1130	
4	38 08 13.08	75 51 18.98	S 10 30 W	N 10 30 E	676	St. Pierre. Cupola. Jean.
			S 87 56 E	N 87 54 W	4276	
			N 52 58 E	S 52 59 W	1601	

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

*Survey of Oyster Bars, Somerset County, Md.*

BOUNDARIES OF CRAB BOTTOMS—continued.

SPRING ISLAND.

*(East Shore Holland Straits—Chart No. 6.)*

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 06 39.86	76 03 17.80	S 37 30 W	N 37 28 E	6484	Holland Island Bar Light.
			S 68 15 E	N 68 13 W	4926	Miles.
			N 55 19 E	S 55 20 W	4992	Senator.
2	38 07 45.04	76 02 35.76	S 34 37 W	N 34 36 E	8920	Holland Island Bar Light.
			S 40 39 E	N 40 38 W	5303	Miles.
			N 77 51 E	S 77 52 W	3054	Senator.
3	38 07 32.98	76 02 06.20	S 40 11 W	N 40 10 E	9076	Holland Island Bar Light.
			S 36 24 E	N 36 23 W	4494	Miles.
			N 64 29 E	S 64 30 W	2435	Senator.

Thence from corner No. 3 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

PRY COVE.

*(East Shore Holland Straits—Chart No. 6.)*

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 05 44.11	76 03 44.60	S 44 43 W	N 44 42 E	4594	Holland Island Bar Light.
			S 15 12 E	N 15 11 W	7546	Fog.
			S 38 05 E	N 38 03 W	7318	Solomons Lump Light.
2	38 06 39.86	76 03 17.80	S 37 30 W	N 37 28 E	6484	Holland Island Bar Light.
			S 68 15 E	N 68 13 W	4926	Miles.
			N 55 19 E	S 55 20 W	4992	Senator.

Thence from corner No. 2 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF CRAB BOTTOMS—continued.

NORTH KEDGE STRAITS.

(Entrance Kedge Straits—Chart No. 6.)

Corner of bottom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	38	04	29.67	76	02	08.22	S 82 36 W	N 82 34 E	5851	Holland Island Bar Light. Fog. Solomons Lump Light.
							S 7 04 W	N 7 04 E	4809	
							S 30 54 E	N 30 53 W	3805	
2	38	04	13.84	76	02	35.49	S 87 31 W	N 87 29 E	5080	Holland Island Bar Light. Fog. Solomons Lump Light.
							S 1 50 E	N 1 50 W	4241	
							S 44 28 E	N 44 27 W	3826	
3	38	04	29.16	76	03	45.49	S 77 04 W	N 77 02 E	3293	Holland Island Bar Light Fog. Solomons Lump Light.
							S 22 50 E	N 22 50 W	5160	
							S 54 28 E	N 54 27 W	5587	
4	38	05	01.98	76	03	40.24	S 61 10 W	N 61 08 E	3823	Holland Island Bar Light. Fog. Solomons Lump Light.
							S 17 38 E	N 17 37 W	6150	
							S 45 21 E	N 45 20 W	6195	
5	38	05	10.20	76	04	00.70	S 52 53 W	N 52 52 E	3516	Holland Island Bar Light. Fog. Solomons Lump Light.
							S 21 25 E	N 21 24 W	6593	
							S 46 56 E	N 46 54 W	6780	
6	38	05	44.11	76	03	44.60	S 44 43 W	N 44 42 E	4594	Holland Island Bar Light. Fog. Solomons Lump Light.
							S 15 12 E	N 15 11 W	7546	
							S 38 05 E	N 38 03 W	7318	

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

SHEEPSHEAD.

(North Kedge Straits—Charts Nos. 6 and 7.)

1	Latitude			Longitude			True bearing		Yards.	
	°	'	"	°	'	"	Forward	Back		
1	38	04	14.98	76	00	47.58	S 4 04 W	N 4 03 E	2777	Solomons Lump Light. Joshua. Miles.
							N 48 18 E	S 48 21 W	8310	
							N 10 36 E	S 10 36 W	3112	
2	38	03	07.81	75	59	52.42	N 31 17 E	S 31 19 W	9118	Joshua. Miles. Solomons Lump Light.
							N 9 34 W	S 9 35 E	5399	
							S 73 09 W	N 73 09 E	1742	
3	38	03	52.80	76	01	33.90	N 85 49 W	S 85 52 E	6734	Holland Island Bar Light. Fog. Solomons Lump Light.
							S 23 10 W	N 23 09 E	3837	
							S 27 11 E	N 27 11 W	2272	
4	38	04	13.84	76	02	35.49	S 87 31 W	N 87 29 E	5080	Holland Island Bar Light. Fog. Solomons Lump Light.
							S 1 50 E	N 1 50 W	4241	
							S 44 28 E	N 44 27 W	3826	
5	38	04	29.67	76	02	08.22	S 82 36 W	N 82 34 E	5851	Holland Island Bar Light. Fog. Solomons Lump Light.
							S 7 04 W	N 7 04 E	4809	
							S 30 54 E	N 30 53 W	3805	

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

*Survey of Oyster Bars, Somerset County, Md.*

BOUNDARIES OF CRAB BOTTOMS—continued.

FISHING POINT.

(Tangier Sound—Entrance Kedge Straits—Charts Nos. 6 and 7.)

Cor- ner of bot- tom	Latitude		Longitude		True bearing		Distance.	U. S. C. & G. S. triangulation station
	° ' "	° ' "	° ' "	° ' "	Forward	Back		
1	38 02 29.00	76 00 56.80	N 3 31 E	S 3 31 W	805	Solomons Lump Light.		
			N 66 43 W	S 66 46 E	8389	Holland Island Bar Light.		
			S 74 16 W	N 74 17 E	2587	Fog.		
2	38 02 44.78	76 00 55.48	N 2 38 E	S 2 38 W	272	Solomons Lump Light.		
			N 70 16 W	S 70 19 E	8224	Holland Island Bar Light.		
			S 64 00 W	N 63 59 E	2817	Fog.		
3	38 02 28.54	76 00 03.70	N 5 08 W	S 5 08 E	6674	Miles.		
			N 59 03 W	S 59 04 E	1593	Solomons Lump Light.		
			S 44 24 E	N 44 23 W	4327	Terrapin.		
4	38 01 35.00	75 59 10.00	S 51 07 E	N 51 07 W	2050	Terrapin.		
			N 18 16 E	S 18 18 W	11502	Joshua.		
			N 46 50 W	S 46 51 E	3836	Solomons Lump Light.		
5	38 01 28.96	75 59 14.56	S 57 46 E	N 57 45 W	2140	Terrapin.		
			N 18 31 W	S 18 30 E	11732	Joshua.		
			N 43 25 W	S 43 26 E	3894	Solomons Lump Light.		

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

SOUTH KEDGE STRAITS.

(Entrance Kedge Straits—Chart No. 6.)

Cor- ner of bot- tom	Latitude		Longitude		True bearing		Distance.	U. S. C. & G. S. triangulation station
	° ' "	° ' "	° ' "	° ' "	Forward	Back		
1	38 02 07.00	76 02 34.00	N 68 11 E	S 68 11 W	104	Fog.		
			N 59 39 E	S 59 40 W	3060	Solomons Lump Light.		
			N 51 35 W	S 51 37 E	6528	Holland Island Bar Light.		
2	38 02 30.23	76 02 35.04	N 57 14 W	S 57 14 E	6049	Holland Island Bar Light.		
			S 9 26 E	N 9 26 W	755	Fog.		
			N 74 03 E	S 74 04 W	2776	Solomons Lump Light.		
3	38 02 46.44	76 01 48.74	N 66 40 W	S 66 42 E	6884	Holland Island Bar Light.		
			S 40 42 W	N 40 42 E	1704	Fog.		
			N 81 27 E	S 81 27 W	1450	Solomons Lump Light.		
4	38 02 52.84	76 00 54.95	N 72 03 W	S 72 06 E	8152	Holland Island Bar Light		
			S 59 23 W	N 59 22 E	2958	Fog.		
			S 42 12 E	N 42 08 W	13840	Janes Island Light.		
5	38 02 44.78	76 00 55.48	N 2 38 E	S 2 38 W	272	Solomons Lump Light.		
			N 70 16 W	S 70 19 E	8224	Holland Island Bar Light.		
			S 64 00 W	N 63 59 E	2817	Fog.		
6	38 02 29.00	76 00 56.80	N 3 31 E	S 3 31 W	805	Solomons Lump Light.		
			N 66 43 W	S 66 46 E	8389	Holland Island Bar Light.		
			S 74 16 W	N 74 17 E	2587	Fog.		

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF CRAB BOTTOMS—continued.

SMITH ISLAND THOROUGHFARE.

(Smith Island—Charts Nos. 6, 8, and 9.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	37 59 49.66	76 02 56.68	S 15 55 E	N 15 55 W	2397	Old Church. North Church. Joseph.
			S 80 46 E	N 80 45 W	1504	
			N 6 08 W	S 6 08 E	2160	
2	38 00 11.66	76 03 01.32	S 14 23 E	N 14 23 W	3145	Old Church. North Church. Joseph.
			S 58 34 W	N 58 34 E	1885	
			N 4 20 W	S 4 20 E	1410	

Thence from corner No. 2 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

TERRAPIN SAND.

(Southwest Tangier Sound—Charts Nos. 7 and 9.)

Corner of bottom	Latitude	Longitude	True bearing		Yards.	
			Forward	Back		
1	38 01 28.96	75 59 14.56	S 57 46 E	N 57 45 W	2140	Terrapin. Joshua. Solomons Lump Light.
			N 18 31 W	S 18 30 E	11732	
			N 43 25 W	S 43 26 E	3894	
2	38 01 35.00	75 59 10.00	S 51 07 E	N 51 07 W	2050	Terrapin. Joshua. Solomons Lump Light.
			N 18 16 E	S 18 18 W	11502	
			N 46 50 W	S 46 51 E	3836	
3	38 01 01.70	75 57 33.37	S 80 30 W	N 80 30 E	995	Terrapin. Horse. Flat Cap.
			S 23 13 W	N 23 12 E	8424	
			N 78 09 E	S 78 14 W	8233	
4	38 00 15.12	75 57 10.17	N 48 42 W	S 48 43 E	2131	Terrapin. Horse. Janes Island Light.
			S 32 34 W	N 32 32 E	7322	
			S 33 43 E	N 33 42 W	5938	
5	38 00 10.56	75 57 23.66	N 38 30 W	S 38 30 E	1994	Terrapin. Horse. Janes Island Light.
			S 30 45 W	N 30 44 E	7002	
			S 37 22 E	N 37 21 W	6022	
6	38 00 18.54	75 58 43.38	S 13 00 W	N 13 00 E	6453	Horse. Janes Island Light. Terrapin.
			S 48 51 E	N 48 49 W	7680	
			N 34 27 E	S 34 27 W	1566	

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## SOUTH MARSH.

(West Tangier Sound—Chart No. 7.)

Corner of bottom	Latitude			Longitude			True bearing				Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward		Back			
1	38	05	46.97	76	00	23.58	N 66 27 E	S 66 29 W	6072	Joshua.	Senator.	80 Miles.
							N 6 36 W	S 6 36 E				
							S 57 11 W	N 57 11 E				
2	38	05	49.58	76	00	03.78	S 77 38 W	N 77 38 E	609	Miles.	Solomons Lump Light.	Joshua.
							N 12 54 W	N 12 53 E	6113			
							N 65 07 E	S 65 09 W	5553			
3	38	03	40.94	75	59	32.90	N 18 38 W	S 18 38 E	4440	Miles.	Solomons Lump Light.	Terrapin.
							S 53 27 W	N 53 27 E	2723			
							S 21 45 E	N 21 44 W	5957			
4	38	03	07.81	75	59	52.42	N 31 17 E	S 31 19 W	9118	Joshua.	Solomons Lump Light.	Miles.
							N 9 34 W	S 9 35 E	5399			
							S 73 09 W	N 73 09 E	1742			
5	38	04	14.98	76	00	47.58	S 4 04 W	N 4 03 E	2777	Solomons Lump Light.	Joshua.	Miles.
							N 48 18 E	S 48 21 W	8310			
							N 10 36 E	S 10 36 W	3112			

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## WENONA.

(East Upper Tangier Sound—Chart No. 7.)

Corner of bottom	Latitude			Longitude			True bearing				Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward		Back			
1	38	07	07.07	75	57	00.83	N 72 02 W	S 72 04 E	6239	Senator.	Miles.	Joshua.
							S 63 23 W	N 63 21 E	6119			
							S 30 39 E	N 30 38 W	322			
2	38	07	07.81	75	57	24.02	N 70 21 W	S 70 23 E	5646	Senator.	Miles.	Joshua.
							S 60 18 W	N 60 17 E	5584			
							S 68 54 E	N 68 54 W	839			
3	38	07	49.36	75	57	48.36	N 83 55 W	S 83 53 E	4695	Senator.	Miles.	Joshua.
							S 45 14 W	N 45 13 E	5920			
							S 40 02 E	N 40 01 W	2224			
4	38	07	50.57	75	57	26.57	N 85 01 W	S 85 03 E	5269	Senator.	Miles.	Joshua.
							S 48 40 W	N 48 38 E	6371			
							S 26 00 E	N 26 00 W	1940			
5	38	07	37.82	75	56	52.22	N 81 48 W	S 81 51 E	6228	Senator.	Miles.	Joshua.
							S 56 28 W	N 56 25 E	6838			
							S 2 50 W	N 2 50 E	1316			
6	38	07	37.02	75	56	47.46	N 81 43 W	S 81 46 E	6357	Senator.	Miles.	Joshua.
							S 57 14 W	N 57 11 E	6929			
							S 8 29 W	N 8 29 E	1301			

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.



BOUNDARIES OF CRAB BOTTOMS—continued.

LITTLE DEAL ISLAND.

(North Entrance Manokin River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 07 01.70	75 56 01.94	N 63 17 E	S 63 18 W	5355	Marsh. Kelley. Joshua.
			N 43 19 E	S 43 20 W	3249	
			S 86 06 W	N 86 05 E	1407	
2	38 06 55.34	75 55 50.46	N 59 39 E	S 59 41 W	5201	Marsh. Kelley. Joshua.
			N 36 43 E	S 36 44 W	3216	
			N 86 02 W	S 86 01 E	1715	
3	38 06 40.44	75 56 03.80	N 57 07 E	S 57 05 W	5756	Marsh. Kelley. Joshua.
			N 36 29 E	S 36 28 W	3832	
			N 65 22 W	S 65 23 E	1491	
4	38 06 22.24	75 55 56.58	S 69 12 E	N 69 10 W	6018	Prickly. Kelley. Joshua.
			S 29 27 E	N 29 26 W	4243	
			N 51 25 W	S 51 25 E	1979	
5	38 06 22.82	75 57 00.64	S 73 38 E	N 73 36 W	7643	Prickly. Kelley. Joshua.
			N 45 54 E	S 45 55 W	5281	
			N 7 28 E	S 7 28 W	1226	
6	38 06 55.00	75 56 48.50	S 65 12 E	N 65 10 W	7722	Prickly. Kelley. Joshua.
			N 53 15 E	S 53 16 W	4330	
			N 51 35 W	S 51 35 E	210	

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

LOWER THOROUGHFARE.

(Inside of Little Deal Island—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 07 33.58	75 55 38.18	S 60 08 W	N 60 07 E	2350	Joshua. Prickly. Kelley.
			S 48 31 E	N 48 29 W	6856	
			N 51 05 E	S 51 05 W	2052	
2	38 07 20.78	75 55 27.89	N 65 32 E	S 65 33 W	4260	Marsh. Kelley. Joshua.
			N 37 32 E	S 37 32 W	2170	
			S 72 17 W	N 72 16 E	2427	
3	38 06 55.34	75 55 50.46	N 59 39 E	S 59 41 W	5201	Marsh. Kelley. Joshua.
			N 36 43 E	S 36 44 W	3216	
			N 86 02 W	S 86 01 E	1715	
4	38 07 01.70	75 56 01.94	N 63 17 E	S 63 18 W	5355	Marsh. Kelley. Joshua.
			N 43 19 E	S 43 20 W	3249	
			S 86 06 W	N 86 05 E	1407	
5	38 07 37.02	75 56 47.46	N 81 43 W	S 81 46 E	6357	Senator. Miles. Joshua.
			S 57 14 W	N 57 11 E	6929	
			S 8 29 W	N 8 29 E	1301	
6	38 07 37.82	75 56 52.22	N 81 48 W	S 81 51 E	6228	Senator. Miles. Joshua.
			S 56 28 W	N 56 25 E	6838	
			S 2 50 W	N 2 50 E	1316	

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## PINEY ISLAND.

(Entrance Manokin River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 04 50.38	75 54 16.08	S 24 53 E	N 24 52 W	6641	Flat Cap. Has. Prickly.
			S 50 24 E	N 50 22 W	4011	
			N 71 58 E	S 71 59 W	3100	
2	38 05 18.04	75 55 11.98	N 89 39 E	S 89 41 W	4438	Prickly. Kelley. Joshua.
			N 8 43 E	S 8 43 W	5916	
			N 38 49 W	S 38 50 E	4363	
3	38 05 53.05	75 55 42.00	S 77 36 E	N 77 34 W	5362	Prickly. Kelley. Joshua.
			N 19 57 E	S 19 57 W	4977	
			N 41 02 W	S 41 02 E	2942	
4	38 06 30.82	75 55 43.81	N 51 16 E	S 51 18 W	5513	Marsh. Kelley. Joshua.
			N 27 09 E	S 27 08 W	3826	
			N 63 23 W	S 63 24 E	2111	
5	38 06 59.58	75 55 20.55	N 56 02 E	S 56 05 W	4439	Marsh. Kelley. Joshua.
			N 24 50 E	S 24 49 W	2683	
			S 89 27 W	N 89 26 E	2508	
6	38 06 40.66	75 54 52.43	N 43 15 E	S 43 16 W	4279	Marsh. Kelley. Joshua.
			N 7 00 E	S 7 00 W	3096	
			N 79 19 W	S 79 20 E	3314	
7	38 07 37.14	75 53 26.26	N 80 28 E	S 80 30 W	3313	St. Pierre. Marsh. Kelley.
			N 27 45 E	S 27 45 W	1369	
			N 58 38 W	S 58 37 E	2256	
8	38 07 38.06	75 52 23.58	N 72 05 E	S 72 05 W	1679	St. Pierre. Marsh. Kelley.
			N 41 08 W	S 41 09 E	1568	
			N 72 23 W	S 72 25 E	3763	
9	38 07 04.22	75 53 18.62	N 61 34 E	S 61 36 W	3483	St. Pierre. Marsh. Kelley.
			N 10 35 E	S 10 35 W	2362	
			N 42 56 W	S 42 57 E	3113	
10	38 05 50.40	75 54 24.20	S 71 25 E	N 71 24 W	3338	Prickly. Marsh. Joshua.
			N 24 23 E	S 24 25 W	5282	
			N 60 03 W	S 60 05 E	4626	
11	38 05 17.10	75 54 19.78	S 22 41 E	N 22 40 W	7505	Flat Cap. Has. Prickly.
			S 42 41 E	N 42 40 W	4704	
			N 88 54 E	S 88 55 W	3047	

BOUNDARIES OF CRAB BOTTOMS—continued.

TEAGUE CREEK.

(South Shore Manokin River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 06 48.06	75 50 19.23	S 76 44 E	N 76 44 W	3578	Fairmount Church. Staff. St. Pierre.
			N 29 12 E	S 29 13 W	2526	
			N 37 54 W	S 37 54 E	2791	
2	38 07 00.26	75 50 28.47	S 71 43 E	N 71 42 W	3928	Fairmount Church. Staff. St. Pierre.
			N 39 36 E	S 39 36 W	2325	
			N 39 21 W	S 39 21 E	2316	
3	38 07 36.22	75 50 21.92	S 55 29 E	N 55 28 W	4314	Fairmount Church. Staff. St. Pierre.
			N 66 06 E	S 66 07 W	1430	
			N 70 36 W	S 70 36 E	1742	

Thence from corner No. 3 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

GOOSE CREEK.

(South Shore Manokin River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	Forward	Back	Yards.	U. S. C. & G. S. triangulation station
1	38 05 18.83	75 52 25.47	N 17 33 E	S 17 34 W	5466	St. Pierre. Joshua. Has.
			N 64 48 W	S 64 50 E	7926	
			S 2 18 E	N 2 18 W	3520	
2	38 05 18.78	75 52 39.20	N 89 35 E	S 89 35 W	366	Prickly. Marsh. Joshua.
			N 5 59 W	S 5 59 E	5910	
			N 63 36 W	S 63 39 E	7597	
3	38 06 05.78	75 52 32.34	S 6 36 E	N 6 36 W	1593	Prickly. Fairmount Church. St. Pierre.
			N 85 04 E	S 85 07 W	7056	
			N 26 46 E	S 26 47 W	4964	
4	38 06 24.82	75 51 34.20	S 89 37 E	N 89 35 W	5481	Fairmount Church. St. Pierre. Marsh.
			N 5 24 E	S 5 24 W	3000	
			N 32 44 W	S 32 45 E	4340	
5	38 06 17.94	75 51 23.71	N 87 51 E	S 87 53 W	5204	Fairmount Church. St. Pierre. Marsh.
			N 0 03 E	S 0 03 W	3214	
			N 34 04 W	S 34 05 E	4687	

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## MINE CREEK.

(South Entrance Manokin River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1.	38 04 19.88	75 52 56.22	S 7 35 E	N 7 35 W	5040	Flat Cap. Has. Prickly.
			S 32 09 E	N 32 09 W	1807	
			N 22 24 E	S 22 25 W	2150	
2	38 04 28.72	75 53 19.95	S 13 47 E	N 13 46 W	5452	Flat Cap. Has. Prickly.
			S 41 06 E	N 41 05 W	2426	
			N 40 40 E	S 40 41 W	2228	
3	38 04 32.62	75 53 15.53	S 12 16 E	N 12 16 W	5552	Flat Cap. Has. Prickly.
			S 37 08 E	N 37 07 W	2445	
			N 40 34 E	S 40 35 W	2052	
4	38 05 01.80	75 52 41.83	N 19 48 E	S 19 49 W	6149	St. Pierre. Marsh. Joshua.
			N 4 50 W	S 4 50 E	6473	
			N 59 37 W	S 59 39 E	7808	
5	38 05 18.78	75 52 39.20	N 89 35 E	S 89 35 W	366	Prickly. Marsh. Joshua.
			N 5 59 W	S 5 59 E	5910	
			N 63 36 W	S 63 39 E	7597	
6	38 05 18.83	75 52 25.47	N 17 33 E	S 17 34 W	5466	St. Pierre. Joshua. Has.
			N 64 48 W	S 64 50 E	7926	
			S 2 18 E	N 2 18 W	3520	

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## HAZARD.

(East Tangier Sound—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 03 34.52	75 52 20.16	N 2 18 W	S 2 18 E	3520	Prickly. Solomons Lump Light. Flat Cap.
			S 84 12 W	N 84 07 E	13798	
			S 4 53 W	N 4 53 E	3480	
2	38 03 14.58	75 52 22.80	S 4 38 W	N 4 37 E	2804	Flat Cap. Geog. Has.
			S 79 40 E	N 79 38 W	4804	
			N 5 59 W	S 5 59 E	676	
3	38 03 37.66	75 53 06.76	S 14 50 E	N 14 50 W	3696	Flat Cap. Has. Prickly.
			S 85 08 E	N 85 07 W	1247	
			N 17 53 E	S 17 53 W	3585	
4	38 04 28.72	75 53 19.95	S 13 47 E	N 13 46 W	5452	Flat Cap. Has. Prickly.
			S 41 06 E	N 41 05 W	2426	
			N 40 40 E	S 40 41 W	2228	
5	38 04 19.88	75 52 56.22	S 7 35 E	N 7 35 W	5040	Flat Cap. Has. Prickly
			S 32 09 E	N 32 09 W	1807	
			N 22 24 E	S 22 25 W	2150	
6	38 03 40.62	75 52 34.38	S 1 17 E	N 1 17 W	3673	Flat Cap. Has. Prickly.
			S 28 29 E	N 28 29 W	431	
			N 4 06 E	S 4 06 W	3320	

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF CRAB BOTTOMS—continued.

SHARK POINT.

(North Entrance Big Annessex River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 04 03.54	75 51 00.00	S 28 43 W	N 28 42 E	5078	Flat Cap.
			S 45 03 E	N 45 02 W	3559	Geog.
			N 89 13 E	S 89 14 W	1868	Ford.
2	38 03 45.06	75 51 07.58	S 30 17 W	N 30 17 E	4426	Flat Cap.
			S 55 12 E	N 55 11 W	3314	Geog.
			N 72 37 E	S 72 37 W	2170	Ford.
3	38 03 16.52	75 51 49.69	N 63 14 E	S 63 15 W	3576	Ford.
			N 53 14 W	S 53 14 E	1014	Has.
			S 21 12 W	N 21 12 E	3066	Flat Cap.
4	38 03 14.58	75 52 22.80	S 4 38 W	N 4 37 E	2804	Flat Cap.
			S 79 40 E	N 79 38 W	4804	Geog.
			N 5 59 W	S 5 59 E	676	Has.
5	38 03 34.52	75 52 20.16	N 2 18 W	S 2 18 E	3520	Prickly.
			S 84 12 W	N 84 07 E	13798	Solomons Lump Light.
			S 4 53 W	N 4 53 E	3480	Flat Cap.

Thence from corner No 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

FORDS WHARF.

(North Shore Big Annessex River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 03 59.36	75 49 12.98	N 80 26 W	S 80 26 E	998	Ford.
			S 8 02 W	N 8 02 E	2397	Geog.
			S 73 14 E	N 73 14 W	1923	Moon.
2	38 03 51.42	75 49 12.66	N 66 25 W	S 66 25 E	1084	Ford.
			S 9 16 W	N 9 16 E	2134	Geog.
			S 43 22 E	N 43 21 W	2420	Colburn.
3	38 03 45.06	75 51 07.58	S 30 17 W	N 30 17 E	4426	Flat Cap.
			S 55 12 E	N 55 11 W	3314	Geog.
			N 72 37 E	S 72 37 W	2170	Ford.
4	38 04 03.54	75 51 00.00	S 28 43 W	N 28 42 E	5078	Flat Cap.
			S 45 03 E	N 45 02 W	3559	Geog.
			N 89 13 E	S 89 14 W	1868	Ford.

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## CRANE COVE.

(Upper Big Annesmessex River—Chart No. 7.)

Corner of bottom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	38	03	42.22	75	48	07.10	S 49 22 W	N 49 21 E	Yards.	Geog. Colburn. Moon.
							S 3 24 W	N 3 24 E	2756	
							N 74 44 E	S 74 44 W	1452 86	
2	38	03	38.99	75	48	30.78	S 40 53 W	N 40 53 E	2231	Geog. Colburn. Moon.
							S 22 07 E	N 22 07 W	1447	
							N 79 33 E	S 79 33 W	711	
3	38	03	30.79	75	48	41.32	S 39 54 W	N 39 54 E	1838	Geog. Colburn. Moon.
							S 37 50 E	N 37 49 W	1347	
							N 67 43 E	S 67 43 W	1076	
4	38	03	33.72	75	48	44.02	S 36 16 W	N 36 16 E	1871	Geog. Colburn. Moon.
							S 37 41 E	N 37 41 W	1470	
							N 73 50 E	S 73 51 W	1112	

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## MOON BAY.

(Upper Big Annesmessex River—Chart No. 7.)

Corner of bottom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	38	04	32.37	75	47	18.00	N 19 43 W	S 19 44 E	Yards.	Fairmount Church. Moon. Colburn.
							S 36 18 W	N 36 18 E	3987	
							S 23 57 W	N 23 57 E	2069 3436	
2	38	04	36.08	75	47	11.18	N 22 50 W	S 22 50 E	3937	Fairmount Church. Moon. Colburn.
							S 38 07 W	N 38 06 E	2279	
							S 25 44 W	N 25 43 E	3625	
3	38	04	17.56	75	47	10.50	N 19 58 W	S 19 59 E	4525	Fairmount Church. Moon. Colburn.
							S 50 39 W	N 50 38 E	1843	
							S 31 08 W	N 31 07 E	3085	
4	38	03	51.40	75	47	54.40	N 4 11 W	S 4 11 E	5149	Fairmount Church. Moon. Colburn.
							S 41 37 W	N 41 37 E	384	
							S 13 35 W	N 13 35 E	1810	
5	38	03	34.46	75	47	58.21	N 28 16 W	S 28 16 E	323	Moon. Geog. Colburn.
							S 56 38 W	N 56 37 E	2788	
							S 15 13 W	N 15 13 E	1231	
6	38	03	42.22	75	48	07.10	S 49 22 W	N 49 21 E	2756	Geog. Colburn. Moon.
							S 3 24 W	N 3 24 E	1452	
							N 74 44 E	S 74 44 W	86	

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF CRAB BOTTOMS—continued.

RED CAP CREEK.

(Upper Big Annesmessex River—Chart No. 7.)

Cor- ner of bot- tom	Latitude	Longitude	True bearing				Distance	U. S. C. & G. S. triangulation station
			Forward		Back			
	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 04 26.31	75 46 37.60	N 31 27 W	S 31 28 E		4640	Fairmount Church.	
			S 57 33 W	N 57 33 E		2727	Moon.	
			S 40 07 W	N 40 06 E		3839	Colburn.	
2	38 04 44.16	75 46 57.22	N 29 30 W	S 29 31 E		3857	Fairmount Church.	
			S 40 44 W	N 40 44 E		2725	Moon.	
			S 28 51 W	N 28 51 E		4040	Colburn.	

Thence from corner No. 2 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

MILES.

(Upper Big Annesmessex River—Chart No. 7.)

	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 03 52.10	75 46 51.00	N 22 00 W	S 22 00 E	5513	Fairmount Church.
			S 81 01 W	N 81 00 E	1968	Moon.
			S 49 53 W	N 49 52 E	2766	Colburn.
2	38 03 59.10	75 47 02.98	N 19 42 W	S 19 43 E	5179	Fairmount Church.
			S 71 25 W	N 71 25 E	1715	Moon.
			S 41 40 W	N 41 39 E	2701	Colburn.
3	38 04 10.22	75 46 53.34	N 23 59 W	S 24 00 E	4927	Fairmount Church.
			S 63 56 W	N 63 55 E	2095	Moon.
			S 40 37 W	N 40 36 E	3153	Colburn.
4	38 04 07.16	75 46 47.40	N 25 08 W	S 25 09 E	5086	Fairmount Church.
			S 68 08 W	N 68 08 E	2196	Moon.
			S 44 00 W	N 43 59 E	3183	Colburn.

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

BOUNDARIES OF CRAB BOTTOMS—continued.  
COLBURN.

(Upper Big Annetmessex River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 03 25.02	75 47 30.76	N 9 29 W	S 9 29 E	6108	Fairmount Church.
			S 55 44 W	N 55 44 E	1071	Moon.
			S 50 30 W	N 50 30 E	1367	Colburn.
2	38 03 30.00	75 47 32.62	N 9 16 W	S 9 17 E	5934	Fairmount Church.
			N 62 29 W	S 62 30 E	942	Moon.
			S 44 06 W	N 44 06 E	1445	Colburn.
3	38 03 46.98	75 47 28.88	N 11 18 W	S 11 18 E	5388	Fairmount Church.
			S 81 38 W	N 81 37 E	945	Moon.
			S 34 28 W	N 34 28 E	1953	Colburn.
4	38 03 56.66	75 47 23.30	N 13 39 W	S 13 40 E	5102	Fairmount Church.
			S 66 49 W	N 66 49 E	1179	Moon.
			S 32 56 W	N 32 55 E	2307	Colburn.
5	38 03 58.06	75 47 14.60	N 16 18 W	S 16 19 E	5116	Fairmount Church.
			S 68 43 W	N 68 43 E	1409	Moon.
			S 36 50 W	N 36 50 E	2485	Colburn.
6	38 03 47.78	75 46 59.70	N 19 13 W	S 19 14 E	5568	Fairmount Church.
			S 84 31 W	N 84 30 E	1720	Moon.
			S 49 00 W	N 49 00 E	2496	Colburn.

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## JACKSON ISLAND.

(South Shore Big Annetmessex River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 02 18.76	75 50 16.42	N 53 06 E	S 53 07 W	1696	Geog.
			N 11 14 E	S 11 14 W	3627	Ford.
			N 52 15 W	S 52 16 E	4173	Has.
2	38 02 16.18	75 50 37.78	N 60 08 E	S 60 09 W	2221	Geog.
			N 19 18 E	S 19 18 W	3862	Ford.
			N 45 56 W	S 45 57 E	3799	Has.
3	38 03 05.44	75 50 32.58	S 72 45 E	N 72 44 W	1872	Geog.
			N 29 50 E	S 29 50 W	2287	Ford.
			N 71 07 W	S 71 08 E	3031	Has.
4	38 03 17.77	75 49 31.17	S 8 47 E	N 8 47 W	982	Geog.
			N 69 58 E	S 69 59 W	2475	Moon.
			N 17 40 W	S 17 40 E	1646	Ford.
5	38 03 03.08	75 48 54.81	S 83 45 E	N 83 45 W	1193	Colburn.
			N 45 17 E	S 45 17 W	1908	Moon.
			N 35 27 W	S 35 27 E	2533	Ford.
6	38 02 40.80	75 49 05.64	N 67 09 E	S 67 10 W	1601	Colburn.
			N 22 45 W	S 22 45 E	3052	Ford.
			N 60 34 W	S 60 34 E	598	Geog.

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.



BOUNDARIES OF CRAB BOTTOMS—continued.

JONES CREEK.

(South Shore Big Annemessex River—Chart No. 7.)

Cor- ner of bot- tom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station			
	°	'	"	°	'	"	Forward	Back		Yards.			
1	38	01	55.18	75	50	19.00	N 38 10 E	S 38 11 W	2306	Geog.			
							N 43 57 W	S 43 59 E				4654	Has.
							S 88 06 W	N 88 05 E				3530	Flat Cap.
2	38	02	16.18	75	50	37.78	N 60 08 E	S 60 09 W	2221	Geog.			
							N 19 18 E	S 19 18 W				3862	Ford.
							N 45 56 W	S 45 57 E				3799	Has.
3	38	02	18.76	75	50	16.42	N 53 06 E	S 53 07 W	1696	Geog.			
							N 11 14 E	S 11 14 W				3627	Ford.
							N 52 15 W	S 52 16 E				4173	Has.

Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

4	38	02	18.80	75	49	56.98	N 39 28 E	S 39 29 W	1319	Geog.			
							N 56 13 W	S 56 14 E				4593	Has.
							S 77 30 W	N 77 28 E				4216	Flat Cap.
5	38	02	06.75	75	50	01.30	N 33 49 E	S 33 49 W	1714	Geog.			
							N 51 21 W	S 51 23 E				4740	Has.
							S 82 47 W	N 82 46 E				4032	Flat Cap.
6	38	02	07.95	75	49	52.38	N 27 22 E	S 27 22 W	1557	Geog.			
							N 53 27 W	S 53 29 E				4904	Has.
							S 82 39 W	N 82 37 E				4273	Flat Cap.

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

DAUGHERTY CREEK.

(South Shore Big Annemessex River—Chart No. 7.)

1	38	02	06.39	75	50	54.34	N 58 46 E	S 58 47 W	2769	Geog.			
							N 37 36 W	S 37 37 E				3750	Has.
							S 79 10 W	N 79 09 E				2632	Flat Cap.
2	38	02	16.18	75	50	37.78	N 60 08 E	S 60 09 W	2221	Geog.			
							N 19 18 E	S 19 18 W				3862	Ford.
							N 45 56 W	S 45 57 E				3799	Has.
3	38	01	55.18	75	50	19.00	N 38 10 E	S 38 11 W	2306	Geog.			
							N 43 57 W	S 43 59 E				4654	Has.
							S 88 06 W	N 88 05 E				3530	Flat Cap.

Thence from corner No. 3 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

*Survey of Oyster Bars, Somerset County, Md.*

BOUNDARIES OF CRAB BOTTOMS—continued.

TENTH POINT.

(South Shore Big Annessex River—Chart No. 7.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 02 10.18	75 52 19.76	S 26 15 W	N 26 15 E	694	Flat Cap.
			N 74 16 E	S 74 17 W	4827	Geog.
			N 0 13 W	S 0 13 E	2842	Has.
2	38 02 23.42	75 52 03.18	N 46 15 E	S 46 16 W	4919	Ford.
			N 10 42 W	S 10 42 E	2440	Has.
			S 35 01 W	N 35 01 E	1314	Flat Cap.
3	38 02 32.43	75 51 27.28	N 39 58 E	S 39 59 W	4041	Ford.
			N 33 57 W	S 33 58 E	2524	Has.
			S 51 11 W	N 51 10 E	2190	Flat Cap.
4	38 02 16.18	75 50 37.78	N 60 08 E	S 60 09 W	2221	Geog.
			N 19 18 E	S 19 18 W	3862	Ford.
			N 45 56 W	S 45 57 E	3799	Has.
5	38 02 06.39	75 50 54.34	N 58 46 E	S 58 47 W	2769	Geog.
			N 37 36 W	S 37 37 E	3750	Has.
			S 79 10 W	N 79 09 E	2632	Flat Cap.

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

SHANKS CREEK.

(Smith Island—Chart No. 8.)

Corner	Latitude	Longitude	True bearing		Distance	Station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 57 15.10	76 01 47.78	S 88 19 E	N 88 17 W	3472	Horse.
			N 24 06 E	S 24 07 W	2535	Ewell Church.
			N 22 07 W	S 22 07 E	3138	Old Church.
2	37 57 15.78	76 02 17.53	S 88 20 E	N 88 18 W	4268	Horse.
			N 38 36 E	S 38 37 W	2932	Ewell Church.
			N 7 39 W	S 7 39 E	2909	Old Church.

Thence from corner No. 2 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

*Survey of Oyster Bars, Somerset County, Md.*

BOUNDARIES OF CRAB BOTTOMS—continued.

TYLERS CREEK.

(*Smith Island—Charts Nos. 8 and 9.*)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	37 57 13.20	76 00 24.18	S 88 14 E	N 88 14 W	Yards.	
			N 26 42 W	S 26 42 E	1239	Horse.
			N 48 57 W	S 48 59 E	2662	Ewell Church.
2	37 57 14.16	76 01 05.30	S 88 17 E	N 88 16 W	2338	Horse.
			N 2 24 W	S 2 24 E	2348	Ewell Church.
			N 38 16 W	S 38 15 E	3741	Old Church.

Thence from corner No. 2 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BIG ISLAND.

(*Southwest Tangier Sound—Chart No. 9.*)

1	37 59 14.18	75 58 57.16	S 14 45 W	N 14 45 E	Yards.	
			S 64 53 E	N 64 51 W	4257	Horse.
			N 19 54 E	S 19 55 W	6793	Janes Island Light.
2	37 58 13.99	75 57 58.77	S 51 42 W	N 51 41 E	3368	Horse.
			S 79 27 E	N 79 29 W	4672	Janes Island Light.
			N 3 20 W	S 3 21 E	5499	Terrapin.
3	37 57 43.01	75 58 22.82	N 87 55 E	S 87 57 W	5238	Janes Island Light.
			N 2 57 E	S 2 57 W	6544	Terrapin.
			S 62 29 W	N 62 28 E	2257	Horse.
4	37 57 25.62	75 58 29.02	N 81 49 E	S 81 51 W	5456	Janes Island Light.
			N 4 02 E	S 4 02 W	7139	Terrapin.
			S 76 02 W	N 76 01 E	1891	Horse.
5	37 57 06.40	75 58 59.12	N 77 04 E	S 77 06 W	6366	Janes Island Light.
			N 9 32 E	S 9 33 W	7878	Terrapin.
			N 79 30 W	S 79 31 E	1050	Horse.
6	37 57 12.07	75 59 37.78	S 6 49 E	N 6 49 W	8754	Reach Hammock.
			N 80 19 E	S 80 22 W	7341	Janes Island Light.
			N 17 08 E	S 17 09 W	7931	Terrapin.

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## DRUM.

(Southwest Tangier Sound—Chart No. 9.)

Corner of bottom	Latitude		Longitude		True bearing		Distance	U. S. C. & G. S. triangulation station		
	°	'	°	'	Forward	Back				
1	38	00	18.54	75	58	43.38	S 13 00 W	N 13 00 E	6453	Horse.
							S 48 51 E	N 48 49 W	7680	Janes Island Light.
							N 34 27 E	S 34 27 W	1566	Terrapin.
2	38	00	10.56	75	57	23.66	N 38 30 W	S 38 30 E	1994	Terrapin.
							S 30 45 W	N 30 44 E	7002	Horse.
							S 37 22 E	N 37 21 W	6022	Janes Island Light.
3	37	59	33.26	75	57	20.02	N 25 24 W	S 25 25 E	3119	Terrapin.
							S 37 42 W	N 37 40 E	6015	Horse.
							S 45 15 E	N 45 13 W	5011	Janes Island Light.
4	37	59	12.86	75	56	57.37	N 28 59 W	S 29 00 E	4008	Terrapin.
							S 46 27 W	N 46 26 E	5910	Horse.
							S 46 07 E	N 46 07 W	4098	Janes Island Light.
5	37	58	47.38	75	57	15.60	N 18 27 W	S 18 27 E	4601	Terrapin.
							S 49 45 W	N 49 44 E	4974	Horse.
							S 60 04 E	N 60 03 W	3970	Janes Island Light.
6	37	58	13.99	75	57	58.77	S 51 42 W	N 51 41 E	3368	Horse.
							S 79 27 E	N 79 29 W	4672	Janes Island Light.
							N 3 20 W	S 3 21 E	5499	Terrapin.
7	37	59	14.18	75	58	57.16	S 14 45 W	N 14 45 E	4257	Horse.
							S 64 53 E	N 64 51 W	6793	Janes Island Light.
							N 19 54 E	S 19 55 W	3681	Terrapin.

Thence from corner No. 7 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## OLD HOUSE.

(Little Annessex River—Chart No. 9.)

Corner of bottom	Latitude		Longitude		True bearing		Distance	U. S. C. & G. S. triangulation station		
	°	'	°	'	Forward	Back				
1	37	58	12.54	75	52	51.94	S 77 22 W	N 77 21 E	3688	Janes Island Light.
							S 36 33 E	N 36 33 W	548	Somers Cove Light.
							N 61 52 E	S 61 53 W	3176	Emmanuel Church.
2	37	58	09.83	75	52	57.62	S 78 17 W	N 78 16 E	3520	Janes Island Light.
							S 53 52 E	N 53 52 W	592	Somers Cove Light.
							N 61 43 E	S 61 45 W	3353	Emmanuel Church.
3	37	58	19.46	75	53	14.30	S 70 53 W	N 70 52 E	3176	Janes Island Light.
							S 53 53 E	N 53 53 W	1143	Somers Cove Light.
							N 69 35 E	S 69 37 W	3625	Emmanuel Church.
4	37	58	16.86	75	53	17.44	S 71 56 W	N 71 54 E	3069	Janes Island Light.
							S 59 48 E	N 59 48 W	1166	Somers Cove Light.
							N 68 46 E	S 68 48 W	3735	Emmanuel Church.

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF CRAB BOTTOMS—continued.

LIGHT HOUSE.

(Little Annesmessex River—Chart No. 9.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	37 58 38.61	75 52 04.62	N 74 23 E	S 74 24 W	1912	Mount Pleasant Church.
			S 35 23 W	N 35 23 E	1617	Somers Cove Light.
			S 70 53 W	N 70 51 E	5145	Janes Island Light.
2	37 58 37.49	75 52 03.44	N 73 01 E	S 73 02 W	1893	Mount Pleasant Church.
			S 37 04 W	N 37 04 E	1606	Somers Cove Light.
			S 71 24 W	N 71 22 E	5163	Janes Island Light.
3	37 58 21.34	75 52 20.23	S 35 12 W	N 35 12 E	902	Somers Cove Light.
			N 64 02 E	S 64 03 W	2512	Mount Pleasant Church.
			N 58 26 E	S 58 27 W	2293	Emmanuel Church.
4	37 58 15.18	75 52 17.41	S 48 21 W	N 48 21 E	796	Somers Cove Light.
			N 59 08 E	S 59 09 W	2543	Mount Pleasant Church.
			N 53 09 E	S 53 10 W	2348	Emmanuel Church.
5	37 58 07.17	75 52 27.62	S 51 13 W	N 51 13 E	414	Somers Cove Light.
			N 57 19 E	S 57 20 W	2917	Mount Pleasant Church.
			N 52 03 E	S 52 03 W	2729	Emmanuel Church.
6	37 58 12.24	75 52 31.42	S 27 13 W	N 27 13 E	483	Somers Cove Light.
			N 61 14 E	S 61 15 W	2917	Mount Pleasant Church.
			N 56 13 E	S 56 14 W	2711	Emmanuel Church.
7	37 58 09.98	75 52 35.48	S 17 41 W	N 17 41 E	372	Somers Cove Light.
			N 60 57 E	S 60 58 W	3049	Mount Pleasant Church.
			N 56 09 E	S 56 10 W	2843	Emmanuel Church.
8	37 58 04.50	75 52 32.20	S 49 50 W	N 49 49 E	262	Somers Cove Light.
			N 57 09 E	S 57 10 W	3069	Mount Pleasant Church.
			N 52 08 E	S 52 08 W	2881	Emmanuel Church.
9	37 57 59.48	75 52 39.71	S 84 41 W	N 84 39 E	3941	Janes Island Light.
			S 51 31 E	N 51 30 W	4507	Watermelon Hummock.
			N 51 51 E	S 51 52 W	3136	Emmanuel Church.
10	37 57 57.55	75 52 51.96	N 78 45 E	S 78 45 W	334	Somers Cove Light.
			N 4 00 E	S 4 00 W	7914	Flat Cap.
			S 85 13 W	N 85 12 E	3610	Janes Island Light.
11	37 58 09.83	75 52 57.62	S 78 17 W	N 78 16 E	3520	Janes Island Light.
			S 53 52 E	N 53 52 W	592	Somers Cove Light.
			N 61 43 E	S 61 45 W	3353	Emmanuel Church.
12	37 58 12.54	75 52 51.94	S 77 22 W	N 77 21 E	3688	Janes Island Light.
			S 36 33 E	N 36 33 W	548	Somers Cove Light.
			N 61 52 E	S 61 53 W	3176	Emmanuel Church.

Thence from corner No. 12 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## CANCER.

(Little Annessex River—Chart No. 9.)

Corner of bottom	Latitude		Longitude		True bearing		Distance	U. S. C. & G. S. triangulation station				
					Forward	Back						
	°	'	°	'	°	'	°	'	Yards.			
1	37	59	19	28	75	52	02	18	S 62 55 E	N 62 54 W	1655	Emmanuel Church. Somers Cove Light. Janes Island Light.
									S 20 25 W	N 20 25 E	2871	
									S 58 11 W	N 58 09 E	5797	
2	37	59	08	74	75	52	06	27	S 75 53 E	N 75 52 W	1631	Emmanuel Church. Somers Cove Light. Janes Island Light.
									S 20 55 W	N 20 55 E	2500	
									S 60 44 W	N 60 42 E	5523	

Thence from corner No. 2 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## BACK CREEK.

(Little Annessex River—Chart No. 9.)

Corner of bottom	Latitude		Longitude		True bearing		Distance	U. S. C. & G. S. triangulation station				
					Forward	Back						
°	'	°	'	°	'	°	'	Yards.				
1	37	58	57	66	75	51	42	16	S 88 31 E	N 88 31 W	943	Emmanuel Church. Somers Cove Light. Janes Island Light.
									S 38 02 W	N 38 02 E	2492	
									S 66 56 W	N 66 53 E	5936	
2	37	58	57	48	75	51	44	76	S 88 58 E	N 88 58 W	1008	Emmanuel Church. Somers Cove Light. Janes Island Light.
									S 36 52 W	N 36 51 E	2444	
									S 66 43 W	N 66 41 E	5869	
3	37	59	11	57	75	51	37	00	S 58 22 E	N 58 21 W	940	Emmanuel Church. Somers Cove Light. Janes Island Light.
									S 34 33 W	N 34 32 E	2952	
									S 63 28 W	N 63 26 E	6258	
4	37	59	28	84	75	51	47	07	S 44 50 E	N 44 50 W	1517	Emmanuel Church. Somers Cove Light. Janes Island Light.
									S 25 00 W	N 24 59 E	3322	
									S 57 38 W	N 57 37 E	6310	
5	37	59	30	96	75	51	59	84	S 50 53 E	N 50 52 W	1818	Emmanuel Church. Somers Cove Light. Janes Island Light.
									S 18 57 W	N 18 56 E	3261	
									S 55 20 W	N 55 18 E	6066	

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF CRAB BOTTOMS—continued.

LAVELLETTTE.

(Little Annessex River—Chart No. 9.)

Corner of bottom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	37	57	32.69	75	51	53.92	N 29 37 E	S 29 38 W	3148	Mount Pleasant Church. Somers Cove Light. Janes Island Light.
							N 53 32 W	S 53 33 E	1520	
							N 84 02 W	S 84 04 E	5175	
2	37	57	32.80	75	51	58.72	N 31 38 E	S 31 39 W	3211	Mount Pleasant Church. Somers Cove Light. Janes Island Light.
							N 50 35 W	S 50 35 E	1416	
							N 83 55 W	S 83 57 E	5047	
3	37	57	51.82	75	52	10.29	N 43 36 E	S 43 37 W	2889	Mount Pleasant Church. Somers Cove Light. Janes Island Light.
							N 71 48 W	S 71 48 E	827	
							S 88 40 W	N 88 42 E	4714	
4	37	58	03.21	75	52	07.92	N 48 29 E	S 48 29 W	2578	Mount Pleasant Church. Emmanuel Church. Somers Cove Light.
							N 41 54 E	S 41 55 W	2434	
							S 81 34 W	N 81 34 E	857	
5	37	58	13.52	75	51	56.98	N 50 17 E	S 50 18 W	2129	Mount Pleasant Church. Emmanuel Church. Somers Cove Light.
							N 42 20 E	S 42 21 W	1980	
							S 67 28 W	N 67 27 E	1235	
6	37	58	21.78	75	51	50.86	N 53 44 E	S 53 44 W	1828	Mount Pleasant Church. Emmanuel Church. Somers Cove Light.
							N 44 38 E	S 44 39 W	1666	
							S 60 02 W	N 60 01 E	1505	
7	37	58	21.84	75	51	42.60	N 49 16 E	S 49 16 W	1655	Mount Pleasant Church. Emmanuel Church. Somers Cove Light.
							N 38 46 E	S 38 46 W	1518	
							S 63 41 W	N 63 41 E	1701	

Thence from corner No. 7 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

JENKINS CREEK.

(Little Annessex River—Chart No. 9.)

Corner of bottom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	37	57	06.40	75	51	57.59	N 32 08 W	S 32 09 E	2114	Somers Cove Light. Janes Island Light. Sam.
							N 74 14 W	S 74 16 E	5243	
							S 20 40 W	N 20 39 E	5130	
2	37	57	25.62	75	52	09.39	N 35 20 W	S 35 20 E	1400	Somers Cove Light. Janes Island Light. Sam.
							N 80 41 W	S 80 43 E	4798	
							S 15 21 W	N 15 20 E	5650	
3	37	57	32.80	75	51	58.72	N 31 38 E	S 31 39 W	3211	Mount Pleasant Church. Somers Cove Light. Janes Island Light.
							N 50 35 W	S 50 35 E	1416	
							N 83 55 W	S 83 57 E	5047	
4	37	57	32.69	75	51	53.92	N 29 37 E	S 29 38 W	3148	Mount Pleasant Church. Somers Cove Light. Janes Island Light.
							N 53 32 W	S 53 33 E	1520	
							N 84 02 W	S 84 04 E	5175	

Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## JENKINS CREEK—Continued.

Corner of bottom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
5	37	57	31.64	75	51	47.21	N 26 25 E	S 26 25 W	Yards. 3095 1686 5358	Mount Pleasant Church. Somers Cove Light. Janes Island Light.
							N 56 11 W	S 56 12 E		
							N 83 51 W	S 83 53 E		
6	37	57	32.58	75	51	31.33	N 19 10 E	S 19 11 W	2902 2038 5773	Mount Pleasant Church. Somers Cove Light. Janes Island Light.
							N 63 34 W	S 63 35 E		
							N 84 37 W	S 84 39 E		
7	37	57	26.20	75	51	30.62	N 17 32 E	S 17 33 W	3100 2159 5819	Mount Pleasant Church. Somers Cove Light. Janes Island Light.
							N 58 41 W	S 58 42 E		
							N 82 31 W	S 82 34 E		

Thence from corner No. 7 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## KINGS ISLAND.

(Little Annessex River—Chart No. 9.)

Corner	Latitude			Longitude			True bearing		Distance	Triangulation station
	°	'	"	°	'	"	Forward	Back		
1	37	57	33.14	75	53	38.58	N 77 30 W	S 77 31 E	Yards. 2410 5771 1806	Janes Island Light. Sam. Somers Cove Light.
							S 8 51 E	N 8 50 W		
							N 60 32 E	S 60 32 W		
2	37	57	37.36	75	53	30.06	N 81 38 W	S 81 39 E	2608 5881 1538	Janes Island Light. Sam. Somers Cove Light.
							S 6 27 E	N 6 26 W		
							N 60 58 E	S 60 59 W		
3	37	57	43.07	75	53	27.44	N 85 58 W	S 85 59 E	2657 6065 1389	Janes Island Light. Sam. Somers Cove Light.
							S 5 35 E	N 5 35 W		
							N 66 31 E	S 66 31 W		
4	37	57	42.74	75	53	19.82	N 86 02 W	S 86 03 E	2861 6038 1211	Janes Island Light. Sam. Somers Cove Light.
							S 3 40 E	N 3 40 W		
							N 62 12 E	S 62 13 W		
5	37	57	32.64	75	53	18.58	N 79 26 W	S 79 27 E	2937 5695 1377	Janes Island Light. Sam. Somers Cove Light.
							S 3 33 E	N 3 33 W		
							N 48 54 E	S 48 55 W		
6	37	57	32.00	75	53	12.34	N 43 14 E	S 43 15 W	1272 5666 3105	Somers Cove Light. Sam. Janes Island Light.
							S 1 53 E	N 1 54 W		
							N 79 36 W	S 79 37 E		
7	37	57	46.22	75	53	02.98	N 88 35 W	S 88 37 E	3305 6143 759	Janes Island Light. Sam. Somers Cove Light.
							S 0 36 W	N 0 36 E		
							N 54 53 E	S 54 53 W		
8	37	57	44.46	75	52	35.80	N 11 39 W	S 11 39 E	517 4032 6134	Somers Cove Light. Janes Island Light. Sam.
							S 88 00 W	S 88 01 E		
							S 7 24 W	N 7 23 E		
9	37	57	47.00	75	52	22.56	N 47 25 W	S 47 25 E	622 4383 6274	Somers Cove Light. Janes Island Light. Sam.
							N 89 26 W	S 89 27 E		
							S 10 30 W	N 10 30 E		



BOUNDARIES OF CRAB BOTTOMS—continued.

KINGS ISLAND—Continued.

Cor- ner of bot- tom	Latitude		Longitude		True bearing		Distance	U. S. C. & G. S. triangulation station		
					Forward	Back				
	°	'	"	°	'	"	°	'	"	Yards.
10	37	57	25.62	75	52	09.39	N 35 20 W	S 35 20 E	1400	Somers Cove Light.
							N 80 41 W	S 80 43 E	4798	Janes Island Light.
							S 15 21 W	N 15 20 E	5650	Sam.
11	37	57	06.40	75	51	57.59	N 32 08 W	S 32 09 E	2114	Somers Cove Light.
							N 74 14 W	S 74 16 E	5243	Janes Island Light.
							S 20 40 W	N 20 39 E	5130	Sam.

Thence from corner No. 11 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

GREAT POINT.

(Entrance Little Annemessex River—Chart No. 9.)

I	° ' "		° ' "		° ' "		Yards.			
	°	'	"	°	'	"			°	'
1	37	56	58.46	75	53	32.95	S 9 14 E	N 9 14 W	4592	Sam.
							N 34 38 E	S 34 39 W	2494	Somers Cove Light.
							N 55 58 W	S 55 58 E	3022	Janes Island Light.
2	37	56	58.91	75	53	46.39	S 13 33 E	N 13 33 W	4677	Sam.
							N 41 05 E	S 41 05 W	2709	Somers Cove Light.
							N 52 00 W	S 52 00 E	2722	Janes Island Light.
3	37	57	48.22	75	53	58.10	N 89 35 W	S 89 35 E	1832	Janes Island Light.
							S 12 47 E	N 12 46 W	6367	Sam.
							N 79 42 E	S 79 43 W	2127	Somers Cove Light.
4	37	57	37.36	75	53	30.06	N 81 38 W	S 81 39 E	2608	Janes Island Light.
							S 6 27 E	N 6 26 W	5881	Sam.
							N 60 58 E	S 60 59 W	1538	Somers Cove Light.
5	37	57	33.14	75	53	38.58	N 77 30 W	S 77 31 E	2410	Janes Island Light.
							S 8 51 E	N 8 50 W	5771	Sam.
							N 60 32 E	S 60 32 W	1806	Somers Cove Light.

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

FISHING CREEK.

(Southeast Tangier Sound—Chart No. 9.)

I	° ' "		° ' "		° ' "		Yards.			
	°	'	"	°	'	"			°	'
1	37	55	43.30	75	53	53.32	S 32 40 E	N 32 39 W	2373	Sam.
							N 23 10 E	S 23 11 W	4994	Somers Cove Light.
							N 24 53 W	S 24 54 E	4658	Janes Island Light.
2	37	56	05.77	75	53	49.43	S 23 08 E	N 23 07 W	2996	Sam.
							N 25 53 E	S 25 54 W	4262	Somers Cove Light.
							N 30 45 W	S 30 46 E	4035	Janes Island Light.

Thence from corner No. 2 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## CEDAR STRAITS.

(Cedar Straits—Chart No. 9.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 54 43.46	75 52 59.66	N 82 48 W	S 82 48 E	153	Sam.
			S 48 12 W	N 48 11 E	2986	Fox Island Poplar.
			N 66 41 E	S 66 43 W	5092	East.
2	37 54 40.64	75 52 59.74	N 65 43 E	S 65 45 W	5131	East.
			N 52 43 W	S 52 43 E	188	Sam.
			S 49 37 W	N 49 33 E	2921	Fox Island Poplar.
3	37 54 36.20	75 54 15.22	S 6 45 W	N 6 45 E	1757	Fox Island Poplar.
			N 81 56 E	S 81 57 W	1883	Sam.
			N 20 24 E	S 20 25 W	7313	Somers Cove Light.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	37 54 41.87	75 54 17.75	S 4 06 W	N 4 06 E	1941	Fox Island Poplar.
			N 87 50 E	S 87 51 W	1933	Sam.
			N 11 44 W	S 11 44 E	6430	Janes Island Light.
5	37 55 19.06	75 53 58.24	S 11 42 W	N 11 41 E	3258	Fox Island Poplar.
			S 50 05 E	N 50 04 W	1841	Sam.
			N 21 11 E	S 21 12 W	5802	Somers Cove Light.
6	37 55 33.42	75 53 57.33	S 10 33 W	N 10 33 E	3738	Fox Island Poplar.
			S 39 48 E	N 39 47 W	2168	Sam.
			N 22 49 E	S 22 50 W	5343	Somers Cove Light.

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## BROAD CREEK.

(Western Pocomoke Sound—Chart No. 9.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 55 43.19	75 50 04.56	N 47 28 E	S 47 29 W	3842	Monkey.
			N 18 57 W	S 18 58 E	1894	Watermelon Hummock.
			S 59 51 W	N 59 48 E	7983	Fox Island Poplar.
2	37 54 43.02	75 49 20.87	N 19 48 E	S 19 48 W	4916	Monkey.
			N 29 54 W	S 29 55 E	2340	East.
			N 89 40 W	S 89 43 E	5997	Sam.
3	37 54 42.50	75 50 04.82	N 31 26 E	S 31 27 W	5442	Monkey.
			N 0 12 E	S 0 12 W	2046	East.
			N 89 22 W	S 89 24 E	4823	Sam.
4	37 55 04.64	75 50 32.13	N 29 32 E	S 29 32 W	1494	East.
			N 2 15 E	S 2 15 W	3093	Watermelon Hummock.
			S 80 23 W	N 80 21 E	4151	Sam.
5	37 55 04.58	75 51 06.16	N 51 39 E	S 51 39 W	2098	East.
			N 18 25 E	S 18 26 W	3259	Watermelon Hummock.
			S 77 42 W	N 77 41 E	3259	Sam.

BOUNDARIES OF CRAB BOTTOMS—continued.

BROAD CREEK—Continued.

Corner of bottom	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
6	37 54 41.93	75 50 58.48	N 34 53 E	S 34 54 W	2517	East.
			N 12 04 E	S 12 05 W	3944	Watermelon Hummock.
			N 88 48 W	S 88 49 E	3390	Sam.
7	37 54 40.64	75 52 59.74	N 65 43 E	S 65 45 W	5131	East.
			N 52 43 W	S 52 43 E	188	Sam.
			S 49 37 W	N 49 33 E	2921	Fox Island Poplar.
8	37 54 43.46	75 52 59.66	N 82 48 W	S 82 48 E	153	Sam.
			S 48 12 W	N 48 11 E	2986	Fox Island Poplar.
			N 66 41 E	S 66 43 W	5092	East.

Thence from corner No. 8 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

WARE POINT.

(Northern Pocomoke Sound—Chart No. 9.)

Corner of bottom	Latitude	Longitude	True bearing		Distance	Remarks
			Forward	Back		
1	37 57 02.04	75 49 28.14	S 61 20 W	N 61 20 E	1810	Watermelon Hummock.
			S 20 06 W	N 20 05 E	2830	East.
			S 88 07 W	N 88 06 E	1860	Monkey.
2	37 57 00.82	75 48 42.30	S 73 37 W	N 73 36 E	2931	Watermelon Hummock.
			S 40 01 W	N 40 00 E	3418	East.
			S 88 09 E	N 88 08 W	635	Monkey.
3	37 56 47.45	75 48 49.97	N 62 52 E	S 62 53 W	944	Monkey.
			S 81 48 W	N 81 47 E	2633	Watermelon Hummock.
			S 42 36 W	N 42 35 E	2943	East.
4	37 55 25.60	75 48 51.05	N 15 14 E	S 15 14 W	3306	Monkey.
			N 47 15 W	S 47 16 E	3512	Watermelon Hummock.
			N 73 11 W	S 73 12 E	2050	East.
5	37 54 43.02	75 49 20.87	N 19 48 E	S 19 48 W	4916	Monkey.
			N 29 54 W	S 29 55 E	2340	East.
			N 89 40 W	S 89 43 E	5997	Sam.
6	37 55 43.19	75 50 04.56	N 47 28 E	S 47 29 W	3842	Monkey.
			N 18 57 W	S 18 58 E	1894	Watermelon Hummock.
			S 59 51 W	N 59 48 E	7983	Fox Island Poplar.

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CRAB BOTTOMS—continued.

## APES HOLE.

(Northern Pocomoke Sound—Chart No. 9.)

Corner of bottom	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	37	57	14.29	75	48	12.92	S 70 24 W	N 70 22 E	3818	Watermelon Hummock. East. Monkey.
							S 44 09 W	N 44 08 E	4280	
							S 17 29 W	N 17 29 E	498	
2	37	56	41.98	75	48	17.81	N 72 12 E	S 72 15 W	6816	Scot. Monkey. East.
							N 1 46 W	S 1 46 E	614	
							S 55 12 W	N 55 11 E	3472	
3	37	56	50.20	75	48	38.72	S 80 50 W	N 80 49 E	2945	Watermelon Hummock. East. Saxis Church.
							S 45 25 W	N 45 24 E	3218	
							S 70 55 E	N 70 52 W	8892	
4	37	57	02.80	75	48	31.38	S 73 57 W	N 73 56 E	3229	Watermelon Hummock. East. Monkey.
							S 42 50 W	N 42 49 E	3660	
							S 75 31 E	N 75 31 W	354	
5	37	57	22.88	75	48	49.88	S 58 58 W	N 58 57 E	3046	Watermelon Hummock. East. Monkey.
							S 30 41 W	N 30 40 E	3909	
							S 47 47 E	N 47 46 W	1134	
6	37	57	26.04	75	48	43.29	S 58 58 W	N 58 57 E	3252	Watermelon Hummock. East. Monkey.
							S 32 03 W	N 32 02 E	4091	
							S 37 13 E	N 37 13 W	1094	

Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## BOUNDARIES OF CLAM BEDS.

## EXPLANATION OF DESCRIPTIONS OF BOUNDARIES.

The Maryland legislature of 1908 in an act<sup>a</sup> passed to prescribe additional duties to be performed by the Board of Shell Fish Commissioners provided for the establishment of boundaries of certain clam beds in Pocomoke Sound, which were to be "surveyed and designated on charts" and records prepared and filed in every particular as provided for by the Maryland laws for the survey of natural oyster bars.

The clam beds specified by the law are only 3 in number, with total acreage of 506 acres, the largest bed being 180 acres and the smallest 152 acres.

The boundaries of these clam beds were surveyed and established by the Shell Fish Commission and delineated on the "Charts of Oyster Bars" published by the Coast and Geodetic Survey in a manner identical with that used for the establishment of the oyster bar boundaries. Therefore the "Explanation of descriptions of boundaries," under the heading of "Boundaries of oyster bars," to be found in another part of this publication, will apply to the clam beds.

<sup>a</sup> For the text of this act see Appendix B of this publication.

SURVEYING METHODS OF RELOCATION OF BOUNDARIES.

For similar reasons to those given under the previous heading, the "Surveying methods of relocation of boundaries," given under the heading of "Boundaries of oyster bars," to be found in another part of this publication, will apply to clam beds.

BOUNDARIES OF CLAM BEDS.

WARE ROCK.

(Pocomoke Sound—Chart No. 9.)

Corner of bed	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 55 13.00	75 48 09.78	N 3 42 W	S 3 42 E	3622	Monkey.
			N 71 37 W	S 71 38 E	3230	East.
			S 73 21 W	N 73 18 E	10407	Fox Island Poplar.
2	37 55 14.60	75 48 46.62	N 11 54 E	S 11 54 W	3640	Monkey.
			N 65 09 W	S 65 09 E	2294	East.
			S 71 20 W	N 71 17 E	9486	Fox Island Poplar.
3	37 55 41.57	75 48 32.21	S 85 52 E	N 85 49 W	8251	Saxis Church.
			N 7 51 E	S 7 51 W	2676	Monkey.
			N 88 43 W	S 88 44 E	2467	East.
4	37 55 45.79	75 48 13.64	N 2 58 W	S 2 58 E	2517	Monkey.
			S 88 19 W	N 88 18 E	2964	East.
			S 67 30 W	N 67 30 W	10680	Fox Island Poplar.

GRAVEL ROCK.

(Pocomoke Sound—Chart No. 9.)

Corner of bed	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 55 11.66	75 47 39.42	N 15 55 W	S 15 57 E	3808	Monkey.
			N 74 39 W	S 74 41 E	4020	East.
			S 74 47 W	N 74 42 E	11174	Fox Island Poplar.
2	37 55 13.00	75 48 09.78	N 3 42 W	S 3 42 E	3622	Monkey.
			N 71 37 W	S 71 38 E	3230	East.
			S 73 21 W	N 73 18 E	10407	Fox Island Poplar.
3	37 55 45.79	75 48 13.64	N 2 58 W	S 2 58 E	2517	Monkey.
			S 88 19 W	N 88 18 E	2964	East.
			S 67 30 W	N 67 27 E	10680	Fox Island Poplar.
4	37 55 50.76	75 47 52.93	S 82 49 E	N 82 46 W	7237	Saxis Church.
			N 16 16 W	S 16 16 E	2439	Monkey.
			S 85 52 W	N 85 53 E	3525	East.

## Survey of Oyster Bars, Somerset County, Md.

## BOUNDARIES OF CLAM BEDS—continued.

## FLAT ROCK.

(Pocomoke Sound—Charts Nos. 9 and 10.)

Corner of bed	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	37 55 34.84	75 46 56.00	N 37 26 W	S 37 27 E	3624	Monkey.
			N 86 47 W	S 86 49 E	5044	East.
			S 72 43 W	N 72 38 E	12505	Fox Island Poplar.
2	37 55 39.26	75 47 40.94	N 20 11 W	S 20 12 E	2908	Monkey.
			N 88 01 W	S 88 02 E	3837	East.
			S 70 13 W	N 70 08 E	11416	Fox Island Poplar.
3	37 56 08.82	75 47 03.84	N 49 00 W	S 49 00 E	2642	Monkey.
			S 79 52 W	N 79 50 E	4904	East.
			S 67 30 W	N 67 25 E	12700	Fox Island Poplar.
4	37 55 43.18	75 46 44.80	N 43 56 W	S 43 57 E	3607	Monkey.
			N 89 59 W	S 89 59 E	5336	East.
			S 71 56 W	N 71 51 E	12877	Fox Island Poplar.

## APPENDIXES.

### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may hereafter be required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*

SEC. 4. That this act shall take effect from the date of its passage.

[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

*Survey of Oyster Bars, Somerset County, Md.*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven. \* \* \*

[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

[Act of the legislature of Maryland approved April 2, 1906.]

AN ACT to establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to Article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis; and the said commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie.

\* \* \* \* \*

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section. \* \* \*



SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey, and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable, the limits and boundaries of the natural beds, bars and rocks, as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the same to the clerks of the Circuit Court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed, other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks, shall be construed in all the courts of the State to be barren bottoms, and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act; provided, that the said survey and report shall not be so construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act. \* \* \*

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the Survey, is as follows:

An Act Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or levelling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>a</sup> *And be it enacted,* That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses, (to be by

<sup>a</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

(them sworn or affirmed and examined) shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid, if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damages assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted*, That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

#### APPENDIX B.—LAWS RELATING TO SURVEY OF CLAM BEDS.

[Act of the legislature of Maryland approved April 6, 1908.<sup>a</sup>]

AN ACT to prescribe additional duties to be performed by the Board of Shell Fish Commissioners, to the duties already prescribed for them by Chapter 711 of the Acts of the General Assembly of Maryland of 1906.

SECTION 1. Be it enacted by the General Assembly of Maryland, That it shall be the duty of the Board of Shell Fish Commissioners, as soon after the passage of this Act as practicable, to have laid out, surveyed and designated on charts provided for such purpose, Gravel Rock, Ware Rock, and Flat Rock, being clam banks located in the waters of Pocomoke Sound, in Somerset county, and State of Maryland, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of each of the above named rocks, and they shall take true and accurate notes of said survey and make the report and perform all other duties connected with said survey as said duties are prescribed by Chapter 711 of the Acts of the General Assembly of Maryland of 1906, pertaining to natural oyster beds and bars.

SEC. 2. And be it enacted by the General Assembly of Maryland, That after said rocks shall have been surveyed as provided in Section 1 of this Act, no part of them shall be leased to any person or persons for the purpose of planting, bedding or cultivating oysters, thereon, but they shall be reserved to the public in the State of Maryland for the sole purpose of taking clams therefrom, and shall be treated in every particular as are the natural oyster beds or bars which have been or shall be surveyed by the Board of Shell Fish Commissioners under Chapter 711 of the Acts of the General Assembly of Maryland of 1906.

SEC. 3. And be it further enacted, That this Act shall take effect from the date of its passage.

<sup>a</sup>As published in bill form.

*Survey of Oyster Bars, Somerset County, Md.*

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APPENDIX C.—STATISTICS OF RESULTS OF THE COMBINED OPERATIONS OF THE GOVERNMENT AND STATE.

For a further understanding of the character of the oyster survey work that is being carried on in Maryland the following statistical tabulations of the combined results of the various operations of both the Government and State will be of value. In this connection it should be remembered that these statistics only include the new work required to supplement the large amount of existing data obtained from the archives of Coast and Geodetic Survey and utilized in the preparation of the charts and technical records.

Operation.	Anne Arundel County.	Somerset County.	Total. (a)
Natural oyster bars surveyed and delineated.....	91	37	128
Acres of natural oyster bars.....	33,666	27,566	(b) 61,232
Crab bottoms surveyed and delineated.....		54	54
Acres of crab bottoms.....		32,108	32,108
Clam beds surveyed and delineated.....		3	3
Acres of clam beds.....		506	506
Number of oyster lots leased and surveyed.....	38	185	223
Acres of oyster lots leased and surveyed.....	203	920	1,123
Boundary buoys located and planted.....	362	154	516
Triangulation landmarks established.....	123	86	209
Miles of shore line covered by triangulation.....	110	125	235
Square miles of water covered by triangulation.....	220	375	595
Miles of examination of shell bottom with chain apparatus.....	369	296	665
Oyster investigation stations occupied.....	440	679	1,119
Number of soundings over shell bottoms.....	37,049	17,904	54,953
Square miles covered by soundings and chain apparatus.....	58	47	105
Projections prepared and plotted.....	9	13	22
Leasing charts prepared.....	13	12	25
Oyster charts published.....	4	6	10
Reports published.....	2	2	3
Progress maps published.....	2	2	3

(a) Less quantities covered by statistics of more than one county.

(b) Total area of natural oyster bars of Connecticut is 5,770 acres.

APPENDIX D.—THE HAMAN OYSTER CULTURE LAW.

[Extract from First Report of Shell Fish Commission.]

OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland had a twofold object in view:

1. To encourage an industry in oyster culture upon the barren bottoms beneath the tidewaters of the State.

2. To prevent the leasing of natural oyster bars for the purpose of oyster culture."

SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."

## NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, charting and buoying them, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the Commission."

## DEFINITION OF A NATURAL OYSTER BAR.

## DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturalists, may be made to yield a greater number of oysters than they now produce."

"It should be evident to every one that neither of these definitions could be adopted by the Commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

## THE GOLDSBOROUGH DEFINITION.

"The definition of a natural bar which very nearly approaches a reasonable and satisfactory compromise between the extreme views given above and which has therefore been adopted by the Commission, is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Tood, v. Job T. Moore. It is as follows:

What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them; and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters, within the meaning of the Act of Assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the Act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and cannot be located or appropriated by any individual."







# Fold-out Placeholder

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future date.





DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY  
O. H. TITTMANN, Superintendent

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# SURVEY OF OYSTER BARS

## TALBOT COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND  
REPORT OF WORK OF UNITED STATES COAST  
AND GEODETIC SURVEY IN COOPERATION  
WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND  
SHELL FISH COMMISSION

By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1912



## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,

*Washington, July 20, 1912.*

SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, together with certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the Shell Fish Commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, 1909, 1910, 1911, and 1912.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To HON. CHARLES NAGEL,  
*Secretary of Commerce and Labor.*

LETTERS OF MARY WELLS

Dear Mother,

I have the honor to thank you for the kind letter of the 10th inst. and for the money which you have so kindly sent me. I have received it and it is very much appreciated. I have not time to write you more at present but will do so again soon. I am well and hope these few lines will find you the same. I have not time to write you more at present but will do so again soon. I am well and hope these few lines will find you the same.

Yours affectionately,

Mary Wells

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## CERTIFICATION.

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BALTIMORE, MD., *May 4, 1912.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in Talbot County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,  
*Chief of Coast and Geodetic Survey Party,*  
*Assistant, Coast and Geodetic Survey.*

---

Examined and certified to be correct.

BALTIMORE, MD., *May 4, 1912.*

WALTER J. MITCHELL,  
CASWELL GRAVE,  
BENJAMIN K. GREEN,  
*Maryland Shell Fish Commission.*  
SWEFSON EARLE,  
*Hydrographic Engineer.*

NOTE.—Certified copies of this publication and of the charts of the natural oyster bars of Talbot County were filed in the office of the clerk of the circuit court of Talbot County and in the office of the Board of Shell Fish Commissioners on July 20, 1912.



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# SURVEY OF OYSTER BARS, TALBOT COUNTY, MD.

## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws<sup>1</sup> authorizing the work and the natural division of the surveying operations<sup>2</sup> of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consist of a series of charts and a technical report for each county surveyed.<sup>3</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey in charge of the work of that service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.<sup>4</sup>

The publications prepared and issued by the State under the direction of the Shell Fish Commission consist of annual reports<sup>5</sup> of all the operations of the Commission performed under the provisions of the laws of Maryland,<sup>6</sup> including results of biological

<sup>1</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>2</sup> See Appendix C for a summary of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland.

<sup>3</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C. The publications now ready for issue are those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, St. Marys, Baltimore, Kent, Queen Annes, and Talbot Counties.

<sup>4</sup> The technical records and charts for each county are published separately on account of the requirements of the oyster-culture laws of the State and the practical considerations which make it desirable to have each county "opened up" for oyster culture as soon as practicable after the completion of its survey. For these reasons and the fact that these reports are each arranged for distribution and use in one county only without reference to other published records, much of the text of this publication is of necessity identical with similar previous publications for other counties.

<sup>5</sup> These reports can be obtained by application to the Shell Fish Commission, Marine Bank Building, Baltimore, Md. They are issued annually in October, and the first, second, third, and fourth reports are now available for distribution.

<sup>6</sup> See Appendix B for an extract from the "Second Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman oyster-culture law."

and economic oyster investigations, methods and results of the hydrographic survey of the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.<sup>1</sup>

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential as a foundation for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>2</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL STATEMENT OF WORK OF COAST AND GEODETIC SURVEY.<sup>3</sup>

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need very little other summary than is indicated by the published "Charts of Natural Oyster Bars" and the index of hydrographic projections and triangulation stations shown on the county progress maps attached to each report.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, assistant, Bureau of Fisheries.

<sup>3</sup> For a detail statement of the very large amount of excellent oyster-survey work of the Maryland Shell Fish Commission see the "Annual Reports of the Maryland Shell Fish Commission."

The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars but also to the Government for any future work it may do in the regions covered by the oyster-survey operations.

The hydrographic projections and published charts are prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various shellfish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to and permanently fixed by published technical descriptions which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way, and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County":

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster-bar and other boundaries established. At the same time the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last 65 years.

REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY IN TALBOT COUNTY.

INSTRUCTIONS.

The following letters, together with the laws<sup>1</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the survey at Washington, have proved very beneficial to the work and are greatly appreciated:

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

LAWRENCE O. MURRAY, *Assistant Secretary.*

His Excellency HON. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

---

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector \* \* \*.

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the Commissioners, prepare a program of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. & G. S. Steamer "Endeavor," Baltimore, Md.*

---

<sup>1</sup> For these laws see Appendix A.

## ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the field and the preparation for publication of oyster charts and technical records in the office at Washington.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house-boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster*, the Coast and Geodetic Survey party has had the constant use of the large launch *Inspector* and several other boats furnished by its own service, and the occasional use of the Bureau of Fisheries launch *Canwasback*<sup>1</sup> and the steamer *Governor McLane*<sup>2</sup> of the State Fishery Force.

The greater part of the equipment of instruments for the operations of both the Government and State has been furnished by the Coast and Geodetic Survey, and consists of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

## CHRONOLOGICAL STATEMENT OF WORK.

The field work of the Coast and Geodetic Survey in Talbot County<sup>3</sup> dates from July 6, 1909, when the Maryland Shell Fish Commission house-boat *Oyster* was towed by the State Fishery Force steamer *Governor McLane* to an anchorage in the northern part of Prospect Bay near the southern entrance to Kent Narrows. From this harbor as headquarters a few additional triangulation observations were made in Kent County, although the greater part of the work was confined to Talbot and Queen Annes Counties.

On July 22, 1909, the house-boat was moved to the vicinity of Rockhall, and all field work in Talbot County was discontinued until August 13, 1909, when the *Oyster* was shifted back to Eastern Bay side of Kent Narrows, where she remained only two weeks. During this period Governor Crothers and party visited the house-boat and thoroughly examined into the manner and methods of the work of the Maryland oyster survey.

On August 28, 1909, the *Oyster* was towed to Haddaway Cove in Talbot County, where she stayed for only three days on account of the exposed position of the anchorage.

On August 31, 1909, the *Oyster* changed her anchorage to the very snug harbor inside of Poplar Island, where she remained until all the open Chesapeake Bay work was practically completed as far south as Tilghmans Island. While at this anchorage, one subparty living on shore was engaged on triangulation in Harris Creek with hired boats and an extra party of hands.

<sup>1</sup> By courtesy of Dr. H. F. Moore, United States Bureau of Fisheries.

<sup>2</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>3</sup> The field work of Talbot County was so intermixed with that of Queen Annes and Dorchester Counties that the chronological statement of the work in one of these counties necessarily includes a considerable part of the work of the other two counties.

### *Survey of Oyster Bars, Talbot County, Md.*

On September 22, 1909, the house-boat was towed to DAN COVE in Harris Creek. From this anchorage the triangulation of Harris Creek, as well as a considerable part of Broad Creek, was completed.

On October 16, 1909, the house-boat was moved back to Eastern Bay and tied up at the railway wharf at Claiborne. From this point the triangulation of Eastern Bay and its northern tributaries west of Kent Narrows was practically completed.

On October 29, 1909, the *Oyster* was moved to an anchorage in Tilghmans Creek, which is a branch of the Miles River. The next day completed a month's field work, which was notable as far as triangulation was concerned, on account of the number of stations which were established, marked, described, and located by observations. This number was 108, which is considerably larger than any previous month's record. A good part of this work was carried on by subparty living on shore at Cambridge.

On December 1, 1909, the house-boat *Oyster* was moved from Tilghmans Creek, where she had been for over a month, to an anchorage off St. Michaels. From this harbor the remaining triangulation of Wye River and Miles River was practically completed.

On December 21, 1909, active field work in Talbot County for the calendar year was closed at St. Michaels, but a signal-building subparty continued field work from quarters on shore at Oxford for two days longer.

On December 24, 1909, the field season for the Government parties was officially closed, but the monthly employees remained on the house-boat at Baltimore preparing launches and boats for the winter. All officers were on leave from the 25th to 31st.

On January 3, 1910, which was the first working day of the year, the winter's office work commenced, and the repairs to launches and construction of triangulation monuments were taken up on the house-boat *Oyster* by the foreman and two men.

The office work, which consisted of the completion of records, revising descriptions of location of triangulation stations, triangulation computations, oyster-bar computations, preparation of manuscripts of technical publications, drafting and scaling boundaries of oyster bars, etc., continued without a break, except as noted in the following paragraph.

During the period covered by the winter's office work the Maryland Legislature was in session, and as the consideration of oyster legislation formed a very important and prominent part of its proceedings, considerable time of the chief of party and his officers was expended in gathering and imparting information requested by various State officials.

On March 14, 1910, a subparty was organized and put in the field to complete certain necessary details of triangulation in Talbot and Dorchester Counties. This party first went to St. Michaels, then to Cambridge, and finally to Oxford, where the main party on the house-boat was joined at the end of April.

On April 30, 1910, the house-boat *Oyster* was towed from Baltimore by the State steamer *McLane* to an anchorage in Tar Creek, near Bellevue. While at this harbor the house-boat was cleaned, painted, and generally overhauled for the season's work, and at the same time triangulation was being carried on to completion in Tred Avon River, Island Creek, and other tributaries of lower Choptank River.



On May 30, 1910, the house-boat shifted her anchorage to Tred Avon River off Oxford, where she remained until the practical completion of all the remaining triangulation and other oyster survey work in Talbot County except in the upper Choptank River.

On June 30, 1910, the *Oyster* was towed to an anchorage off Cambridge, and from this point the oyster survey work of Talbot County in upper Choptank River was carried on to completion, together with that of Dorchester County in the adjacent region.

On July 20, 1910, the house-boat *Oyster* was moved to the Patuxent River off Solomons Island, and no further field work was done in Talbot County except from June 20 to June 21, 1912, when a small party was put in the field to complete certain necessary details of triangulation in Talbot and Dorchester Counties.

The office work connected with the oyster survey of Talbot County, including the computation of geographic information and the drafting necessary for the preparation for publication of the oyster charts and the technical records of that county, was carried on intermittingly with the office work of other counties from the beginning of the field work in Talbot County on July 6, 1909, to the time of filing of the certified oyster charts and technical records in the archives of the Maryland Shell Fish Commission and with the clerk of the circuit court of Talbot County on July 20, 1912.

STATISTICS.<sup>1</sup>

Landmarks and triangulation signals erected. ....	315
Monuments planted to mark triangulation stations. ....	311
Triangulation stations occupied for observations of horizontal angles. ....	308
Old triangulation stations recovered. ....	30
New triangulation stations established. ....	306
Total old and new triangulation stations marked and described. ....	336
Linear miles of shore line covered by triangulation (approximate). ....	230
Square miles covered by triangulation (approximate). ....	240
Hydrographic projections prepared and completed as records of oyster boundaries. ....	14
Triangles computed. ....	672
Geographic positions computed. ....	330
Corners of oyster boundaries established by computation. ....	671
Back azimuths and distances computed from corners of boundaries to triangulation stations. ....	2, 013
Descriptions of triangulation stations prepared for publication. ....	336
Descriptions of oyster boundaries prepared for publication. ....	132
"Charts of Natural Oyster Bars" prepared for publication. ....	7
Progress map prepared for publication. ....	1

## GENERAL REMARKS.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

<sup>1</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of this county, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the Commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland. See Appendix D of this publication for "Statistics of results of combined operations of the Government and the State."

*Survey of Oyster Bars, Talbot County, Md.*

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore, of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unfailing tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the Commission, who, as editor of the Commission's annual report and commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Mr. Benjamin K. Green, treasurer of the Commission, who has looked after the equipment and commissary of the house-boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Mr. Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

And to the many others connected with the Commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

## CHARTS AND MAPS.<sup>1</sup>

### CHARTS OF NATURAL OYSTER BARS.

The charts of the natural oyster bars of Talbot County published by the Coast and Geodetic Survey from results of the surveys of the Government in cooperation with the Maryland Shell Fish Commission consist of seven sheets covering all the oyster-producing waters of that county. They are published on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{16}$  inches to a statute mile) and are constructed on polyconic projections; and all information shown on them is based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars and other boundaries established by the Commission, and are certified for the purpose of filing in the office of the clerk of the circuit court of Talbot County and in the office of the Maryland Shell Fish Commission, as required by the oyster laws of Maryland.

In addition to the oyster bar and other boundaries, the charts show the location and name of all landmarks (United States Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography<sup>2</sup> necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the heading "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a particular oyster bar or landmark which is only known by name, consult the "Contents" and

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> Much of the detail of the inshore topography was obtained from the excellent map of Talbot County, prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the United States Geological Survey.

the desired chart and general location will be indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shell fish industries. The 1-fathom contour (6 feet) and the 5-fathom curve (30 feet) correspond in a general way to the inner and outer limits of all the oyster bars surveyed. The 3-fathom contour (18 feet) furnishes the curve of about the average depth of water on the oyster bars, and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" and the boundaries of the "waters contiguous to the county" opened up for the leasing with Talbot County are plainly indicated on the charts. A full technical description of these boundaries is given in this publication under the heading "Boundaries of county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart within the boundaries of the different shell fish bottoms.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Talbot County, like those for Anne Arundel, Somerset, Wicomico, Worcester, Calvert, Charles, St. Marys, Baltimore, Kent, and Queen Annes Counties, have been prepared under the direction of the hydrographic engineer of the Commission. They are constructed on polyconic projections on the scales of 1 part in 5,000 or 1 part in 10,000, as the needs of oyster culture may require, and the information shown on them is based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts have been divided by parallels of latitude and meridians of longitude into small rectangles of 1 acre or 5 acres, as may be best suited to the area under consideration, and

prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as possible.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in the Marine Bank Building at Baltimore.

#### PROJECTIONS.

The polyconic projections<sup>1</sup> covering Talbot County waters are 14 in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, but the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission were plotted by the draftsman of the Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the archives of the Shell Fish Commission.

#### PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the United States Coast and Geodetic Survey in Talbot County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress maps<sup>2</sup> accompanying the first and second annual reports of the Maryland Shell Fish Commission were prepared under the direction of the hydrographic engineer of the Commission. They are on the scale of 1 part in 400,000, and show the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey.

<sup>1</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>2</sup> These maps and reports can be obtained by application to Maryland Shell Fish Commission, Marine Bank Building, Baltimore, Md.

## BOUNDARIES OF THE COUNTY WATERS.<sup>1</sup>

### WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>2</sup> between the waters "within the territorial limits" of Talbot County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the "oyster" charts and the smooth projections of the Coast and Geodetic Survey, is technically described and defined as follows:

Commencing at the head of the oyster-producing waters of Wye River on the channel boundary line between Talbot County and Queen Annes County; thence following the channel boundary line between Talbot County and Queen Annes County down the upper Wye River to a point situated in the vicinity of the eastern end of Wye Island; thence continuing down the channel of the branch of Wye River running south of Wye Island along the boundary line between Talbot County and Queen Annes County, as laid down on "Chart No. 32, Natural Oyster Bars, Maryland," to the mouth of Wye River; thence continuing along the boundary line between Talbot County and Queen Annes County, as laid down on "Chart No. 32, Natural Oyster Bars, Maryland," passing into Miles River in a curved line about half way between Herring Island and Bennett Point and then down Miles River to a point situated about  $1\frac{1}{2}$  miles northeast of Tilghmans Point in the Eastern Bay entrance of Miles River; thence continuing on the boundary line between Talbot County and Queen Annes County in Eastern Bay as laid down on "Charts Nos. 31 and 32, Natural Oyster Bars, Maryland," to a point situated in the Chesapeake Bay entrance of Eastern Bay defined by the intersection of the boundary line between Talbot County and Queen Annes County and a straight line between a point on Kent Point on the southern extremity of Kent Island defined by <sup>3</sup>latitude  $38^{\circ} 50' 05.1''$  and longitude  $76^{\circ} 22' 06.2''$  and a point situated on Wades Point on the eastern side of the entrance of Eastern Bay defined by latitude  $38^{\circ} 49' 34.2''$  and longitude  $76^{\circ} 18' 04.5''$ ; thence in a straight line across the eastern half of the Chesapeake Bay entrance of Eastern Bay to a point on Wades Point defined by latitude  $38^{\circ} 49' 34.2''$  and longitude  $76^{\circ} 18' 04.5''$ ; thence in a southerly direction along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on Lows Point defined by latitude  $38^{\circ} 46' 33.4''$  and longitude  $76^{\circ} 20' 07.4''$ ; thence in a straight line across the northern entrance of Poplar Island Narrows to a point situated on the northern end of Poplar Island defined by latitude  $38^{\circ} 46' 42.8''$  and longitude  $76^{\circ} 22' 25.0''$ ; thence along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the western shore of

<sup>1</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>2</sup> See "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and the progress map at the end of this publication.

<sup>3</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.

Poplar Island to a point situated on the southern end of the main part of Poplar Island defined by latitude  $38^{\circ} 45' 17.5''$  and longitude  $76^{\circ} 22' 43.6''$ ; thence in a straight line across an inlet into Poplar Island Harbor to a point situated on the western extremity of the detached part of Poplar Island known as Coaches Neck defined by latitude  $38^{\circ} 45' 08.8''$  and longitude  $76^{\circ} 22' 35.3''$ ; thence along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the western and southern shore of a detached part of Poplar Island known as Coaches Neck to a point situated on its eastern extremity defined by latitude  $38^{\circ} 44' 59.4''$  and longitude  $76^{\circ} 21' 46.5''$ ; thence in a straight line across the southern entrance of Poplar Island Narrows to a point situated on the mainland on Great Marsh Point defined by latitude  $38^{\circ} 44' 56.0''$  and longitude  $76^{\circ} 20' 34.2''$ ; thence in a southerly direction along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on the northern side of the entrance to Front Creek defined by latitude  $38^{\circ} 43' 47.5''$  and longitude  $76^{\circ} 20' 34.0''$ ; thence in a straight line across the Chesapeake Bay entrance of Front Creek and Knapps Narrows to a point situated on the southern side of Chesapeake Bay entrance of Knapps Narrows defined by latitude  $38^{\circ} 43' 14.8''$  and longitude  $76^{\circ} 20' 27.6''$ ; thence in a southerly direction along the mean low water line or across the mouth of all inlets less than 100 yards in width, as the case may be, of the eastern shore of Chesapeake Bay to a point situated on Blackwalnut Point on the northwestern side of the Chesapeake Bay entrance of lower Choptank River defined by latitude  $38^{\circ} 40' 06.6''$  and longitude  $76^{\circ} 20' 24.7''$ ; thence in a straight line ending at a point situated on Cook Point on the southeastern side of the Chesapeake Bay entrance of lower Choptank River defined by latitude  $38^{\circ} 37' 55.7''$  and longitude  $76^{\circ} 17' 28.7''$  to a point on this line defined by its intersection with boundary line in lower Choptank River between Talbot County and Dorchester County as laid down on "Charts Nos. 33, 34, 36, and 37, Natural Oyster Bars, Maryland;" thence along the boundary line in lower Choptank River between Talbot County and Dorchester County as laid down on "Charts Nos. 33, 34, 36, and 37, Natural Oyster Bars, Maryland," to the entrance of upper Choptank River between Castle Haven Point and Island Creek; thence continuing along the boundary line between Talbot County and Dorchester County up the channel of upper Choptank River pass the city of Cambridge around Chancellors Point and pass the town of Choptank, all as laid down on "Chart No. 35, Natural Oyster Bars, Maryland;" thence continuing up the channel boundary line of upper Choptank River between Talbot County and Dorchester County to the head of the oyster-producing waters.

#### WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the United States Coast and Geodetic Survey, "which said copies shall be filed in the office of the said commissioners in the city of Baltimore," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county and the waters contiguous to but not within the territorial limits of adjacent counties.

This boundary line has been delineated on the "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and is technically described and defined as follows:

Commencing at a point in the Chesapeake Bay entrance of Eastern Bay defined by the intersection of the boundary line between Talbot County and Queen Annes County, as laid down on "Chart No. 31, Natural Oyster Bars, Maryland," with a straight line across the Chesapeake Bay entrance of Eastern Bay,

*Survey of Oyster Bars, Talbot County, Md.*

defined at its western end by a point situated on the southern extremity of Kent Island in latitude  $38^{\circ} 50' 05.1''$  and longitude  $76^{\circ} 22' 06.2''$  and defined at its eastern end by a point situated on Wades Point on the eastern side of the entrance of Eastern Bay in latitude  $38^{\circ} 49' 34.2''$  and longitude  $76^{\circ} 18' 04.5''$ ; thence along the boundary line between Talbot County and Queen Annes County, passing into Chesapeake Bay between Kent Island and Poplar Island, as laid down on "Chart No. 31, Natural Oyster Bars, Maryland," to a point situated in Chesapeake Bay about  $3\frac{1}{2}$  miles southwest of Bloody Point Bar Light defined by latitude  $38^{\circ} 46' 06.6''$  and longitude  $76^{\circ} 26' 37.1''$ ; thence in a straight line in a southerly direction with Chesapeake Bay to a point situated in Chesapeake Bay about  $3\frac{3}{8}$  miles east of Hog Point and  $5\frac{3}{8}$  miles southwest of Poplar Island, defined by latitude  $38^{\circ} 42' 33.4''$  and longitude  $76^{\circ} 27' 40.0''$ ; thence in a straight line in a southerly direction with Chesapeake Bay to a point situated in Chesapeake Bay about  $5\frac{1}{2}$  miles southwest of Sharps Island Light and  $5\frac{3}{4}$  miles northwest of James Island, defined by latitude  $38^{\circ} 34' 29.6''$  and longitude  $75^{\circ} 26' 17.0''$ ; thence along the boundary line between Talbot County and Dorchester County, passing south of Sharps Island into the Chesapeake Bay entrance of the lower Choptank River, as laid down on "Charts Nos. 33, 36, and 37, Natural Oyster Bars, Maryland," to a point defined by the intersection of this boundary line with a straight line across the entrance of lower Choptank River, defined at its northwestern end by a point situated on Blackwalnut Point in latitude  $38^{\circ} 40' 06.6''$  and longitude  $76^{\circ} 20' 24.7''$  and defined at its southeastern end by a point situated on Cook Point in latitude  $38^{\circ} 37' 55.7''$  and longitude  $76^{\circ} 17' 28.7''$ .<sup>1</sup>

<sup>1</sup> Latitudes and longitudes based on the United States standard datum of the United States Coast and Geodetic Survey.



## LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION.

The oyster laws of Maryland authorizing the survey to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of location and character of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking a landmark has only an indefinite idea of its location. They gradually proceed from description of the general locality of a landmark to the descriptions of its immediate surroundings. This is followed by specific details of the character of the center and reference marks and a "round" of reference angles and distances which in themselves frequently contain enough information to furnish an independent and reliable location of the triangulation station.

### METHOD OF DESCRIBING TRIANGULATION STATIONS.

*The separate descriptions of triangulation stations should not be used without reading the following explanation of the method of describing the triangulation stations, as it contains certain details that are common to all the landmarks described in this publication and which are omitted in the separate descriptions as being needless repetitions:*

*Name.*—The title at the top of each separate description is the name by which the landmark or triangulation station is known and designated in all work and published oyster records or oyster charts of both the Government and State. The selection of the name is usually left to the triangulator establishing the station, and it may or may not have geographic or other significance in reference to the locality.

*General locality.*—Under this heading is given the general locality of the landmark in reference to well-known and prominent natural or artificial features, such as the nearest body of water, town, river, steamer wharf, well-defined point of land, church, or any other feature that is likely to remain both permanent and prominent.

This heading also covers a reference to the published chart or map which shows the location of the station most clearly. Nearly all the triangulation stations described in this publication are plainly indicated by name and a triangulation symbol on the published charts of oyster bars of Maryland. In this case they are referred to by serial number only, the words "charts of oyster bars of Maryland" being omitted to avoid needless repetition. These published oyster charts are on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{8}$  inches to a statute mile) and show the locations of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

*Immediate locality.*—Under this heading is given the description of the "observed station" in reference to its immediate surroundings. This is supposed to include a statement of the station's estimated elevation above high water or some other well-defined level of the locality, such as a road or house; the character of the ground on which it is located, such as marsh land, sand beach, cultivated field, or meadow; estimated bearings in points of the compass and estimated distances in yards *from* (not to) easily recognized features, such as extreme end of point, edge of bluff, bank of creek, line of telephone poles, shore line, barn, house, fence, ditch, trees, or any other definite detail, such as being on range with the tangent of an island and a church, etc.

When a standard monument has been established near the station as a "reference station," this heading also covers a statement of the true bearing of the monument in degrees and minutes and its measured distance in meters, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached and might be mistaken for the center mark of the "observed station" unless special attention is called to it.

The distinction between the "observed station" and "reference station" should be carefully noted by anyone making use of the description of stations for any future surveying operations.

The "observed station" is located at the particular triangulation point covered by the description of stations, and is the one whose geographic position is first computed, as it is the point which was "occupied" and "observed on" for horizontal angles. However, in spite of the primary importance of the location of the "observed station," it will be noted from the description of stations that frequently it is not marked as well as the "reference station," and in some instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate "observed stations" on edges of banks and ends of points of land, which in the tide-water section of Maryland generally means they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the great need of "reference stations," if the frequent reestablishment of a new framework of triangulation is to be avoided.

The chief reason and need for the establishment of the "reference station," or secondary station, as it might be well named, is explained in the preceding paragraph,

but in several instances other reasons, such as the location of the "observed station" on an unstable sand dune, in a cultivated field, in front of a residence, or other places objectionable to the landowner, have led to establishment of "reference stations." The location of the "reference station" in relation to the "observed station" is fixed for plotting on charts or for computation of its geographic position by checked measurements of its distances and azimuth from the "observed station."<sup>1</sup>

*Marks.*—Under this heading is given a description of the character of the permanent monuments or other marks of the location of the "observed station," and of the "reference station" where one has been established.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom, the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground, unless otherwise stated.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

*References.*—Under this heading are given the "rounds" of directions and distances to all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described, this, if possible, being a lighthouse, church spire, or other permanent and prominent point. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>2</sup> of the initial object is always given in parentheses alongside its name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by horizontal angles or for the relocation of corner buoys of oyster-bar boundaries by the method of compass directions described in this publication under the heading of "Boundaries of oyster bars."

<sup>1</sup> Geographic coordinates (latitude, longitude, distance, and azimuth) relating to any of the "observed stations" or of the "reference stations" described in this publication can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>2</sup> The mean magnetic variation for Talbot County was  $6^{\circ} 10'$  west of north in 1911 and increasing at the rate of  $5'$  yearly.

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles, and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters," however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner, the accuracy of the directions are indicated by the refinement of angular measure with which they are recorded.

## THOMAS POINT SHOAL LIGHT.

*General locality.*—Western side of Chesapeake Bay offshore about  $1\frac{1}{4}$  miles southeast of Thomas Point and 3 miles south of entrance to channel to Annapolis. (See Chart No. 31.)

*Immediate locality.*—Observed station is on a hexagonal screw-pile structure known as Thomas Point Shoal Lighthouse.

*Marks.*—Observed station is center point of lantern on Thomas Point Shoal Lighthouse.

*References.*—

"Thomas 3" (N  $56^{\circ} 07' W$ )..... 0 00 00 .....  $1\frac{1}{4}$  miles.

## BLOODY POINT BAR LIGHT.

*General locality.*—Offshore of southwestern end of Kent Island on northern side of entrance to Eastern Bay about  $1\frac{1}{2}$  miles southwest of Bloody Point and  $1\frac{1}{4}$  miles west of Kent Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is on tower on caisson structure known as Bloody Point Bar Lighthouse.

*Marks.*—Observed station is center point of lantern on Bloody Point Bar Lighthouse.

*References.*—

"Valiant" (S  $4^{\circ} 59' E$ )..... 0 00 00 .....  $4\frac{1}{2}$  miles.

## TENK.

*General locality.*—Northern side of entrance to Eastern Bay on Kent Point about  $1\frac{1}{2}$  miles east of Bloody Point Bar Light. (See Chart No. 31.)

*Immediate locality.*—Observed station is in about 2 feet of water 18 yards offshore of Kent Point, 50 yards southwest of point of land, and 65 yards south-southeast of another point of land. Cement monument marking reference station is 35.94 meters N  $36^{\circ} 15' W$  of observed station.

*Marks.*—Observed station is nail in center of 3-inch square stub in water with top about on level with high water. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

"Bloody Point Bar Light" (S $86^{\circ} 34' W$ ).....	0	00	00	.....	$1\frac{1}{4}$ miles.
REFERENCE STATION.....	57	11	30	.....	35.94 meters.
Chimney of house on Tilghmans Point Farm..	169	26	..	.....	$5\frac{1}{8}$ miles.
"Rich Neck Water Tank".....	175	48	10	.....	$5\frac{1}{4}$ miles.
Flagpole on Claiborne train shed.....	181	14	..	.....	$4\frac{1}{2}$ miles.
Right chimney of house.....	188	34	..	.....	$4\frac{1}{2}$ miles.
"Kemp Tower".....	190	21	30	.....	$3\frac{3}{8}$ miles.
Right chimney of brick house.....	206	17	..	.....	$3\frac{3}{4}$ miles.
Right chimney of house.....	240	12	..	.....	$4\frac{1}{2}$ miles.
Chimney left of house among trees on Poplar					
Island.....	278	26	..	.....	$3\frac{3}{4}$ miles.

## STRAIGHT.

*General locality.*—Northern shore of Eastern Bay on Long Point about  $2\frac{1}{4}$  miles northeast of Kent Point,  $2\frac{1}{8}$  miles northwest of Wades Point and  $\frac{1}{8}$  mile northeast of entrance to Long Point Creek. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a cultivated field about 8 feet above high water, 35 yards west of edge of bank, 45 yards northwest of edge of bank near a tree, 80 yards south-southwest of fence corner, 245 yards south-southeast of fence corner at gate, and 175 yards east-southeast of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Needle" (N 48° 15' E).....	0	00	00	..... 4 $\frac{1}{8}$ miles.
Left tangent of Tilghmans Point.....	35	07	..	..... 4 $\frac{3}{8}$ miles.
Chimney of house on Tilghmans Point Farm..	42	27	..	..... 4 $\frac{1}{8}$ miles.
"Kemp Tower".....	83	46	00	..... 2 $\frac{1}{4}$ miles.
Nail in blaze in red oak tree (22 inches diameter) .....	113	59	00	..... 31.06 meters.
Right tangent of woods on Poplar Island....	155	30	..	..... 5 $\frac{3}{4}$ miles.
Left tangent of woods on Kent Point.....	179	48	..	.....
South peak of building.....	264	18	..	..... $\frac{1}{2}$ mile.
East peak of barn.....	317	48	..	..... $\frac{3}{4}$ mile.
South chimney of house.....	330	10	..	..... $\frac{1}{4}$ mile.

## MOUTH.

*General locality.*—Northern shore of Eastern Bay on eastern shore of Kent Island about  $1\frac{1}{4}$  miles north of Long Point,  $3\frac{3}{8}$  miles northwest of Claiborne Wharf, and  $\frac{3}{4}$  miles southwest of Bodkin Island. (See Chart No. 31.)

*Immediate locality.*—Observed station is in a cultivated field about 8 feet above high water, 10 yards west of top of a bank with uniform slope to shore, 50 yards south of a small cove, and 20 yards south of a group of cedar trees near shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Matta" (N 5° 49' W).....	0	00	00	..... 2 $\frac{1}{4}$ miles.
South gable of barn.....	26	41	..	..... 4 $\frac{1}{4}$ miles.
West gable of house.....	33	35	..	..... 2 $\frac{1}{4}$ miles.
Right tangent of woods on Turkey Point....	50	25	..	..... 3 miles.
"Parsons Island Water Tank".....	66	43	..	..... 5 $\frac{1}{8}$ miles.
North gable of barn.....	74	49	..	..... 6 $\frac{1}{4}$ miles.
Left tangent of woods on Tilghmans Point...	103	05	..	..... 4 $\frac{1}{4}$ miles.
South chimney of house on Tilghmans Point Farm.....	112	19	..	..... 4 miles.
"Rich Neck Water Tank".....	124	48	40	..... 3 $\frac{7}{8}$ miles.
South gable of Claiborne Wharf house.....	137	41	..	..... 3 $\frac{1}{2}$ miles.
"Kemp Tower".....	154	09	..	..... 3 $\frac{1}{2}$ miles.
East chimney of Legg house.....	224	59	..	..... $\frac{3}{8}$ mile.
Chimney of small house.....	286	35	..	..... 1 $\frac{1}{2}$ miles.
South gable of barn.....	342	46	..	..... 1 $\frac{3}{8}$ miles.

## MATTA.

*General locality.*—Northern shore of Eastern Bay on eastern shore of Kent Island at western side of entrance to Shipping Creek about 2 miles west of Turkey Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is in cultivated field about 15 feet above high water, 125 yards southwest of extreme end of point, 25 yards northwest of dry ditch, and 200 yards northwest of lone cedar tree near shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Batts" (N 67° 45' E).....	0	00	00	..... 1 mile.
North chimney of house.....	17	54	..	..... 2 miles.
Left tangent of woods on Tilghmans Point..	54	30	..	..... 5¾ miles.
North chimney of house on Tilghmans Point				
Farm.....	62	34	..	..... 5¾ miles.
"Rich Neck Water Tank".....	71	31	..	..... 5½ miles.
Left tangent of woods on Long Point.....	105	49	..	..... 2½ miles.
Chimney of Greeve house.....	124	53	..	..... ¼ mile.
South chimney of house.....	231	14	..	..... ¾ mile.
South cupola on barn.....	247	39	..	..... ⅞ mile.
East chimney of house.....	273	58	..	..... 1½ miles.
Chimney of small house.....	296	12	..	..... 1¼ miles.
West chimney of house.....	305	45	..	..... 1½ miles.

## BATTS.

*General locality.*—Northern shore of Eastern Bay on southern end of Batts Neck between Shipping and Cox Creeks about 1¼ miles northwest of Turkey Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is in cultivated field about 2 feet above high water, 21 yards north of shore, and 100 yards west of a wire fence extending 100 yards into bay.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument. Station "COXES CREEK," 1899, is 87.70 meters N 72° 20' E of observed station and is marked by the center of a cross in the top of a granite post about 12 inches square in the rough and about 27 inches long projecting 5 inches above surface of ground. The top of the granite post is dressed to a 6-inch cube marked with a square cross and the letters U. S. Subsurface mark is center of neck of a bottle buried with top 3 inches below base of granite post.

*References.*—

	°	'	''	
"Turkey" (S 58° 24' E).....	0	00	00	..... 1¼ miles.
North chimney of house on Tilghmans Point				
Farm.....	19	25	..	..... 5 miles.
"Rich Neck Water Tank".....	28	26	..	..... 5¼ miles.
Nail in blaze in one of twin persimmon trees				
(4 inches diameter).....	37	36	40	..... 3.94 meters.
Left tangent of woods on Long Point.....	69	48	..	..... 3¼ miles.
East gable of house.....	76	30	..	..... 2½ miles.
Nail in blaze in persimmon tree (6 inches				
diameter).....	91	13	50	..... 9.76 meters.
South chimney of house.....	202	08	..	..... ¾ mile.
South chimney of house.....	242	32	..	..... ¾ mile.
South gable of barn.....	271	54	..	..... 1½ miles.
North chimney of house.....	293	22	..	..... 1¾ miles.
"Coxes Creek, 1899" (granite post).....	310	44	20	..... 87.70 meters.
North chimney of house.....	341	07	..	..... 1½ miles.

## TURKEY.

*General locality.*—Northern shore of Eastern Bay on southern end of Cox Neck on Turkey Point about 1 mile west of the north end of Bodkin Island. (See Chart No. 31.)

*Immediate locality.*—Observed station is in marsh meadow about 2 feet above high water, 40 yards northeast of shore, 200 yards south of a group of three pine trees near shore, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Mouth" (S 40° 32' W).....	0	00	00	..... 2¾ miles.
Chimney of house.....	23	19	..	..... 2¾ miles.
Chimney of Greeve house.....	49	14	..	..... 2½ miles.
South cupola on barn.....	68	20	..	..... 2¾ miles.
North chimney of house.....	72	30	..	..... 2½ miles.
South chimney of house.....	103	39	..	..... 1¾ miles.
South chimney of house.....	113	22	..	..... 2½ miles.
West pine tree of group.....	132	12	..	..... 200 yards.
Right tangent of Bodkin Island.....	254	46	..	..... 1 mile.
Left tangent of Tilghmans Point.....	275	23	..	..... 3½ miles.
North chimney of house on Tilghmans Point Farm.....	286	38	..	..... 3¾ miles.
"Rich Neck Water Tank".....	297	25	..	..... 4¾ miles.
Left tangent of woods on Long Point.....	352	26	..	..... 3 miles.

## NEEDLE.

*General locality.*—Northern part of Eastern Bay on Bodkin Island at entrance to Crab Alley Bay about 1½ miles west of the south end of Parsons Island and 1 mile east-southeast of Turkey Point. (See Chart No. 31.)

*Immediate locality.*—Observed station is near south end of Bodkin Island, about 12 feet above high water, 50 yards north by west of shore, 90 yards northeast by east of shore, 115 yards west-southwest of shore, and in center of radial lines of sight cut in bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Straight" (S 48° 17' W).....	0	00	00	..... 4¼ miles.
Nail in blaze in pine tree (6 inches diameter).....	5	51	30	..... 22. 78 meters.
Nail in blaze in pine tree (8 inches diameter).....	27	56	10	..... 17. 17 meters.
Right chimney of large house.....	64	29	..	..... 3½ miles.
Nail in blaze in pine tree (6 inches diameter).....	82	06	50	..... 11. 54 meters.
Chimney of house on Parsons Island.....	194	43	..	..... 2½ miles.
Near chimney of Starr, large, brick house.....	262	54	..	..... 6½ miles.
Cupola on left barn of Tilghmans Point Farm.....	289	40	..	..... 3 miles.
Chimney of bungalow.....	324	57	..	..... 4½ miles.
Nail in blaze in pine tree (7 inches diameter).....	345	25	00	..... 18. 20 meters.

## COX.

*General locality.*—Western shore of Crab Alley Bay on Cox Neck about ¾ mile north of Eastern Bay and 1 mile northwest of Bodkin Island. (See Chart No. 31.)

*Immediate locality.*—Observed station is at edge of a cultivated field on narrow neck of land about 3 feet above high water, 16 yards west of shore, 18 yards east of shore, and 80 yards northwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Tull" (N 12° 34' E).....	0	00	00	1½ miles.
Chimney of small house.....	12	54	..	2½ miles.
Chimney of house.....	21	19	..	2½ miles.
Cupola on barn.....	30	09	..	2¾ miles.
Right corner of old barn.....	49	27	..	2½ miles.
East chimney of large brick house.....	54	32	..	2½ miles.
Right tangent of Normans Point.....	61	40	..	2 miles.
North gable of barn on Parsons Island.....	79	50	..	2½ miles.
Left tangent of Bodkin Island.....	123	47	..	¾ mile.
East gable of barn.....	227	02	..	¾ mile.
Chimney of house.....	232	44	..	3 miles.
Chimney of house.....	255	50	..	2½ miles.

## RICH NECK WATER TANK.

*General locality.*—On neck of land about halfway between Eastern Bay and Miles River about 1¾ miles south-southwest of Tilghmans Point. (See Charts Nos. 31 and 32.)

*Immediate locality.*—Observed station is on large water tank on steel tower on Rich Neck Farm.

*Marks.*—Observed station is spindle on center of water tank.

*References.*—

None necessary.

## KEMP TOWER.

*General locality.*—Southern shore of Eastern Bay on Wades Point about 1 mile southwest of Claiborne Wharf and 5½ miles east of Bloody Point Bar Light. (See Chart No. 31.)

*Immediate locality.*—Observed station is on tower or cupola of Wades Point Hotel, which is a large, square, frame structure adjoining a brick house.

*Marks.*—Observed station is center of top of roof of cupola.

*References.*—

None necessary.

## KEMP.

*General locality.*—Southern shore of Eastern Bay on Wades Point about 1¾ miles southwest of Claiborne Wharf and 4¾ miles east by south of Bloody Point Bar Light. (See Chart No. 31.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 30 yards east by north of a wire fence and several trees, 55 yards south-southeast of edge of bank, 90 yards east-northeast of a bungalow, 130 yards north by west of a wire and wood fence corner, 130 yards north-northwest of wooden fence, and 400 yards west by south of Wades Point Hotel.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Bloody Point Bar Light" (N 83° 37' W)....	0	00	00	4¾ miles.
Nail in blaze in locust tree (14 inches diameter).....	1	41	30	35.07 meters.
Left tangent of Kent Point.....	3	11	..	3¾ miles.
Chimney on middle of house.....	17	12	..	3¾ miles.
Left peak of barn.....	25	21	..	4¾ miles.
Chimney of house.....	31	04	..	3½ miles.
Left chimney of house.....	45	27	..	3 miles.
Peak of main part of house.....	63	15	..	5½ miles.



References—Continued.	°	'	''	
Left tangent of Tilghmans Point.....	128	06	..	3½ miles.
"Dixon" (center of house).....	130	07	50	2¾ miles.
"Kemp Tower".....	139	06	40	¼ mile.
Fence corner (wood and wire).....	244	43	..	132 yards.
Near corner of cook house.....	288	40	..	110 yards.
Nail in blaze in locust tree (7 inches diam- eter).....	300	20	20	27. 23 meters.
Right corner post of piazza.....	306	24	..	90 yards.
Nail in blaze in cedar tree (6 inches diameter). ..	210	43	30	26. 97 meters.

END.

*General locality.*—Western shore of Harris Creek on southwestern side of entrance to Northwest Branch. (See Charts Nos. 31, 32, and 34.)

*Immediate locality.*—Observed station is in a cultivated field about 5 feet above high water, and 4 yards west of shore. Cement monument marking reference station is 14.76 meters S 83° 58' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 5 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 3 inches above surface of ground.

References.—	°	'	''	
"Rod" (S 79° 51' E).....	0	00	00	¾ mile.
West gable of barn.....	11	40	..	¾ mile.
North chimney of Miller house.....	45	37	..	1¼ miles.
REFERENCE STATION.....	163	48	20	14.76 meters.
South gable of barn.....	208	51	..	200 yards.
South chimney of Kirby house.....	218	48	..	200 yards.
South chimney of house.....	259	20	..	½ mile.
West gable of tin-roofed barn.....	262	00	..	¾ mile.
South chimney of Harrison house.....	345	20	..	¾ mile.

LAWN.

*General locality.*—Western shore of upper Harris Creek about ½ mile south of junction of Northeast Branch and Northwest Branch. (See Charts Nos. 31, 32, and 34.)

*Immediate locality.*—Observed station is in northeast corner of a lawn about 5 feet above high water, 10 feet southwest of top of vertical bank washed by high water, and 16 yards northwest of bathhouse and wharf.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"End" (N 17° 03' W).....	0	00	00	¾ mile.
Nail in locust stump.....	24	10	..	0.84 meter.
Cupola on barn.....	39	41	..	2½ miles.
South chimney of Harrison house.....	54	34	..	¾ mile.
North chimney of house.....	95	46	..	¾ mile.
North chimney of house.....	139	33	..	1¼ miles.
North chimney of Miller house.....	143	27	..	¾ mile.
Nail in blaze in walnut tree (18 inches diameter).....	199	25	40	2.55 meters.
Nail in blaze in cherry tree (24 inches diameter).....	264	30	30	5.96 meters.

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## PARSONS.

*General locality.*—In northern side of Eastern Bay on western side of Parsons Island about 3 miles north of Tilghmans Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land on highest part of island about 15 feet above high water, 110 yards southeast of shore, 270 yards south-southwest of Parsons Island water tank, 350 yards southwest of a house, 380 yards west-southwest of a large barn, 145 yards northeast of a wire fence, 155 yards northwest of wire fence at farm road, 195 yards southeast of a fence, and on the range of the west edge of the south chimney on the lower gable of the house with the west side of a window in the center of the south side of the house. Cement monument marking reference station is 26.10 meters N 21° 43' E of observed station.

*Marks.*—Observed station is center of cross cut on rough granite stone about 35 inches long and 12 inches square with top cut to 6-inch cube and marked "U. S." in lower half of cross. Subsurface mark is the mouth of a bottle 3 inches below base of monument. Reference station is center point of triangle on standard cement monument with top 5 inches above the surface of the ground.

*References.*—

	0	1	2	3	4	5	6	7	8	9	
"Alley" (N 2° 12' W).....	0	00	00	.....	1	¼	miles.				
REFERENCE STATION.....	23	55	30	.....	26.10	meters.					
"Parsons Island Water Tank".....	24	04	20	.....	268	yards.					
Near peak of house.....	35	13	..	.....	400	yards.					
Right corner of barn.....	61	27	..	.....	382	yards.					
Walnut tree.....	148	17	..	.....	300	yards.					
Cupola of left barn of Tilghmans Point farm.....	192	07	..	.....	3	¾	miles.				
Right tangent of Claiborne train shed.....	202	57	..	.....	5	miles.					
Right end of woods on Poplar Island.....	220	27	..	.....	12	miles.					
Left tangent of Kent Point.....	234	23	..	.....	8	¼	miles.				
Left chimney of house.....	297	57	..	.....	3	miles.					
Side peak of 2½-story house.....	314	35	..	.....	3	¾	miles.				
Middle chimney of large brick house.....	336	44	..	.....	1	¼	miles.				
"New Barn Cupola".....	349	10	..	.....	2	¾	miles.				

## PARSONS ISLAND WATER TANK.

*General locality.*—Northern part of Eastern Bay between Crab Alley and Prospect bays on Parsons Island about half way between the north and south end of the island. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a water tank on wooden structure near a house.

*Marks.*—Observed station is center of spindle on center of water tank.

*References.*—

None necessary.

## NORMAN.

*General locality.*—Eastern shore of Crab Alley Bay on southwestern extremity of Crab Alley Neck about ¼ mile west of Normans Point, 2 miles northeast of Turkey Point, and ⅜ mile northwest of Parsons Island. (See chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field on a rapidly washing, narrow neck of land, about 6 feet above high water, 20 yards north of vertical bank at shore, 30 yards south of vertical bank at shore, and 40 yards northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Parsons" (S 38° 40' E).....	0	00	00	1½ miles.
Right tangent of Parsons Island.....	16	46	..	1¼ miles.
Left tangent of woods on Tilghmans Point...	30	30	..	4 miles.
Left tangent of woods on Bodkin Island.....	68	28	..	2 miles.
Right tangent of Bodkin Island.....	78	39	..	2 miles.
Right tangent of woods on Turkey Point.....	93	17	..	2 miles.
Nail in blaze in hackberry tree (6 inches diameter).....	112	42	30	22.49 meters.
Chimney of small house.....	154	22	..	1¾ miles.
East chimney of house.....	167	41	..	2¼ miles.
South gable of house.....	205	38	..	1 mile.
West chimney of large brick house.....	271	53	..	¼ mile.
Chimney of small house.....	292	22	..	3 miles.
"Parsons Island Water Tank".....	353	41	40	1 mile.

## ALLEY.

*General locality.*—Western shore of Prospect Bay on Crab Alley Neck, about ¾ mile north of Parsons Island, and ⅝ mile north of Narrows Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on hard ground in a marsh at northeast end of clump of 12 persimmon trees about 1 foot above high water and 75 yards southwest of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Dull" (N 2° 35' W).....	0	00	00	⅞ mile.
Near peak of "Fishermans Inn".....	6	48	..	3 miles.
Nail in blaze in persimmon tree (4 inches diameter).....	30	41	20	3.99 meters.
Left chimney of old house with two dormer windows.....	48	29	..	2¾ miles.
Left peak of barn.....	79	42	..	2¾ miles.
Left chimney of large house.....	113	34	..	2¾ miles.
"Parsons Island Water Tank".....	177	35	30	1½ miles.
Nail in blaze in persimmon tree (3 inches diameter).....	194	56	00	4.88 meters.
Nail in blaze in persimmon tree (2½ inches diameter).....	238	25	00	3.70 meters.
East chimney of brick house.....	246	02	..	½ mile.
Nail in blaze in persimmon tree (3 inches diameter).....	298	21	30	3.29 meters.
Chimney of house among trees.....	317	54	..	1½ miles.
"New Barn Cupola".....	335	41	40	1 mile.

## BONNET.

*General locality.*—Eastern shore of Prospect Bay on Hood Point about 1½ miles southeast of Hog Island and ½ mile west of Piney Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh ground about 1 foot above high water, 21 yards west of shore, 12 yards west of inlet, and 55 yards northeast of the extreme end of Hoods Point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"New Barn Cupola" (S 79° 29' W).....	0	00	00	1½ miles.
Chimney of house.....	24	11		1¼ miles.
East gable of barn.....	28	24		1¼ miles.
North chimney of house.....	64	04		2 miles.
South gable of barn.....	90	43		2½ miles.
Chimney on small house.....	137	57		5⁄8 mile.
West gable of house.....	199	06		1½ miles.
Chimney of small house.....	239	13		2½ miles.
Chimney of small house.....	258	39		4¾ miles.
South chimney of house on Kent Island.....	323	24		1¾ miles.
Cupola on barn.....	353	09		1¾ miles.

## BRIAN REFERENCE STATION.

*General locality.*—Eastern shore of Prospect Bay on Brian Point, about 1 mile southeast of Piney Point, 2 miles northeast of Parsons Island, and ¾ mile west of entrance to Hog Hole Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 13 yards east of edge of marsh, 14 yards northwest of edge of marsh, 18 yards north of extreme end of point, and 40 yards southwest of a cultivated field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	°	'	''	
"Green" (S 8° 55' E).....	0	00	00	2¾ miles.
Left tangent of woods on Bennett Point . . . .	4	55		4 miles.
Right tangent of woods on Parsons Island....	65	33		2¼ miles.
Middle chimney of large brick house.....	84	37		2¼ miles.
Cupola of barn.....	102	34		2¾ miles.
"New Barn Cupola".....	109	56	20	2½ miles.
Left peak of large house.....	112	08		2½ miles.
Near peak of house.....	282	47		½ mile.
Chimney of house.....	344	42		1¼ miles.

## GREEN.

*General locality.*—Eastern shore of Prospect Bay on point at northern side of entrance to Greenwood Creek, about ¾ miles northeast of Tilghmans Point, and 2¾ miles north of Bennett Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a sanded marsh point about 2 feet above high water, 5 yards northwest of shore, 26 yards northeast of shore, 53 yards east by north of a point of shore, 37 yards southeast by east of a point of shore, and 105 yards south-southwest of a point of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Benn" (S 0° 45' W).....	0	00	00	2¾ miles.
Cupola of barn.....	19	16	10	6 miles.
Right tangent of woods on Tilghmans Point....	52	01		3½ miles.
"Parsons Island Water Tank".....	115	03	50	2½ miles.
East chimney of brick house.....	124	42		3½ miles.
Peak of small house.....	155	05		4 miles.
Chimney outside of house.....	165	43		4 miles.
Near peak of barn.....	178	20		3 miles.
Peak of house.....	235	45		1 mile.
Chimney of house behind barn.....	316	01		¾ mile.
Square chimney of house.....	345	41		1½ miles.

## BENN.

*General locality.*—Eastern shore of Miles River on Bennett Point at western side of entrance to Wye River. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 75 yards northeast of extreme end of point, 100 yards southwest from edge of wood, and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 1 foot above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Hough" (N 57° 41' E).....	0	00	00	3/8 mile.
Cupola of barn.....	70	45	..	1 mile.
"Rich Neck Water Tank".....	203	33	..	3 1/2 miles.
South chimney of house on Tilghmans Point Farm.....	215	59	..	3 miles.
"Parsons Island Water Tank".....	271	55	..	4 1/2 miles.
Right tangent of house.....	288	21	..	6 3/8 miles.

## HOUGH.

*General locality.*—Northwestern side of entrance to Wye River on a point about 3/8 mile northeast of Miles River and 1/2 mile southwest of north end of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a grass point about 1 foot above high water, 16 yards north of shore, 22 yards south of shore, 15 yards west of extreme end of point, 11 yards east of small pool in marsh, and 200 yards east of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Won" (N 9° 29' E).....	0	00	00	3/8 mile.
Near peak of building.....	7	22	..	2 3/8 miles.
Right side of chimney of house.....	17	20	..	2 7/8 miles.
Near peak of long barn.....	28	43	..	1 1/4 miles.
Piazza post of house in woods.....	62	14	..	1/2 mile.
Windmill.....	128	24	..	3/4 mile.
Windmill.....	181	48	..	4 1/4 miles.
Tall, slender tree in woods.....	271	57	..	200 yards.
Black walnut tree.....	339	23	..	200 yards.

## WON.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west about 1/2 mile northwest of northern end of Bruffs Island, and 3/4 mile northeast of southern end of Bennett Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on small marsh point, about 1 foot above high water, 4 yards northwest of shore, 4 yards west of shore, 4 yards north of shore, and 40 yards southeast of large, lone, black walnut tree. Cement monument marking reference station is 22.80 meters S 15° 31' W of observed station.

*Marks.*—Observed station is nail in center of 2-inch stub projecting 5 inches above 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	o	'	"	
"Nose" (N 28° 05' E).....	0	00	00	..... ½ mile.
Near peak of large barn.....	23	20	..	..... ⅜ mile.
Side peak of roof of house.....	25	18	..	..... ⅜ mile.
Near peak of house.....	47	26	..	..... 1⅜ miles.
Left large chimney of house in woods.....	81	08	..	..... ½ mile.
Right corner of building on Bruffs Island.....	98	41	..	..... ½ mile.
Windmill.....	126	52	40	..... 1¼ miles.
Near peak of fisherman shanty.....	161	03	..	..... 100 yards.
REFERENCE STATION.....	167	25	50	..... 22.80 meters.
Nail in blaze in cedar tree (2 inches diameter).....	210	23	00	..... 12.54 meters.
Nail in blaze in walnut tree (3 inches diameter).....	262	30	10	..... 10.81 meters.
Nail in blaze in walnut tree (30 inches diameter).....	290	06	10	..... 38.12 meters.
Right corner of right chimney of house.....	337	19	..	..... ½ mile.

## NOSE.

*General locality.*—Western shore of the branch of Wye River bounding Wye Island on the west on a point about ⅝ mile north-northwest of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 4 yards southwest of shore. 6 yards north of shore, 14 yards west-northwest of extreme end of point, and 34 yards east of a row of locust trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	"	
"Stop" (N 12° 09' E).....	0	00	00	..... ⅜ mile.
Church cross.....	1	55	..	..... 2 miles.
Chimney of cottage.....	3	03	..	..... 1⅜ miles.
Near peak of house.....	37	22	..	..... ⅜ mile.
Left peak of house.....	67	25	..	..... ½ mile.
Right corner of house on Bruffs Island.....	152	55	..	..... ¾ mile.
"St. Michaels P. E. Church Spire".....	183	28	10	..... 5⅝ miles.
"St. Michaels Water Tank".....	184	51	20	..... 5⅝ miles.
Nail in blaze in locust tree (8 inches diameter).....	237	58	50	..... 34.45 meters.
Nail in blaze in locust tree (9 inches diameter).....	256	32	10	..... 28.31 meters.
Near peak of large house between two chimneys.....	266	09	..	..... ¼ mile.
Nail in blaze in locust tree (7 inches diameter).....	280	50	50	..... 31.44 meters.
Tangent of point.....	316	16	..	..... 100 yards.

## SNOUT.

*General locality.*—On Wye Island on the eastern shore of the branch of Wye River, bounding Wye Island on the west about ¾ mile north of Bruffs Island and ½ mile north of Bordley Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 12 feet above high water, 30 yards east by south of edge of bank, 65 yards south of large cherry tree in side of bank at fence, 65 yards southwest of rail fence, 70 yards northeast of a small clump of trees at edge of bank, and 400 yards west by north of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	'	"	
"South" (S 20° 34' E).....	0	00	00	..... ½ mile.
Left peak of boat house.....	19	10	..	..... ¾ mile.
"St. Michaels P. E. Church Spire".....	38	07	30	..... 6¼ miles.
"St. Michaels Water Tank".....	39	30	10	..... 6½ miles.
Nail in blaze in locust tree (10 inches diameter).....	49	21	30	..... 64.78 meters.
Peak of house between two chimneys.....	99	02	..	..... ½ mile.
Near peak of small house.....	111	45	..	..... ½ mile.
Nail in blaze in tree (8 inches diameter)....	179	42	10	..... 34.39 meters.
Near peak of barn.....	186	34	..	..... 1¼ miles.
Left corner of house.....	203	36	..	..... 1¾ miles.
Nail in blaze in fence post.....	246	50	10	..... 63.29 meters.
Near peak of house.....	249	00	..	..... ¾ mile.
Left peak of house.....	296	41	50	..... ¾ mile.

## SOUTH.

*General locality.*—On southwestern end of Wye Island on Bordley Point on the northern shore of the junction of the two branches of Wye River bounding Wye Island about ⅔ mile north-northeast of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a pasture on a rounded point about 10 feet above high water, 11 yards northeast of edge of field, 13 yards north of edge of field, 22 yards northwest of edge of field, 30 yards southeast of cut in cliff, and 50 yards southwest of point of water bushes at gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	'	"	
"Flat" (N 55° 27' E).....	0	00	00	..... ½ mile.
Right chimney of house.....	19	30	..	..... 1¼ miles.
Windmill.....	64	34	30	..... 1¼ miles.
Spindle on barn cupola.....	134	55	20	..... 1¼ miles.
Left chimney of house in woods.....	153	45	..	..... ½ mile.
Left peak of building.....	173	45	..	..... 4½ miles.
Peak between two chimneys of house.....	244	27	..	..... ¾ mile.
Left chimney of house.....	317	37	..	..... ¾ mile.
Near peak of house.....	343	21	..	..... 2 miles.

## FLAT.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on a point between two coves about 1 mile northeast of Bruffs Island and ½ mile northeast of Bordley Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 8 yards north of shore, 8 yards southwest of shore, 12 yards west of extreme end of point, 17 yards east of south end of line of several trees on edge of bank 3 feet high, and 45 yards east of a black gum tree 5 feet in diameter at ground.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## Survey of Oyster Bars, Talbot County, Md.

## References.—

	°	'	''	
"Albert" (N 84° 31' E).....	0	00	00	..... ½ mile.
Left corner of tower of house.....	30	33	..	..... 1¼ miles.
Windmill.....	62	55	40	..... 1½ miles.
Spindle on barn cupola.....	119	34	..	..... 1½ miles.
Front peak of boat house.....	134	02	..	..... 1 mile.
Left tangent of black gum tree.....	158	06	40	..... 44 yards.
Near peak of house.....	249	34	..	..... ¾ mile.
Spindle on cupola.....	351	11	10	..... ¾ mile.
Windmill.....	352	15	30	..... ¾ mile.
Near peak of Baldwin house.....	354	50	..	..... ¾ mile.

## ALBERT.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south on a point about 1¼ miles east-northeast of north end of Bruffs Island, and opposite entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 17 yards northwest of shore, 28 yards east of shore, 35 yards south of shore, and 75 yards north-northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Le Seur" (N 1° 03' E).....	0	00	00	..... 300 yards.
Baldwin windmill.....	65	11	40	..... ¾ mile.
Flagstaff on Baldwin boat house.....	67	59	..	..... 400 yards.
Windmill on wooden tower.....	125	16	30	..... 1 mile.
Peak of house with several chimneys.....	127	08	..	..... 1 mile.
Chimney outside near end of old house.....	170	05	..	..... 1 mile.
Front peak of boat house.....	231	10	..	..... 1¼ miles.
Peak between two chimneys of house.....	269	40	..	..... 1¾ miles.
Left peak of house.....	274	45	..	..... ¾ mile.
Peak of house.....	347	47	..	..... ¾ mile.

## LE SEUR.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south about ½ mile north of a prominent point opposite entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a clump of small trees about 3 feet above high water, 11 yards east of shore, 12 yards southwest of shore on line to next point, and 12 yards north by east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Attila" (N 31° 07' E).....	0	00	00	..... ¼ mile.
Near peak of large barn.....	56	55	..	..... ¾ mile.
Spindle on cupola.....	61	52	50	..... ¼ mile.
Right corner of chimney of Baldwin house ..	72	24	..	..... ¼ mile.
Nail in blaze in walnut tree (4 inches diameter).....	140	45	50	..... 4.11 meters.
Nail in blaze in walnut tree (5 inches diameter).....	201	19	40	..... 7.60 meters.
Nail in blaze in walnut tree (3 inches diameter).....	255	56	30	..... 6.74 meters.
Nail in blaze in walnut tree (3 inches diameter).....	304	08	10	..... 7.27 meters.



## ATTILA.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{4}$  mile north of entrance to Lloyd Creek at north side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on slope of a point about 3 feet above high water, 10 yards west of shore, 10 yards north-northeast of shore, and 11 yards northwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Tobiae" (N 15° 18' E).....	0	00	00	..... $\frac{1}{4}$ mile.
Near peak of very large barn.....	97	30	..	..... $\frac{3}{8}$ mile.
Near peak of house.....	104	53	..	..... $\frac{5}{8}$ mile.
Spindle on cupola.....	128	31	50	..... $\frac{1}{4}$ mile.
Left corner of Baldwin house.....	132	48	..	..... $\frac{1}{4}$ mile.
Flagpole on wharf house.....	146	43	..	..... $\frac{1}{4}$ mile.
Windmill.....	163	31	..	..... $1\frac{1}{4}$ miles.
Nail in blaze in cedar stump (10 inches diameter).....	197	07	20	..... 8.36 meters.
Nail in blaze in cedar tree (8 inches diameter).....	347	34	10	..... 38.64 meters.

## TOBINE.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{4}$  mile north of entrance to Lloyd Creek on point at north side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on point of a cultivated field about 6 feet above high water, 4 yards north of edge of field, 4 yards southwest of edge of field, 5 yards west-northwest of point of field, and  $\frac{1}{4}$  mile east-southeast of a barn with cupola.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Sang" (N 6° 21' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Right corner of house.....	16	19	..	..... $\frac{5}{8}$ mile.
Near peak of large barn.....	143	19	..	..... $\frac{1}{2}$ mile.
Cupola of Baldwin barn.....	173	35	10	..... $\frac{1}{2}$ mile.
Right peak of Baldwin house.....	175	17	..	..... $\frac{1}{2}$ mile.
Windmill.....	187	35	..	..... $1\frac{1}{2}$ miles.
Near peak of house.....	249	12	..	..... $1\frac{1}{8}$ miles.
Cupola of building.....	304	50	..	..... $\frac{1}{4}$ mile.

## SANG.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south about  $1\frac{1}{4}$  miles north of entrance to Lloyd Creek and  $\frac{5}{8}$  mile west of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on bank about 12 feet above high water between two cuts in bank, 2 yards west of edge of bank, 3 yards northwest of edge of bank, 4 yards southwest of edge of bank, 32 yards from bottom of northern cut in bank, 52 yards from bottom of southern cut in bank, and 95 yards south-southwest of tree-lined gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Turn" (N 48° 08' E).....	0	00	00	¼ mile.
Tangent of woods.....	41	45	..	2 miles.
Tangent of point.....	56	52	..	¾ mile.
Right peak of large barn.....	100	25	..	¾ mile.
Baldwin windmill.....	121	06	..	¾ mile.
Peak of near gable of Baldwin house.....	122	05	..	¾ mile.
Near peak of ell of house.....	199	14	..	¾ mile.
Left corner of house.....	256	56	..	¾ mile.
Left peak of house.....	281	53	..	¾ mile.

## TURN.

*General locality.*—On Wye Island on the northwestern shore of the branch of Wye River bounding Wye Island on the south about ½ mile west of entrance to Dividing Creek on point at western side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on bank in a cultivated field about 8 feet above high water, 5 yards northwest of edge of bank, 6 yards north of edge of bank, 7 yards west of edge of bank, 50 yards south-southwest of entrance to a small creek, and 55 yards east of a dead sycamore tree in field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Go" (S 84° 55' E).....	0	00	00	¼ mile.
Near peak of small house.....	32	18	..	1 ½ miles.
Right peak of large barn.....	67	07	..	¾ mile.
Baldwin windmill.....	85	55	..	¾ mile.
Near peak of gable of Baldwin house.....	86	21	..	¾ mile.
Nail in blaze in wild cherry tree (3 inches diameter).....	128	20	10	23.08 meters.
Chimney outside, near end of house.....	179	44	..	¾ mile.
Nail in blaze in locust tree (4 inches diameter).....	255	50	00	18.85 meters.
Nail in blaze in chestnut stump with second growth (14 inches diameter).....	279	53	10	12.93 meters.

## GO.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on a point between two coves about ¼ mile west of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on grassy beach at high water, about 2 yards south of foot of bank 4 feet high covered with dense growth of young trees, and 37 yards from entrance to a small creek. Cement monument marking reference station is 19.06 meters N 22° 35' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch pine stub projecting 2 inches above 2-inch tile pipe with top 2 inches below surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	°	'	"	
"Divide" (N 89° 24' E).....	0	00	00	¾ mile.
Near peak of shanty.....	48	16	..	¾ mile.
Chimney of house.....	51	46	..	¾ mile.
Peak of gable on Baldwin house.....	104	12	..	¾ mile.
Baldwin windmill.....	104	13	30	¾ mile.

## References—Continued.

	°	'	"	
Near corner of square chimney of house	159	10	..	¾ mile.
Cupola on barn	164	20	..	¾ mile.
Nail in blaze in gum tree (4 inches diameter)	249	05	50	6.68 meters.
Nail in blaze in gum tree (2 inches diameter)	272	16	30	5.73 meters.
REFERENCE STATION	293	11	20	19.06 meters.
Nail in blaze in gum tree (4 inches diameter)	313	07	10	4.15 meters.

## DIVIDE.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on point at eastern side of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in point of woods about 4 feet above high water, 2 yards west-northwest of edge of bank, 8 yards east-northeast of edge of bank, and 11 yards north-northeast of point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Princess" (N 53° 04' E)	0	00	00	¾ mile.
Right tangent of old wharf	12	44	..	¾ mile.
Near peak of large barn	50	24	..	1¾ miles.
Chimney of house	141	53	..	¾ mile.
Baldwin windmill	162	18	30	1 mile.
Right chimney of house	189	13	20	2 miles.
Peak of house between two chimneys	195	40	..	2½ miles.
Nail in blaze in oak tree (14 inches diameter)	232	30	30	4.05 meters.
Nail in blaze in gnarled oak tree (8 inches diameter)	280	24	50	9.98 meters.
Nail in blaze in oak tree (30 inches diameter)	316	39	20	8.41 meters.

## PRINCESS.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south about ¾ mile northeast of entrance to Dividing Creek and ¾ mile west of entrance to Granary Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in marsh land about 1 foot above high water, 4 yards north of shore, 18 yards east by north of a large oak tree at shore, 4 yards south of foot of bank 10 feet high covered with vegetation, and 10 yards west by south of a white oak tree on bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Philip" (S 83° 05' E)	0	00	00	¾ mile.
Chimney of house on Pickerings Creek	15	16	..	1¾ miles.
Right peak of large barn	110	22	..	1 mile.
Baldwin windmill	121	01	..	1¾ miles.
Cupola of Baldwin stable	121	40	..	1¼ miles.
Nail in blaze in white oak tree (3 inches diameter)	163	26	00	5.65 meters.
Nail in blaze in cedar tree (14 inches diameter)	255	36	20	3.01 meters.
Right tangent of old wharf	351	19	..	150 yards.

## PHILIP.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on western side of entrance to Granary Creek and  $\frac{1}{2}$  mile east of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is about 1 foot above high water, 3 yards north of shore, 9 yards south-southwest of shore of creek, 9 yards west of extreme end of point, and 6 yards southeast of point of bank 4 feet high. Cement monument marking reference station is 4.62 meters N  $18^{\circ} 12'$  E of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub projecting 2 inches above 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	''	
"Granary" (S $63^{\circ} 59'$ E).....	0	00	00	..... $\frac{1}{4}$ mile.
Baldwin windmill.....	113	44	20	..... $1\frac{3}{8}$ miles.
Near peak of ell of house.....	141	49	..	..... $1\frac{1}{4}$ miles.
Nail in blaze in cedar tree (3 inches diameter). 169	10	50	..	..... 9.33 meters.
Nail in blaze in pine tree (6 inches diameter). 210	13	30	..	..... 18.09 meters.
Nail in blaze in oak tree (7 inches diameter) ..	238	45	30	..... 4.41 meters.
REFERENCE STATION.....	262	11	40	..... 4.62 meters.
Tangent of point.....	321	20	..	..... $\frac{1}{4}$ mile.
Near peak of large building.....	358	32	..	..... 2 miles.

## GRANARY.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on point at eastern side of entrance to Granary Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is among water bushes on marsh land, about 1 foot above high water, 10 yards northeast of shore, 11 yards west of shore, 12 yards north by west of extreme end of point, and 50 yards from trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Morn" (N $89^{\circ} 30'$ E).....	0	00	00	..... $\frac{1}{8}$ mile.
Large chimney of building.....	24	48	..	..... $1\frac{1}{4}$ miles.
Right tangent of point.....	85	34	..	..... $\frac{1}{4}$ mile.
Left end of barn.....	176	08	..	..... $1\frac{1}{2}$ miles.
Left tangent of old wharf.....	199	54	..	..... $\frac{1}{2}$ mile.

## MORN.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south, about 300 yards east of entrance to Granary Creek and  $\frac{3}{4}$  mile northwest of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is about 1 foot above high water, 4 yards northwest of shore, 4 yards northeast of shore, and 6 yards southeast of foot of wooded slope to field 12 feet above high water. Cement monument marking reference station is 3.82 meters N  $33^{\circ} 52'$  W of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub projecting 2 inches above 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2-inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—	°	'	''	
"Bush" (N 83° 20' E).....	0	00	00	¼ mile.
Tangent of point.....	4	01	..	¼ mile.
Near peak of building.....	32	42	..	1½ miles.
Tangent of foot of slope.....	56	33	..	¼ mile.
Right tree on point.....	120	06	..	¼ mile.
Tangent of woods.....	182	21	..	¾ mile.
Nail in blaze in locust tree (6 inches diameter)	202	15	50	2.49 meters.
Nail in blaze in cedar tree (4 inches diameter).	241	37	00	5.47 meters.
REFERENCE STATION.....	242	48	00	3.82 meters.
Nail in blaze in locust tree (7 inches diameter)	244	46	50	6.68 meters.

BUSH.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on north side of entrance to a small cove, about ¼ mile east of entrance to Granary Creek and ⅝ mile northwest of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land, about 7 feet above high water, 4 yards northeast of edge of bank, 9 yards northwest of point of curve of land, 22 yards west of tangent of land at tree, 30 yards west-northwest of scattering trees, and 50 yards northwest of a point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Nub" (S 83° 55' E).....	0	00	00	⅝ mile.
Tangent of point.....	46	27	..	¼ mile..
Largest cedar tree on point of high bank.....	96	41	..	¼ mile.
Nail in blaze in locust tree (2 inches diameter)	102	18	10	3.81 meters.
Tangent of point.....	166	18	..	¼ mile.
Nail in blaze in hackberry tree (5 inches diameter).....	180	06	00	8.65 meters.
Nail in blaze in walnut tree (10 inches diameter).....	348	25	20	20.04 meters.

NUB.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on eastern side of entrance to a creek about ⅝ mile east of entrance to Granary Creek and ½ mile north of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 2 yards east of shore, 20 yards southwest of shore, 45 yards west of shore, 20 yards south of extreme end of point, and 16 yards north-northwest of woods. Cement monument marking reference station is 15.10 meters N 83° 01' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub set in 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

References.—	°	'	''	
"Wheel" (S 4° 10' E).....	0	00	00	¼ mile.
Chimney on house.....	30	02	..	⅝ mile.
Largest cedar on point of high bank.....	47	16	..	¾ mile.
Large oak tree.....	94	55	..	¾ mile.
Large oak tree.....	143	43	..	¼ mile.
Large oak tree.....	226	17	..	150 yards.
REFERENCE STATION.....	267	11	20	15.10 meters.
Nail in blaze in cedar tree (8 inches diameter).	296	57	30	16.81 meters.
Nail in blaze in oak tree (5 inches diameter)..	333	04	40	19.64 meters.
Nail in blaze in oak tree (4 inches diameter)..	349	37	20	20.87 meters.

## WHEEL.

*General locality.*—On Wye Island on the northern shore of the branch of Wye River bounding Wye Island on the south on a point about  $\frac{3}{8}$  mile southeast by east of entrance to Granary Creek and  $\frac{1}{2}$  mile northwest of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh point south of woods, about 1 foot above high water, 2 yards east of shore, 4 yards southeast of point at slight cut in marsh, and 40 yards north of square point of shore. Cement monument marking reference station is 5.26 meters S  $86^{\circ} 47'$  E of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub set in 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	o	/	''	
"Pick'" (S $12^{\circ} 31'$ E).....	o	oo	oo	$\frac{3}{8}$ mile.
Left peak of building.....	o	04	..	$\frac{7}{8}$ mile.
Right tangent of woods.....	111	05	..	1 mile.
Large oak tree.....	129	21	..	$\frac{1}{2}$ mile.
Nail in blaze in oak tree (14 inches diameter). 219	10	40	..	21.66 meters.
Nail in blaze in oak tree (9 inches diameter).. 230	46	50	..	18.74 meters.
Nail in blaze in cedar tree (6 inches diameter). 262	26	00	..	19.26 meters.
REFERENCE STATION.....	285	44	oo	5.26 meters.
Left peak of large building.....	299	31	..	$\frac{3}{4}$ mile.
Chimney showing over fence.....	308	54	..	$\frac{3}{4}$ mile.
Right peak of large barn.....	359	34	..	$\frac{7}{8}$ mile.

## PICK.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on western side of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 15 feet above high water, 25 yards southwest of edge of field at line of cedar trees, 22 yards west of gully, 40 yards south-southeast of a small clump of trees beyond small gully, and 300 yards east-southeast of fringe of cedar trees along edge of field northeast to east of gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Corner'" (N $77^{\circ} 40'$ W).....	o	oo	oo	$\frac{1}{4}$ mile.
Nail in blaze in cherry tree (6 inches diameter).....	42	54	oo	36.64 meters.
Left peak of barn.....	58	21	..	$1\frac{1}{4}$ miles.
Front peak of house.....	104	57	..	$1\frac{1}{8}$ miles.
Nail in blaze in cedar tree (6 inches diameter). 110	11	50	..	27.24 meters.
Nail in blaze in cedar tree (6 inches diameter). 134	46	00	..	26.37 meters.
Near peak of house.....	152	11	..	$\frac{3}{8}$ mile.
Nail in blaze in hackberry tree (5 inches diameter).....	169	37	50	23.00 meters.
Left peak of large barn.....	243	36	..	$\frac{1}{4}$ mile.
Right peak of house.....	314	37	..	$\frac{1}{4}$ mile.

CORNER (Wye River).

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{4}$  mile west of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 15 feet above high water, 50 yards southwest of edge of bank, 55 yards south of gully, 70 yards north-northwest of trees in depression, and 120 yards west of point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Right" (N 20° 45' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Nail in blaze in large elm tree.....	16	18	00	..... 50.41 meters.
Near peak of building.....	18	21	..	..... 1 mile.
Nail in blaze in one of twin elm trees.....	63	58	40	..... 47.11 meters.
Near peak of house.....	101	49	..	..... $1\frac{1}{4}$ miles.
Left peak of house with two chimneys.....	113	02	..	..... $1\frac{1}{2}$ miles.
Nail in blaze in oak tree (14 inches diameter). 162	16	00	.....	61.44 meters.
Near peak of large barn.....	238	11	..	..... $\frac{3}{4}$ mile.
Right corner of large house.....	275	51	..	..... $1\frac{1}{2}$ miles.
Chimney on middle of large house.....	280	01	..	..... 1 mile.

RIGHT.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on a point about  $\frac{1}{2}$  mile southeast of entrance to Granary Creek and  $\frac{1}{2}$  mile northwest of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in tree-fringed cultivated land about 15 feet above high water, 7 yards south of edge of bank, 9 yards from point of bank at path, 15 yards northwest of edge of bank, and 120 yards east of fence in depression.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Chew" (N 71° 45' W).....	0	00	00	..... $\frac{1}{8}$ mile.
Left chimney of long house in woods.....	33	06	..	..... 1 mile.
Nail in blaze in cedar tree (8 inches diameter) 76	18	00	.....	8.25 meters.
Left one of two large chimneys showing over the trees.....	131	03	..	..... 1 mile.
Left corner of building.....	168	32	..	..... $1\frac{1}{2}$ miles.
Nail in blaze in hickory tree (10 inches diameter).....	182	29	40	..... 10.80 meters.
Nail in blaze in elm tree (10 inches diameter).....	243	35	00	..... 29.80 meters.
Right peak of house.....	269	37	..	..... $\frac{1}{2}$ mile.
Windmill to right of two large cupolas.....	287	12	..	..... $\frac{5}{8}$ mile.

CHEW.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{8}$  mile southeast of entrance to Granary Creek and  $\frac{5}{8}$  mile west-northwest of entrance to Pickerings Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 6 yards northeast of foot of bank 12 feet high, 12 yards west of point of shore, and 10 yards northwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	o	'	''	
"Whale" (N 77° 32' W).....	0	00	00	..... ¼ mile.
Large oak tree.....	72	58	..	..... ¼ mile.
Tangent of point.....	131	18	..	..... ¾ mile.
Left end of building.....	138	38	..	..... ½ mile.
Near peak of building.....	175	22	..	..... 1¼ miles.
Near peak of large barn.....	179	07	..	..... 1 mile.
Nail in blaze in cedar tree (10 inches diameter).....	284	33	..	..... 18.19 meters.
Nail in blaze in cedar tree (6 inches diameter).....	348	47	10	..... 9.57 meters.
Nail in blaze in cedar tree (5 inches diameter).....	358	58	20	..... 21.82 meters.

#### WHALE.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on a point at western side of entrance to a small cove about ¼ mile south of entrance to Granary Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a sand-and-grass point about 2 feet above high water, 2 yards south-southeast of shore, 4 yards west-northwest of shore, 9 yards southwest of extreme end of point, and 7 yards east by north of foot of a terraced bank about 15 feet high.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	o	'	''	
"Matter" (N. 77° 03' W).....	0	00	00	..... ½ mile.
Near peak of larger barn.....	52	33	..	..... ¾ mile.
Large oak tree.....	115	39	..	..... ¼ mile.
Near corner of building.....	175	40	..	..... 1¼ miles.
Near peak of large barn.....	178	45	..	..... 1½ miles.
Nail in blaze in cedar tree (10 inches diameter).....	286	06	30	..... 9.40 meters.
Nail in blaze in cedar tree (7 inches diameter).....	309	33	10	..... 5.50 meters.
Nail in blaze in cedar tree (5 inches diameter).....	315	23	40	..... 9.49 meters.

#### MATTER.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south about ¾ mile east-southeast of entrance to Dividing Creek and ¾ mile west-southwest of entrance to Granary Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on small grassy point about 1 foot above high water, 3 yards south of shore, and 2 yards north of foot of tree-fringed bank 5 feet high. Cement monument marking reference station is 8.58 meters S 0° 32' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub set in 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

References.—	o	'	''	
"Deck" (N 78° 05' W).....	0	00	00	..... 200 yards.
Left tangent of wharf.....	62	43	..	..... ¼ mile.
Near peak of large barn on Pickerings Creek.....	180	05	..	..... 1¾ miles.
Nail in blaze in cedar tree (14 inches diameter).....	204	10	50	..... 2.31 meters.
REFERENCE STATION.....	257	32	20	..... 8.58 meters.
Nail in blaze in one of twin cedar trees (8 inches diameter).....	276	33	10	..... 3.72 meters.
Nail in blaze in cedar tree (8 inches diameter).....	305	43	30	..... 2.42 meters.



## DECK.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on a point about  $\frac{1}{2}$  mile southeast of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is at edge of water bushes on a grass point about 1 foot above high water, 4 yards south of shore, 10 yards west of a round point, 20 yards east of shore, and 30 yards north of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Quarter" (S 38° 13' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Chimney of house.....	43	11	..	..... $1\frac{1}{4}$ miles.
Tangent of point of land.....	74	32	..	..... $\frac{1}{4}$ mile.
Left tangent of old wharf.....	149	46	..	..... 400 yards.
South peak of large barn.....	170	41	..	..... $\frac{3}{4}$ mile.
Tangent of point of land.....	206	49	..	..... 500 yards.
Left cedar tree on point.....	243	41	..	..... 200 yards.

## QUARTER.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{8}$  mile south-southeast of entrance to Dividing Creek and at east side of entrance to a cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on bank in a cultivated field about 12 feet above high water, 2 yards southeast of edge of bank, 100 yards south of trees and break in bluff, and 120 yards north of edge of bank at point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Nodim" (N 87° 45' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Near peak of barn.....	1	18	..	..... $1\frac{1}{2}$ miles.
Chimney outside near end of house.....	10	34	..	..... $1\frac{3}{8}$ miles.
Near corner of barn.....	53	27	..	..... $\frac{1}{2}$ mile.
Right tangent of old wharf.....	112	25	..	..... $\frac{3}{4}$ mile.
Right peak of large barn.....	304	41	..	..... $\frac{3}{4}$ mile.
Baldwin windmill.....	317	20	..	..... $\frac{1}{2}$ mile.
Near peak of house.....	354	43	..	..... $1\frac{1}{4}$ miles.

## NODIM.

*General locality.*—Southeastern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{4}$  mile southwest of entrance to Dividing Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 4 feet above high water, 4 yards south of shore, 8 yards southeast of shore, 25 yards southwest of shore of marsh, and 13 yards south of corner of marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Gusta" (S 21° 08' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Near peak of house.....	42	04	..	..... $1\frac{3}{8}$ miles.
Left peak of house.....	63	19	..	..... 1 mile.
Chimney outside left end of house.....	134	07	..	..... $\frac{5}{8}$ mile.
Right corner of house.....	152	55	..	..... $\frac{3}{4}$ mile.
Right tangent of wharf.....	220	29	..	..... $\frac{3}{4}$ mile.
Baldwin windmill.....	354	18	..	..... $\frac{3}{4}$ mile.

## GUSTA.

*General locality.*—Southeastern shore of the branch of Wye River bounding Wye Island on the south about  $\frac{3}{8}$  mile north-northeast of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 8 yards east of edge of bank, 12 yards southeast of edge of bank, 17 yards northeast of edge of bank, 35 yards north-northeast of a depression, and 65 yards southwest of end of cut in bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Sylvia" (S 22° 57' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Left tangent of house on Bruffs Island.....	26	06	..	..... 2 miles.
Left chimney of house.....	45	15	..	..... $1\frac{3}{4}$ miles.
Peak between two chimneys of house.....	51	42	..	..... 2 miles.
Right peak of house.....	80	53	..	..... 1 mile.
Cupola of barn.....	88	46	..	..... $\frac{5}{8}$ mile.
Left corner of house.....	155	40	..	..... $\frac{3}{4}$ mile.
Right peak of large barn.....	312	09	..	..... $\frac{3}{8}$ mile.
Baldwin windmill.....	350	13	..	..... $\frac{3}{8}$ mile.

## SYLVIA.

*General locality.*—Southeastern shore of the branch of Wye River bounding Wye Island on the south on second prominent point north of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 11 yards east by south of edge of bluff, 22 yards northeast of lone locust tree 2 feet in diameter at the edge of the bank, and 400 yards northwest of a large barn.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	.....
"Baldwins" (S 27° 13' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Nail in blaze in locust tree (24 inches diameter).....	24	12	20	..... 19.90 meters.
Very large lone tree.....	40	21	..	..... 22 yards.
Nail in blaze in locust tree (6 inches diameter).....	53	42	20	..... 13.37 meters.
Left peak of barn.....	73	23	..	..... $\frac{5}{8}$ mile.
Cupola of building.....	106	19	..	..... $\frac{5}{8}$ mile.
Near peak of large house.....	156	37	..	..... 1 mile.
Near peak of large barn.....	273	21	..	..... $\frac{3}{8}$ mile.
Baldwin windmill.....	334	37	..	..... $\frac{1}{4}$ mile.
Peak of near gable of Baldwin house.....	336	06	..	..... $\frac{1}{4}$ mile.
Spindle on cupola.....	336	51	..	..... $\frac{1}{4}$ mile.

## BALDWINS.

*General locality.*—Southeastern shore of the branch of Wye River, bounding Wye Island on the south on a point about  $\frac{3}{8}$  mile north of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a short, sharp point of marsh about 100 yards north of a yacht landing, 7 yards northeast of shore, 10 yards southeast of shore, 12 yards east of extreme end of point, and 8 yards west of foot of bank 8 feet high.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Cousin" (S 25° 13' E).....	0	00	00	¼ mile.
Flagstaff on yacht-landing house.....	11	27	..	100 yards.
Windmill.....	27	44	..	1½ miles.
Left peak of bell cupola.....	27	55	..	1½ miles.
Spindle on barn cupola.....	62	53	..	2 miles.
Front peak of boathouse on Bruffs Island.....	77	51	..	1½ miles.
Near corner of left chimney of house.....	111	37	..	¾ mile.
Near peak of barn with cupola.....	175	20	..	¾ mile.
Near peak of barn.....	215	40	..	1 mile.
Nail in blaze in cedar tree (6 inches diameter).....	248	59	50	7.91 meters.
Nail in blaze in locust tree (5 inches diameter).....	311	47	20	5.36 meters.
Nail in blaze in locust tree (4 inches diameter).....	324	04	50	13.45 meters.

## COUSIN.

*General locality.*—Southeastern shore of the branch of Wye River bounding Wye Island on the south, about 1½ miles east-northeast of north end of Bruffs Island and at northern side of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a pasture about 9 feet above high water, 25 yards east of edge of bank, 65 yards south-southeast of a small clump of trees in bottom land, 65 yards north of trees, 60 yards north of edge of a field, and 200 yards south of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Lloyd" (S 36° 07' W).....	0	00	00	½ mile.
Spindle on barn cupola.....	8	04	50	2 miles.
Front peak of boathouse.....	26	05	..	1½ miles.
Left peak of house.....	63	13	..	1½ miles.
Chimney of house.....	91	31	..	¾ mile.
Peak of near gable of Baldwin house.....	135	42	..	200 yards.
Windmill on large barn.....	187	08	..	¼ mile.
Right peak of house.....	209	44	..	350 yards.
Left peak of bell cupola.....	333	34	..	1 mile.
Windmill.....	334	19	..	1 mile.

## LLOYD.

*General locality.*—Southern shore of the branch of Fast Wye River bounding Wye Island on the south, at western side of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 12 feet above high water, 70 yards southwest of edge of bank, 65 yards south of edge of bank, 65 yards north-northeast of point of woods and bottom land, and 120 yards northwest of an oak tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Edwards" (N 84° 02' W).....	0	00	00	¾ mile.
Near peak of house.....	32	43	..	1 mile.
Left peak of barn.....	52	18	..	1½ miles.
Near peak of house.....	76	14	..	¾ mile.
Peak of near gable of Baldwin house.....	109	28	..	¾ mile.
Near peak of barn.....	122	59	..	¾ mile.
Right peak of large house.....	132	01	..	1 mile.
Large oak tree.....	208	57	30	120 yards.

## EDWARD.

*General locality.*—Southern shore of the branch of Wye River bounding Wye Island on the south on a point at eastern side of entrance to Shaw Bay, about  $\frac{3}{4}$  mile east-northeast of north end of Bruffs Island and  $\frac{3}{8}$  mile west of entrance to Lloyd Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 8 yards southeast of edge of a bluff which is washing away, and 30 yards southwest of a line of large trees at edge of bank and field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	//	
"Colonel" (S $0^{\circ}$ 10' W).....	0	00	00	$\frac{1}{2}$ mile.
Windmill.....	33	28	20	$1\frac{1}{4}$ miles.
Front peak of boathouse.....	64	02	..	$\frac{3}{4}$ mile.
Peak between two chimneys of house.....	114	10	..	$1\frac{3}{8}$ miles.
Near peak of house.....	146	12	..	$\frac{7}{8}$ mile.
Chimney of house.....	170	06	..	$1\frac{1}{4}$ miles.
Nail in blaze in walnut tree (13 inches diameter).....	201	56	40	26.40 meters.
Nail in blaze in locust tree (4 inches diameter).....	216	09	10	26.95 meters.
Nail in blaze in locust tree (10 inches diameter).....	235	55	40	31.55 meters.
Windmill.....	309	41	00	$\frac{7}{8}$ mile.

## COLONEL.

*General locality.*—Southern shore of Shaw Bay on a point at entrance to a small cove about  $\frac{1}{2}$  mile from the branch of Wye River bounding Wye Island on the south and  $\frac{3}{8}$  mile east of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a field about 10 feet above high water, 6 yards southeast of edge of bank which is washing away, 9 yards south-southwest of point of bank, and 3 yards west of top of bank lined with cedar, walnut, and oak trees. Cement monument marking reference station is 18.69 meters S  $24^{\circ}$  06' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch stub projecting 4 inches above 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	o	/	//	
"Shaw" (N $68^{\circ}$ 12' W).....	0	00	00	$\frac{3}{4}$ mile.
Peak of roof between two chimneys of house.....	19	29	..	$1\frac{5}{8}$ miles.
Near peak of house.....	48	21	..	$1\frac{1}{2}$ miles.
Peak of near gable of house.....	100	57	..	$1\frac{1}{4}$ miles.
Nail in blaze in oak tree (20 inches diameter).....	110	47	00	5.21 meters.
Nail in blaze in oak tree (6 inches diameter).....	183	33	40	6.46 meters.
Nail in blaze in oak tree (7 inches diameter).....	213	01	40	13.45 meters.
REFERENCE STATION.....	224	05	50	18.69 meters.
Near corner of house on Bruffs Island.....	355	07	..	$\frac{3}{4}$ mile.

## SHAW.

*General locality.*—Southern shore of entrance to the branch of Wye River bounding Wye Island on the south on northern end of Bruffs Island about  $\frac{3}{8}$  mile southwest of Bordley Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in walnut, pine, and cedar woods, about 15 feet above high water, 7 yards southwest of edge of bank, and 100 yards north-northwest of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Won" (N 69° 43' W).....	0	00	00	1/2 mile.
Peak of house between two chimneys.....	39	56	..	3/8 mile.
Chimney on right end of house.....	77	44	..	1 3/4 miles.
Near peak of large barn.....	88	54	..	1 1/2 miles.
Near peak of house.....	137	02	..	1 5/8 miles.
Chimney of house.....	174	08	..	1 1/4 miles.
Right corner of left piazza post.....	234	04	10	100 yards.
Nail in blaze in walnut tree (28 inches diameter).....	235	00	00	29.32 meters.
Nail in blaze in walnut tree (24 inches diameter).....	268	35	20	24.30 meters.
Nail in blaze in walnut tree (15 inches diameter).....	291	48	10	15.98 meters.

## BRUFFS.

*General locality.*—Eastern shore of Wye River on northwest point of Bruffs Island about 3/8 mile northeast of Bennett Point and 1/2 mile southwest of Bordley Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 10 yards east of shore, 14 yards southwest of shore, 20 yards southeast of point of marsh, and 18 yards west of point of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Law" (S 2° 07' W).....	0	00	00	1/2 mile.
"St. Michaels P. E. Church Spire".....	17	35	20	5 3/8 miles.
"St. Michaels Water Tank".....	17	50	20	5 1/4 miles.
Cupola of barn.....	38	15	00	4 1/8 miles.
Near peak of large barn.....	54	30	..	3 3/4 miles.
Large walnut tree.....	118	55	..	1/2 mile.
Peak between two chimneys of house.....	156	15	..	7/8 mile.
Near corner of house.....	184	29	..	2 1/8 miles.
Right peak of house.....	208	24	..	7/8 mile.
Nail in blaze in tree (4 inches diameter).....	257	20	30	17.38 meters.
Nail in blaze in walnut tree (3 inches diameter).....	278	43	50	27.96 meters.
Nail in blaze in cedar tree (4 inches diameter).....	310	49	30	41.27 meters.
Smokepipe of building in woods.....	314	28	..	200 yards.

## LAW.

*General locality.*—Southeastern shore of Wye River about 3/4 mile east of Bennett Point and 1/8 mile southwest of south end of Bruffs Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated land about 15 feet above high water, 8 yards southeast of edge of a bluff, 45 yards southwest of a wire fence, 100 yards northeast of a clump of trees, and 150 yards northwest of a black walnut tree at edge of field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"James" (S 36° 41' W).....	0	00	00	..... ½ mile.
"Rich Neck Water Tower".....	47	20	10	..... 4½ miles.
Chimney of house on Tilghmans Point Farm..	57	48	..	..... 3¾ miles.
Cupola of right barn.....	58	51	..	..... 3¾ miles.
Near peak of large barn.....	128	41	..	..... 1¼ miles.
Right corner of building in woods.....	169	31	..	..... ¾ mile.
Nail in blaze in cedar tree (4 inches diameter).	182	21	50	..... 38.67 meters.
Left peak of house.....	199	10	..	..... 2 miles.
Nail in blaze in black walnut tree (7 inches diameter).....	206	30	30	..... 45.23 meters.
Nail in blaze in cedar tree (4 inches diameter).	224	46	40	..... 59.06 meters.
Black walnut tree (18 inches diameter).....	284	14	..	..... 150 yards.
Right corner of barn.....	297	53	..	..... ¼ mile.
Large cedar tree.....	338	23	..	..... 100 yards.

## JAMES (MILES RIVER).

*General locality.*—Eastern shore of Miles River at southern side of entrance to Wye River, about ¾ mile southwest of Bruffs Island and ⅝ mile southeast of Bennett Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 20 feet above high water, 17 yards east of edge of a bluff at shore, and 14 yards south of edge of a bluff 18 feet high, with uniform slope to shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Frank" (S 3° 18' W).....	0	00	00	..... ¼ mile.
"St. Michaels P. E. Church Spire".....	15	09	..	..... 4½ miles.
"St. Michaels Water Tank".....	17	06	..	..... 4¾ miles.
South chimney of house.....	63	16	..	..... 4 miles.
South chimney of house on Tilghmans Point farm.....	97	14	..	..... 3½ miles.
Right tangent of Tilghmans Point.....	109	08	..	..... 3¾ miles.
Chimney of small cabin.....	174	03	..	..... 1¾ miles.
West gable of barn.....	190	22	..	..... 2¾ miles.
Cupola of barn.....	297	26	..	..... ⅝ mile.

## FRANK.

*General locality.*—Eastern shore of Miles River about ½ mile south of entrance to Wye River and 1 mile northeast of Herring Island. (See Chart No. 32.)

*Immediate locality.*—Observed station is in cultivated field about 18 feet above high water, 8 yards east of a bluff washed by high water, and 125 yards south of a ditch. Cement monument marking reference station is 25.51 meters S 87° 47' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

## References.—

	°	'	''	
"Wood" (S 13° 55' E).....	0	00	00	..... ¼ mile.
"St. Michaels P. E. Church Spire".....	32	13	..	..... 4¼ miles.
"St. Michaels Water Tank".....	34	18	..	..... 4½ miles.
East gable of barn.....	59	33	..	..... 3 miles.

## References—Continued.

	°	'	"	
"Rich Neck Water Tank" . . . . .	105	14	..	3 $\frac{1}{8}$ miles.
South chimney of house on Tilghmans Point farm . . . . .	117	24	..	3 $\frac{1}{2}$ miles.
Right tangent of Tilghmans Point . . . . .	129	22	..	3 $\frac{1}{4}$ miles.
South gable of small house . . . . .	185	22	..	1 $\frac{1}{4}$ miles.
REFERENCE STATION . . . . .	285	08	10	25.51 meters.
Cupola on barn . . . . .	289	06	..	$\frac{3}{8}$ mile.
East chimney of house . . . . .	335	53	..	1 $\frac{1}{8}$ miles.

## WOOD.

*General locality.*—Eastern shore of Miles River about 1 $\frac{1}{2}$  miles southeast of Bennett Point, 1 $\frac{1}{4}$  miles east-northeast of Herring Island and  $\frac{5}{8}$  mile north-northwest of entrance to Woodland Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 18 feet above high water, 18 yards east of shore and top of vertical bank 18 feet high, and 3 yards south of a wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Pearson" (N 65° 24' W) . . . . .	0	00	00	3 $\frac{1}{4}$ miles.
Right tangent of Tilghmans Point . . . . .	5	29	..	3 $\frac{1}{2}$ miles.
Left tangent of marsh on Bennett Point . . . . .	36	49	..	1 $\frac{1}{2}$ miles.
West gable of barn . . . . .	127	56	..	$\frac{1}{2}$ mile.
"St. Michaels P. E. Church Spire" . . . . .	266	53	..	4 miles.
"St. Michaels Water Tank" . . . . .	269	09	..	3 $\frac{1}{8}$ miles.
North chimney of house . . . . .	321	42	..	3 miles.
South chimney of house on Tilghmans Point farm . . . . .	353	51	..	3 $\frac{3}{8}$ miles.

## HERR.

*General locality.*—In Miles River on Herring Island, about 1 $\frac{1}{4}$  miles southwest of entrance to Wye River. (See Chart No. 32.)

*Immediate locality.*—Observed station is on sandy ground in the center of Herring Island, about 2 feet above high water, 30 yards northeast of shore, and 30 yards southwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Rich Neck Water Tank" (N 77° 26' W) . . . . .	0	00	00	3 miles.
North chimney of house on Tilghmans Point farm . . . . .	16	28	..	2 $\frac{7}{8}$ miles.
Right tangent of Tilghmans Point . . . . .	31	07	..	2 $\frac{7}{8}$ miles.
South gable of barn . . . . .	81	37	..	7 miles.
North chimney of small house . . . . .	108	59	..	2 $\frac{3}{4}$ miles.
Cupola of barn . . . . .	149	17	..	1 $\frac{1}{2}$ miles.
North gable of barn . . . . .	198	40	..	1 $\frac{3}{4}$ miles.
East gable of barn . . . . .	209	40	..	3 miles.
Left chimney of Seth house . . . . .	333	42	..	2 miles.
North chimney of house . . . . .	345	25	..	2 $\frac{3}{8}$ miles.

## OLLIE.

*General locality.*—Eastern shore of Miles River about 1 mile north of entrance to Leeds Creek, and  $\frac{3}{4}$  mile northeast of Deep Water Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is in woods about 8 feet above high water, 6 yards west of edge of bank which is washing rapidly, and 8 yards northeast of large pine tree at edge of bank. Cement monument marking reference station is 14.42 meters N  $74^{\circ} 15'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe with top flush with surface of ground. Sub-surface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of the ground.

*References.*—

	o	'	"	
"Swing" (S $1^{\circ} 20'$ W).....	0	00	00	$\frac{3}{4}$ mile.
Nail in blaze in pine tree (3 feet diameter)...	25	56	00	7.62 meters.
"St. Michaels Water Tank".....	37	58	20	$2\frac{1}{4}$ miles.
Weather vane on house on Deep Water Point farm.....	57	10	..	1 mile.
Near peak of house.....	91	55	..	$1\frac{5}{8}$ miles.
Chimney of house on Tilghmans Point farm..	130	38	..	$4\frac{1}{2}$ miles.
Right tangent on Tilghmans Point.....	140	03	..	$4\frac{1}{2}$ miles.
"Parsons Island Water Tank".....	157	19	40	$7\frac{1}{4}$ miles.
Left tangent of main woods on Bennett Point.	172	00	..	3 miles.
Chimney on right end of house in woods....	180	00	..	4 miles.
Nail in blaze in pine tree (8 inches diameter).	240	27	..	10.56 meters.
REFERENCE STATION.....	284	24	40	14.42 meters.
Nail in blaze in pine tree (7 inches diameter).	285	22	10	10.55 meters.
Nail in blaze in pine tree (7 inches diameter).	316	39	..	12.52 meters.

## SWING.

*General locality.*—Eastern shore of Miles River about  $\frac{1}{4}$  mile northwest of entrance to Leeds Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh land between river and small pond about 4 yards east of shore, 18 yards west of pond, 100 yards south of point of woods, and 100 yards northwest of another point of woods. Cement monument marking reference station is 54.35 meters N  $62^{\circ} 04'$  E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe with top flush with surface of ground. Sub-surface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	o	'	"	
"Fair" (S $35^{\circ} 08'$ E).....	0	00	00	$\frac{1}{4}$ mile.
Between two chimneys of large house.....	14	25	..	$2\frac{1}{2}$ miles.
Right one of two dormer windows on old house	29	54	..	.....
Peak between two chimneys of Mulligan house.....	45	39	..	$1\frac{3}{4}$ miles.
"St. Michaels P. E. Church Spire".....	83	50	20	$1\frac{3}{4}$ miles.
"St. Michaels Water Tank".....	90	00	50	$1\frac{3}{4}$ miles.
Square chimney of large house.....	114	25	..	$1\frac{1}{4}$ miles.
Weather vane on house on Deep Water Point farm.....	141	42	..	$\frac{3}{4}$ mile.
Chimney on house on Tilghmans Point farm.	173	38	..	5 miles.
Tangent of Tilghmans Point.....	181	51	..	$5\frac{1}{8}$ miles.
REFERENCE STATION.....	277	12	30	54.35 meters.



## FAIR.

*General locality.*—Eastern shore of Miles River on Fairview Point at northwestern side of entrance to Leeds Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is about 2 feet above high water, 9 yards northeast of shore, 16 yards northwest of shore, and 13 yards north of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Second" (N 36° 37' E) .....	0	00	00	..... ¼ mile.
West peak of Oliver house .....	8	01	..	..... 1 mile.
Peak of tower on Norris house .....	19	05	..	..... ¾ mile.
Corner post of porch of Rieman house .....	86	51	..	..... ¾ mile.
Near peak of gable on house at Pebbly Beach .....	125	46	..	..... ¾ miles.
Large tree near several buildings in yard .....	152	40	..	..... 1½ miles.
North peak of large house .....	160	30	..	..... 1½ miles.
West chimney of house .....	181	37	..	..... 1½ miles.
"St. Michaels Water Tank" .....	207	14	50	..... 1¾ miles.
Weather vane on square tower of house on Deep Water Point farm .....	258	58	..	..... 1 mile.
Nail in blaze in cedar tree (10 inches diam- eter) .....	286	52	40	..... 17.37 meters.
Nail in blaze in cedar tree (14 inches diam- eter) .....	296	47	30	..... 11.15 meters.
Nail in blaze in cedar tree .....	334	59	10	..... 15.48 meters.

## SECOND.

*General locality.*—Northwestern shore of Leeds Creek about ¼ mile northeast of Miles River. (See Chart No. 32.)

*Immediate locality.*—Observed station is on small marsh point just east of cedar woods about 1 foot above high water, 5 yards west of shore, 13 yards north of shore, and 25 yards south of bend in shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe, buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"But" (N 15° 49' E) .....	0	00	00	..... ¾ mile.
South peak of barn .....	7	50	..	..... 1 mile.
Near corner of house .....	24	19	..	..... 1¼ miles.
Brick smokestack at Tunis Mills .....	32	27	..	..... 2½ miles.
Spindle on tower of house .....	46	46	..	..... ¾ mile.
Northeast peak of large building .....	60	02	..	..... ¾ mile.
Cupola on barn .....	141	11	..	..... ½ mile.
Nail in blaze in cedar tree (7 inches diameter) .....	222	10	10	..... 9.31 meters.
Nail in blaze in cedar tree (8 inches diameter) .....	249	34	40	..... 5.78 meters.
Nail in blaze in cedar tree (10 inches diam- eter) .....	281	50	10	..... 6.57 meters.

## BUT.

*General locality.*—Northwestern shore of Leeds Creek, about ¾ mile north of Miles River, and at northeastern side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a small marsh point, about 1 foot above high water, 11 yards south-southwest of shore, 8 yards west of point of shore, 7 yards north of shore, 7 yards east of pasture land, 100 yards southwest of a clump of trees, and 6 yards from a line of cedar trees extending north and south.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Aber" (N 54° 17' E) . . . . .	0	00	00	¼ mile.
Right corner of large brick house . . . . .	25	51	..	¾ mile.
Spindle on tower of house . . . . .	45	52	..	½ mile.
Right peak of house with two chimneys . . . . .	93	38	..	½ mile.
Right corner of Rieman house . . . . .	119	04	..	¾ mile.
Nail in blaze in cedar tree (4 inches diameter) . . . . .	190	15	50	9.17 meters.
Nail in blaze in hackberry tree (3 inches diameter) . . . . .	211	46	00	8.93 meters.
Nail in blaze in water bush (3 inches diameter) . . . . .	264	34	30	5.42 meters.
Chimney of house . . . . .	305	01	..	½ mile.
South peak of large barn . . . . .	336	35	..	¾ mile.

#### ABER.

*General locality.*—Northwestern shore of Leeds Creek, about ¾ mile northeast of Miles River, on point at western side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a point covered with cedar trees, about 2 feet above high water, 8 yards southwest of shore, 9 yards north of shore, and 9 yards northwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Two" (N 52° 56' E) . . . . .	0	00	00	¼ mile.
Near peak of barn cupola . . . . .	34	49	..	¾ mile.
Right corner of large brick house . . . . .	39	47	..	½ mile.
Spindle on tower of house . . . . .	81	41	..	¾ mile.
Weather vane on water tank . . . . .	113	43	..	1¼ miles.
Nail in blaze in cedar tree (8 inches diameter) . . . . .	219	11	50	2.27 meters.
Nail in blaze in cedar tree (4 inches diameter) . . . . .	242	01	40	7.90 meters.
Nail in blaze in cedar tree (17 inches diameter) . . . . .	275	09	10	16.97 meters.
South peak of large barn . . . . .	308	20	..	¼ mile.

#### TWO.

*General locality.*—Northwestern shore of Leeds Creek on a point, about 1 mile northeast of Miles River, and at southern side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 5 yards west of shore, 6 yards northeast of shore, 7 yards north of extreme end of point, and 25 yards southeast of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Face" (S 51° 58' E).....	0	00	00	..... ¼ mile.
Right peak of barn cupola.....	30	37	..	..... ½ mile.
Peak of tower on house.....	45	25	..	..... ¾ mile.
Nail in blaze in water bush (2 inches diameter).....	149	46	00	..... 6.23 meters.
Nail in blaze in water bush (2 inches diameter).....	206	15	00	..... 3.02 meters.
Nail in blaze in water bush (2½ inches diameter).....	228	32	50	..... 4.53 meters.
Left peak of large barn.....	277	05	..	..... ¾ mile.
Cupola on large house.....	301	00	..	..... 1¼ miles.
Near peak of building.....	317	34	..	..... ¾ mile.
Left corner of large brick house.....	348	31	..	..... ¾ mile.

## FACE.

*General locality.*—Southeastern shore of Leeds Creek, about 1 mile northeast of Miles River, and near northeastern side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a field about 5 feet above high water, 130 yards east of bank, 150 yards south of bank, 300 yards west-northwest of large brick house, and 110 yards north-northwest of two very large cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Mais" (S 38° 30' W).....	0	00	00	..... ¼ mile.
Tangent of woods.....	8	57	..	..... 1 mile.
Left corner of house.....	81	46	..	..... ¾ mile.
Right one of three large cedar trees.....	107	49	..	..... 111 yards.
Near peak of house.....	168	33	..	..... ½ mile.
Brick smokestack at Tunis Mills.....	188	18	40	..... 1½ miles.
West peak of large barn.....	233	34	..	..... 400 yards.
Right corner of large brick house.....	250	38	..	..... 300 yards.
Left peak of barn cupola.....	314	32	..	..... ¼ mile.
Spindle on tower of house.....	342	36	..	..... ¾ mile.

## MAIS.

*General locality.*—Southeastern shore of Leeds Creek about ¼ mile northeast of Miles River and near point at southwestern side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is in western corner of an orchard about 3 feet above high water, 10 yards southeast of top of bank, and 140 yards northwest of a large house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Beak" (S 40° 55' W).....	0	00	00	..... ¼ mile.
Nail in blaze in apple tree (6 inches diameter).....	25	09	40	..... 4.78 meters.
South peak of large barn.....	115	22	..	..... ¾ mile.
Nail in blaze in apple tree (6 inches diameter).....	155	59	30	..... 8.19 meters.
Nail in blaze in apple tree (5 inches diameter).....	244	28	30	..... 3.72 meters.
Spindle on tower of house.....	264	56	30	..... 137 yards.
Nail in blaze in poplar tree (8 inches diameter).....	302	00	30	..... 14.08 meters.
Weather vane on water tank.....	313	52	30	..... ¾ mile.

## BEAK.

*General locality.*—Southeastern shore of Leeds Creek about  $\frac{1}{2}$  mile northeast of Miles River at southwestern side of entrance to a small cove. (See Chart No. 32.)

*Immediate locality.*—Observed station is near edge of pasture land about 3 feet above high water, 6 yards southwest of edge of bank, 12 yards south of point of bank, 10 yards southeast of edge of bank, 60 yards west of a small cove, and 25 yards northeast of a line of five poplar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Rieman" (S 35° 51' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Cupola on St. Michaels primary school. ....	18	43	..	..... $2\frac{1}{4}$ miles.
Nail in blaze in poplar tree (6 inches diameter).....	118	53	20	..... 7.70 meters.
Weather vane on water tank.....	123	17	..	..... 1 mile.
South peak of large barn.....	145	12	..	..... $\frac{3}{4}$ mile.
Nail in blaze in hackberry tree (5 inches diameter).....	190	23	20	..... 7.77 meters.
Spindle on tower of house.....	200	49	..	..... $\frac{1}{4}$ mile.
Southwest peak of large building.....	227	41	..	..... $\frac{5}{8}$ mile.
Nail in blaze in cedar tree (4 inches diameter). 241	19	50	.....	13.42 meters.
Weather vane on tower.....	302	55	..	..... $1\frac{1}{2}$ miles.

## RIEMAN.

*General locality.*—Southeastern shore of Leeds Creek about  $\frac{1}{4}$  mile northeast of Miles River. (See Chart No. 32.)

*Immediate locality.*—Observed station is on small marsh point about 1 foot above high water, 3 yards south of shore, 3 yards northeast of shore, 6 yards east-southeast of extreme end of point, 12 yards west of large cedar tree on point 2 feet higher than station, and 13 yards west-southwest of two large cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Leeds" (S 11° 28' W).....	0	00	00	..... $\frac{1}{4}$ mile.
"St. Michaels P. E. Church Spire".....	48	11	30	..... 2 miles.
"St. Michaels Water Tank".....	53	23	40	..... 2 miles.
Left piazza post of Fogg cottage.....	57	38	..	..... $1\frac{1}{2}$ miles.
Left corner of chimney.....	157	41	..	..... $\frac{3}{4}$ mile.
Near corner of house.....	201	57	..	..... $1\frac{1}{4}$ miles.
Right corner of house.....	215	58	..	..... $\frac{3}{4}$ mile.
Nail in blaze in cedar tree (20 inches diameter).....	246	12	00	..... 11.31 meters.
Nail in blaze in cedar tree (8 inches diameter). 274	45	10	.....	16.86 meters.
Left corner of Rieman house.....	340	27	..	..... $\frac{1}{4}$ mile.

## LEEDS.

*General locality.*—Eastern shore of Miles River at southern side of entrance to Leeds Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 11 yards southeast of shore, 23 yards northeast of shore, 27 yards east-northeast of extreme end of point, and 200 yards west-northwest of a large house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Stony" (S 13° 40' W).....	0	00	00	1½ miles.
Near peak of large house.....	13	07	..	1½ miles.
Cupola on schoolhouse.....	49	19	..	1⅜ miles.
"St. Michaels Water Tank".....	57	40	20	1⅜ miles.
Weather vane on Dodson house.....	103	40	..	1¾ miles.
Chimney of small house.....	166	12	..	¾ mile.
Near peak of Rieman house.....	287	07	..	¾ mile.
Tangent of point.....	347	12	..	27 yards.

JOHNSON.

*General locality.*—Northwestern shore of Miles River on a point about ¾ mile west-southwest of Miles River Bridge. (See Charts Nos. 32 and 34.)

*Immediate locality.*—Observed station is on a lawn about 10 feet above high water, 3 yards north-west of top of bank, 60 yards northeast of cedar tree 20 inches in diameter in clump of six cedar trees near boat landing, and 74 meters southeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Lowndes" (N 72° 02' E).....	0	00	00	¼ mile.
Windmill on tower.....	11	40	..	⅞ mile.
Left corner of large chimney outside of house.....	35	09	..	¾ mile.
Nail in blaze in pine tree (14 inches diameter).....	48	12	30	11.03 meters.
Spindle on left cupola of barn.....	101	51	..	½ mile.
Right corner of Mumford house.....	114	49	..	½ mile.
Nail in blaze in elm tree (6 inches diameter).....	142	55	10	10.58 meters.
Left side of cedar tree (20 inches diameter).....	136	40	..	57 yards.
Near peak of Dorrance house.....	154	16	..	⅜ mile.
Southeast peak of Crown house.....	182	45	..	¼ mile.
Left corner of second story of Lowndes house.....	226	54	..	74 meters.
Right corner of house.....	263	09	..	
Nail in blaze in elm tree (5 inches diameter).....	298	45	40	16.11 meters.
Windmill on tower.....	340	31	..	1 mile.
Windmill on tower.....	346	53	..	¾ mile.

LOWNDES.

*General locality.*—Northwestern shore of Miles River about ¾ mile southwest of Miles River Bridge. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a rounded point of marsh about 1 foot above high water, 7 yards northwest of shore, 8 yards west of shore, 9 yards north of shore, 16 yards east-northeast of shore, and 65 yards east-southeast of small locust trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Draw" (N 35° 59' E).....	0	00	00	¼ mile.
Right corner of Lockwood house.....	27	45	..	¾ mile.
Right corner of drawtender's house.....	51	42	..	¼ mile.
Henderson windmill.....	68	50	..	¼ mile.
Near peak of large house.....	116	51	..	½ mile.
Right corner of large house.....	200	22	..	2 miles.
Nail in blaze in locust tree (6 inches diameter).....	294	42	30	19.17 meters.
Windmill at "The Anchorage".....	342	47	..	⅜ mile.
Near corner of "The Anchorage".....	348	50	..	⅜ mile.
Left corner of second story of Goldsborough house.....	359	59	..	⅜ mile.

## DRAW.

*General locality.*—Northwestern shore of Miles River at northwest end of Miles River Bridge and near old Episcopal Church. (See Chart No. 32.)

*Immediate locality.*—Observed station is on lawn of "The Anchorage" about 4 feet above high water, 9 yards west of plank sea wall, 40 yards southwest of approach to bridge, 60 yards north of corner of plank sea wall, and 85 yards east of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument with top 5 inches below surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Chap" (N 59° 04' E).....	0	00	00	..... ¼ mile.
Spike in sea wall post.....	7	12	10	..... 7.72 meters.
Near peak of Lockwood boat landing.....	10	15	..	..... ¼ mile.
Right corner of second story of Lockwood house.....	15	54	..	..... ½ mile.
Spindle on barn cupola.....	54	46	..	..... ¾ mile.
Spike in sea wall post.....	78	53	00	..... 12.03 meters.
Right corner of second story of Henderson house.....	87	00	..	..... ¼ mile.
Nail in blaze in maple tree (12 inches diameter).....	131	48	50	..... 14.15 meters.
Left corner of log cabin.....	193	18	..	..... 112 yards.
Nail in blaze in maple tree (12 inches diameter).....	195	05	20	..... 14.61 meters.
Right corner main house at "The Anchorage".....	218	17	..	..... 84 yards.
Nail in blaze in pear tree (10 inches diameter).....	254	46	30	..... 7.63 meters.
Right corner of old Episcopal Church.....	302	34	..	..... 120 yards.
Spike in sea-wall post.....	325	20	10	..... 15.32 meters.
Windmill on tower.....	331	51	..	..... ¼ mile.
Lightning rod on tower of Goldsborough house.....	338	00	..	..... ¼ mile.
Corner of stone bridge abutment.....	354	09	..	..... 43 yards.

## CHAP.

*General locality.*—Northwestern shore of Miles River opposite point between Glebe Creek and Goldsboro Creek, about ¼ mile northeast of Miles River Bridge. (See Chart No. 32.)

*Immediate locality.*—Observed station is on point about 2 feet above high water, 5 yards west of shore, 7 yards northeast of shore, and 9 yards north-northwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Villa" (S 61° 08' E).....	0	00	00	..... ¾ mile.
Right corner of 2½-story house.....	48	27	..	..... ¼ mile.
Left peak of boathouse at "The Anchorage".....	112	11	..	..... ¼ mile.
Left corner of "The Anchorage".....	123	26	..	..... ¼ mile.
Left corner of old Episcopal Church.....	129	12	..	..... ¼ mile.
Nail in blaze in locust tree (5 inches diameter).....	165	37	50	..... 13.65 meters.
Left corner of Goldsborough house.....	203	39	..	..... ½ mile.
Nail in blaze in locust tree (8 inches diameter).....	205	20	00	..... 9.07 meters.
Windmill on tower.....	210	27	..	..... ½ mile.
Nail in blaze in locust tree (8 inches diameter).....	234	21	30	..... 13.39 meters.
Right peak of brick house.....	275	28	..	..... ¾ mile.
Near peak of wharf house.....	329	55	..	..... ½ mile.

## VILLA.

*General locality.*—Southeastern shore of Miles River at northern side of entrance to Glebe Creek, about  $\frac{3}{4}$  mile east of Miles River Bridge. (See Chart No. 32.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 11 yards northwest of shore, 17 yards southeast of shore, 30 yards west by south of extreme end of point of marsh, 75 yards northeast of shore, and southwest of a few small trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Easton" (S 70° 44' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Spindle on cupola of barn near "The Anchorage".....	16	25	..	..... $\frac{5}{8}$ mile.
Windmill at "The Anchorage".....	20	25	..	..... $\frac{5}{8}$ mile.
Left corner of tower of old Episcopal Church.....	25	13	..	..... $\frac{5}{8}$ mile.
Left corner of modern house.....	54	07	..	..... $\frac{3}{8}$ mile.
Windmill on tower.....	57	49	..	..... $\frac{1}{2}$ mile.
Nail in blaze in locust tree (8 inches diameter).....	67	52	00	..... 17.83 meters.
Left corner of "The Villa".....	103	42	..	..... $\frac{1}{8}$ mile.
Nail in blaze in locust tree (4 inches diameter).....	119	43	00	..... 19.86 meters.
Nail in blaze in persimmon tree (8 inches diameter).....	169	12	00	..... 26.23 meters.
Right corner of large house.....	223	26	..	..... $\frac{3}{8}$ mile.
Tongue of bell.....	278	19	..	..... $\frac{1}{4}$ mile.
Right corner of Henderson house.....	347	37	..	..... $\frac{3}{8}$ mile.

## EASTON.

*General locality.*—Southeastern side of Miles River on southeastern approach to Miles River Bridge. (See Chart No. 32.)

*Immediate locality.*—Observed station is on southwest side of cribwork retaining a shell road, 6 inches from downstream edge of cribwork, 7 yards southwest of upstream edge of cribwork, 25 yards southeast of corner of cribwork abutment, 30 yards northwest of extended line of Henderson sea wall, 9 yards southwest by south of nails in side of telephone pole on upstream side of bridge, and 45 yards northwest by west of first telephone pole southeast of bridge on northeastern side of road.

*Marks.*—Observed station is spindle, 1 inch diameter, on top of 3-inch square timber.

*References.*—None necessary.

## HENDERSON.

*General locality.*—Southeastern shore of Miles River on a point about  $\frac{1}{4}$  mile southwest of Miles River Bridge. (See Charts Nos. 32 and 34.)

*Immediate locality.*—Observed station is on a hard marsh point about 1 foot above high water, 6 yards southeast of shore, 8 yards south of shore, 13 yards east of shore, 23 yards north-northeast of point of higher land, and 15 yards north of trees along bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Bethel" (S 65° 49' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Left corner of second story of Lowndes house.....	25	54	..	..... $\frac{5}{8}$ mile.
Peak of near gable of house.....	40	54	..	..... $\frac{3}{8}$ mile.
Windmill at "The Anchorage".....	101	51	..	..... $\frac{3}{8}$ mile.
Right corner of old Episcopal Church tower.....	112	06	..	..... $\frac{3}{8}$ mile.
Left corner of Goldsborough house.....	129	54	..	..... $\frac{5}{8}$ mile.

## References—Continued.

	°	'	"	
Henderson windmill.....	174	47	..	..... ¼ mile.
Nail in blaze in wild-cherry tree (5 inches diameter).....	258	17	30	..... 16.25 meters.
Nail in blaze in locust tree (5 inches diameter).....	306	43	40	..... 13.76 meters.
Nail in blaze in wild-cherry tree (7 inches diameter).....	336	10	10	..... 21.71 meters.

## ST. MICHAELS WATER TANK.

*General locality.*—Western side of Miles River in town of St. Michaels, on north side of Railroad Avenue, near African M. E. Church. (See Charts Nos. 32 and 34.)

*Immediate locality.*—Observed station is on top of a 60,000-gallon water tank on a steel tower 90 feet high.

*Marks.*—Observed station is spindle on center of top of water tank.

*References.*—None necessary.

## MILLWIND.

*General locality.*—Western shore of Miles River at south side of entrance to Long Haul Creek, about ¾ mile northeast of St. Michaels Water Tank and ½ mile south of Deep Water Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on edge of cultivated field about 8 feet above high water, 2 yards west of edge of bank, 17 yards south of edge of bluff, and 18 yards south by west of junction of bush-covered bank and washed bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"St. Michaels Water Tank" (S 49° 19' W)....	0	00	00	..... ¼ mile.
Largest one of group of 3 cherry trees.....	26	45	..	..... 80 yards.
Nail in blaze in cedar tree (12 inches diameter).....	69	00	00	..... 38.94 meters.
Square chimney of Barnard house.....	88	46	..	..... ½ mile.
Weather vane on square tower on house on Deep Water Point farm.....	125	13	..	..... ¾ mile.
North peak of house.....	168	00	..	..... 1¾ miles.
Left chimney of Rieman house.....	221	09	..	..... 1¼ miles.
Right chimney of large modern house on Hunting Creek.....	246	41	..	..... 2½ miles.
Steeple on building.....	272	37	..	..... 4 miles.
Nail in blaze in cedar tree (10 inches diameter).....	310	07	00	..... 5.28 meters.
Union M. E. Church spire.....	358	26	20	..... ¾ mile.

## DEEWAT.

*General locality.*—Western shore of Miles River on Deep Water Point, about ¾ mile west-northwest of Fairview Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on sand and grass point about 2 feet above high water, 8 yards southwest of shore, 7 yards northwest of shore, and 10 yards west of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.



References.—

	°	'	"	
"St. Michaels Water Tank" (S 33° 08' W) . . . . .	0	00	00	1½ miles.
Weather vane on Dodson house . . . . .	53	13	..	¼ mile.
Tangent of Tilghmans Point . . . . .	117	58	..	4¾ miles.
Right tangent of Parsons Island . . . . .	133	28	..	7½ miles.
Large square chimney of Starr house . . . . .	179	59	..	2½ miles.
Large chimney of house . . . . .	212	08	..	1¾ miles.
Cupola on Rieman house . . . . .	271	59	..	1¾ miles.
Tangent of Long Point . . . . .	287	02	..	3¼ miles.
Steeple . . . . .	295	04	..	4½ to 5 miles.
Large chimney of house . . . . .	297	41	..	2¾ miles.
Large chimney of house . . . . .	309	30	..	2¾ miles.
"St. Michaels P. E. Church spire" . . . . .	353	40	40	1½ miles.

SPAR.

*General locality.*—Southwestern shore of Miles River, about 1 mile southeast of entrance to Hambleton Creek and ¾ mile northwest of Deep Water Point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on cedar and locust fringed shore, about 4 feet above high water, 11 yards west of shore, 12 yards southwest of shore, and 15 yards south of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Sara" (N 39° 19' W) . . . . .	0	00	00	1 mile.
Chimney of house on Tilghmans Point farm . . . . .	1	19	..	4 miles.
Near peak of barn beyond Herring Island . . . . .	42	38	..	8¾ miles.
Nail in blaze in oak tree (3 inches diameter) . . . . .	54	59	00	4.52 meters.
Right tangent of chimney . . . . .	125	32	..	1¾ miles.
Tangent of Deep Water Point . . . . .	181	22	..	¾ mile.
Nail in blaze in locust tree (3 inches diameter) . . . . .	240	08	40	6.84 meters.
Nail in blaze in locust tree (4 inches diameter) . . . . .	279	53	30	3.58 meters.

SARA.

*General locality.*—Southwestern shore of Miles River, about ¾ miles south-southeast of northern end of Tilghmans Point, ¼ miles southwest of Herring Island, and on point at eastern side of entrance to Hambleton Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in a cultivated field about 15 feet above high water, 16 yards southwest of a bluff 12 feet high with uniform slope to shore, and 20 yards east of depression 4 feet deep.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Wood" (N 52° 14' E) . . . . .	0	00	00	2 miles.
West chimney of house . . . . .	127	40	..	½ mile.
Nail in blaze in hackberry tree (12 inches diameter) . . . . .	158	58	50	22.02 meters.
Nail in blaze in cedar tree (12 inches diameter) . . . . .	204	12	50	12.66 meters.
Right tangent of Tilghmans Point . . . . .	282	58	..	3¼ miles.
"Parsons Island Water Tank" . . . . .	297	11	..	6¾ miles.
South gable of barn . . . . .	315	40	..	8 miles.
South gable of house . . . . .	323	03	..	6 miles.
South gable of barn . . . . .	340	49	..	4 miles.

## SETH.

*General locality.*—Southwestern shore of Miles River, on a point about  $2\frac{1}{2}$  miles south of northern end of Tilghmans Point and  $\frac{3}{4}$  mile northwest of entrance to Porters Creek. (See Chart No. 32.)

*Immediate locality.*—Observed station is in clump of cedar trees about 12 feet above high water, 9 yards southwest of top of vertical bank, washed by high water, 50 yards northwest of extreme end of point, and 400 yards northeast of a house. Cement monument marking reference station is 9.56 meters S  $67^{\circ} 41'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 12 inches above surface of ground.

*References.*—

	o	/	''	
"Herr" (N $79^{\circ} 07'$ E).....	0	00	00	..... 2 miles.
Nail in blaze in cedar tree (12 inches diameter).....	145	20	20	..... 10.89 meters.
REFERENCE STATION.....	168	34	30	..... 9.56 meters.
Nail in blaze in cedar tree (6 inches diameter).....	219	59	45	..... 4.44 meters.
South gable of house.....	282	12	..	..... $5\frac{1}{2}$ miles.
South gable of barn.....	305	34	..	..... 6 miles.
West gable of house.....	312	30	..	..... 6 miles.
Cupola on barn.....	356	52	..	..... 3 miles.

## PEARSON.

*General locality.*—Western shore of Miles River on Tilghmans Point about  $\frac{3}{8}$  mile south-southeast of northern end of point. (See Chart No. 32.)

*Immediate locality.*—Observed station is on wooded bluff about 20 feet above high water, 5 yards west of top of vertical bank at shore, and 100 yards north of first point south of northern end of Tilghmans Point. Cement monument marking reference station is 12.66 meters N  $86^{\circ} 03'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

	o	/	''	
"Green" (N $45^{\circ} 46'$ E).....	0	00	00	..... $3\frac{3}{8}$ miles.
South gable of barn.....	1	14	..	..... 5 miles.
South chimney of house.....	11	48	..	..... $3\frac{1}{2}$ miles.
West chimney of house.....	26	31	..	..... $2\frac{1}{8}$ miles.
West gable of barn.....	62	31	..	..... $3\frac{1}{2}$ miles.
East gable of barn.....	76	09	..	..... 4 miles.
West chimney of house.....	111	30	..	..... $3\frac{1}{4}$ miles.
North chimney of house.....	125	20	..	..... $3\frac{1}{8}$ miles.
Chimney of house.....	130	36	..	..... $2\frac{1}{2}$ miles.
Nail in blaze in white oak tree (8 inches diameter).....	178	09	40	..... 5.31 meters.
REFERENCE STATION.....	228	11	00	..... 12.66 meters.
Nail in blaze in white oak tree (12 inches diameter).....	239	19	20	..... 9.99 meters.
South gable of house on Parsons Island.....	317	17	..	..... $3\frac{1}{2}$ miles.
South gable of barn.....	350	02	..	..... $4\frac{3}{8}$ miles.

DIXON.

*General locality.*—Southeastern side of Eastern Bay on Tilghmans Point about half way between Eastern Bay and Miles River  $\frac{3}{4}$  mile southwest of northern end of point and  $1\frac{5}{8}$  miles northeast of Claiborne Wharf. (See Chart No. 32.)

*Immediate locality.*—Observed station is on top of a 2-story square frame house on Tilghmans Point farm.

*Marks.*—Observed station is center of upright staff, 3 inches square, set in the center of trapdoor at apex of square roof.

*References.*—None necessary.

ROD.

*General locality.*—Eastern shore of the upper part of Harris Creek on southeastern side of entrance to Northeast Branch. (See Charts Nos. 32 and 34.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 5 yards southeast of shore, and 2 yards southeast of top of bank with uniform slope to shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Otto" (S 0° 41' W).....	0	00	00	..... $\frac{3}{8}$ mile.
North chimney of house.....	5	31	..	..... $1\frac{1}{4}$ miles.
East chimney of house at Bozman.....	14	01	..	..... $2\frac{1}{4}$ miles.
East gable of small barn.....	92	12	..	..... $\frac{3}{4}$ mile.
North chimney of Warner House.....	108	42	..	..... $\frac{3}{4}$ mile.
Cupola on tin-roofed barn.....	139	52	..	..... $\frac{3}{4}$ mile.
Right tangent of barn.....	186	26	..	..... $1\frac{1}{2}$ miles.
South chimney on Harrison house.....	218	06	..	..... 250 yards.
West gable of barn.....	300	37	..	..... $\frac{3}{4}$ mile.
Lone persimmon tree (12 inches diameter)...	355	01	..	..... 250 yards.

OTTO.

*General locality.*—Eastern shore of upper Harris Creek about  $\frac{1}{2}$  mile south of junction of Northeast Branch and Northwest Branch. (See Charts Nos. 32 and 34.)

*Immediate locality.*—Observed station is in a cultivated field about 8 feet above high water, 18 yards east of top of vertical bank 6 feet high washed by high water, and 100 yards north of old fence covered with vines.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Miller" (S 11° 56' E).....	0	00	00	..... $\frac{1}{4}$ mile.
Nail in blaze of locust tree (4 inches diameter)	18	18	10	..... 28.03 meters.
North chimney of Bridges house.....	43	27	..	..... $2\frac{1}{2}$ miles.
East chimney of Harrison house.....	56	53	..	..... 1 mile.
Nail in blaze in one of twin locust trees (15 inches diameter).....	70	39	40	..... 12.67 meters.
Left tangent of Seth bathhouse.....	92	43	..	..... $\frac{1}{4}$ mile.
South gable of Warner barn.....	145	31	..	..... 1 mile.
East chimney of house.....	158	52	..	..... $1\frac{3}{4}$ miles.
Cupola on tin-roofed barn.....	166	16	..	..... 1 mile.
South chimney of Marion Harrison house....	204	00	..	..... $\frac{3}{4}$ mile.
North chimney of house.....	264	37	..	..... $\frac{3}{4}$ mile.
North gable of barn.....	357	54	..	..... $\frac{3}{4}$ mile.

## HADDAWAY.

*General locality.*—Eastern shore of Chesapeake Bay on Lows Point between Harbor Cove and Haddaway Cove about 2 miles east of north end of Poplar Island. (See chart No. 33.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 65 yards north of shore, 100 yards south of shore, 140 yards east of shore, and 25 yards west of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Valliant" (S 82° 08' W).....	0	00	00	2½ miles.
Left peak of barn on Poplar Island.....	0	21	..	2¾ miles.
"Bloody Point Bar Light".....	60	23	10	5 miles.
Left chimney on large house.....	80	54	..	6 miles.
Chimney on middle of large house.....	87	14	..	5¾ miles.
Peak of house between two chimneys.....	109	00	..	9½ miles.
Chimney of two-story house.....	125	55	..	4 miles.
"Kemp Tower".....	127	16	50	4¾ miles.
Nail in blaze in pine tree (14 inches diameter)	139	39	50	36.78 meters.
Nail in blaze in pine tree (12 inches diameter)	164	52	10	28.77 meters.
Nail in blaze in pine tree (8 inches diameter)	213	45	20	24.66 meters.
Chimney on ell of house.....	275	10	..	1¾ miles.
Chimney of house on Poplar Island.....	330	29	..	2¼ miles.
Chimney of house on Poplar Island.....	359	01	..	2¾ miles.

## VALLIANT.

*General locality.*—Eastern side of Chesapeake Bay on western shore of Poplar Island about ¾ mile southwest of extreme north end of island. (See Chart No. 33.)

*Immediate locality.*—Observed station is in cultivated land about 5 feet above high water, 15 yards north by east of a line of small trees, 72 yards east by south of shore at end of line of trees, and 210 yards south by west of point of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Bloody Point Bar Light" (N 4° 58' W)....	0	00	00	4½ miles.
Near peak of large building.....	14	07	..	5 miles.
Near chimney of large house.....	19	57	..	6½ miles.
Near corner of shanty in field.....	81	17	..	200 yards.
Chimney of house.....	94	31	..	¼ mile.
Flagstaff on Lowes Wharf.....	100	59	..	3 miles.
Chimney of house on point behind trees.....	122	35	..	2¾ miles.
Chimney of small house.....	164	34	..	¾ mile.
Nail in blaze in peach tree (4 inches diameter).....	176	13	44	15.14 meters.
Nail in blaze in persimmon tree (3 inches diameter).....	230	44	00	11.90 meters.
Nail in blaze in peach tree (2½ inches diameter).....	262	51	30	17.83 meters.

## POPLAR SOUTH.

*General locality.*—Eastern side of Chesapeake Bay on Poplar Island on a point of land at southern side of Poplar Island Harbor. (See Chart No. 33.)

*Immediate locality.*—Observed station is on a sandy marsh about 1 foot above high water, 7 yards west-southwest of shore of harbor, 16 yards east-northeast of bay shore, 60 yards north-northwest of extreme point of largest one of the group of islands known as Poplar Island, and 11 yards north of a lone pine tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Sharps Island Light" (S 1° 06' E).....	0	00	00	8 miles.
Near peak of house.....	49	34	..	11½ miles.
Left tower of hotel.....	61	47	..	9½ miles.
Left tangent of house.....	79	30	..	9½ miles.
Left tangent of house.....	101	47	..	9 miles.
East peak of Howeth house.....	157	38	..	5½ mile.
Lightning rod near east chimney of house....	189	25	..	1¾ miles.
Right chimney of Valliant house.....	208	11	..	¾ mile.
"Kemp Tower".....	221	57	10	6½ miles.
Left corner of left oyster house at Lowes				
Wharf.....	254	53	..	2¾ miles.
Chimney of house.....	262	14	..	2¾ miles.
Square cupola.....	336	05	..	5 miles.
High cupola.....	336	16	..	5 miles.
Nail in blaze in pine tree (12 inches diam-				
eter).....	345	01	30	10.89 meters.

## GREAT.

*General locality.*—Eastern shore of Chesapeake Bay on Great Marsh Point about 1 mile east of south-east end of Poplar Island. (See Chart No. 33.)

*Immediate locality.*—Observed station is on marsh point about 2 feet above high water, 40 yards east of shore, 40 yards southeast of shore, 50 yards northeast of shore, and 250 yards from woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Sharps Island Light" (S 13° 18' W).....	0	00	00	7¾ miles.
Howeth house.....	101	17	..	2¾ miles.
Near peak of house on Poplar Island.....	121	51	..	2½ miles.
"Bloody Point Bar Light".....	142	18	30	6½ miles.
Right end of house.....	295	39	..	1 mile.
Near peak of house.....	324	02	..	¼ mile.
Chimney of house.....	340	51	..	¾ mile.

## FRONT.

*General locality.*—Eastern shore of Chesapeake Bay about ¼ mile north of entrance to Front Creek, 7/8 mile north of Knapps Narrows, and 1½ miles southeast of southeast end of Poplar Island. (See Chart No. 33.)

*Immediate locality.*—Observed station is about 3 feet above high water, 13 yards north-northeast of shore, 18 yards southeast of shore, 25 yards east of extreme end of point, and near several dead trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## Survey of Oyster Bars, Talbot County, Md.

## References.—

	°	'	''	
"Sharps Island Light" (S 15° 04' W).....	0	00	00	6½ miles.
Chimney of house.....	127	59	..	3¼ miles.
Right peak of Valliant house.....	129	49	..	2¾ miles.
"Bloody Point Bar Light".....	144	10	30	7¾ miles.
Nail in blaze in pine tree (5 inches diameter) .	223	49	20	14.54 meters.
Nail in blaze in pine tree (4 inches diameter) .	274	37	40	11.82 meters.
Nail in blaze in pine tree (4 inches diameter) .	317	37	20	11.95 meters.
Near peak of large barn.....	334	58	..	1 mile.

## WAP.

*General locality.*—Eastern shore of Chesapeake Bay on a point about 4¾ miles north by east of Sharps Island Light and 1 mile south of Knapps Narrows. (See Chart No. 33.)

*Immediate locality.*—Observed station is on a point about 3 feet above high water, 56 yards east of extreme end of point, 68 yards north by east of shore, 83 yards south by west of shore, and 3 yards west-northwest of edge of cultivated land.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Sharps Island Light" (S 18° 04' W).....	0	00	00	4¾ miles.
Nail in blaze in pine tree (6 inches diameter) .	16	57	00	32.99 meters.
East chimney of Howeth house.....	136	00	..	4¾ miles.
Chimney of house.....	181	12	..	1½ miles.
Near peak of house showing over woods.....	200	01	..	¼ mile.
Nail in blaze in persimmon tree (10 inches diameter).....	263	54	50	61.80 meters.
Nail in blaze in persimmon tree (5 inches diameter).....	279	10	00	61.23 meters.
West peak of large house.....	305	27	..	¾ mile.
Square cupola.....	322	20	20	1 mile.
High cupola.....	323	05	30	1 mile.
Chimney of house with three side gables.....	335	49	..	¾ mile.
Right tangent of point.....	347	09	..	1¾ miles.
Left tangent of old hotel building on Sharps Island.....	350	35	40	6 miles.

## SOUTHERN M. E. CHURCH.

*General locality.*—Eastern shore of Chesapeake Bay on Tilghman Island about 1¾ miles north of Blackwalnut Point and 2 miles south of Knapps Narrows. (See Chart No. 33.)

*Immediate locality.*—Observed station is about ¼ mile inshore from Chesapeake Bay on west side of main road on building known as the St. Johns Chapel (Southern M. E. Church).

*Marks.*—Observed station is center of bell cupola on church.

*References.*—None necessary.

## BLACK.

*General locality.*—Eastern shore of Chesapeake Bay on Blackwalnut Point at north side of entrance to Choptank River about 2¾ miles northeast of Sharps Island Light. (See Charts Nos. 33 and 36.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 35 yards east-northeast of edge of bank, 45 yards west of edge of bank, 65 yards northwest of edge of bank, and 130 yards south of a lone apple tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Sharps Island Light" (S 43° 37' W).....	0	00	00	..... 2¾ miles.
Near peak of old house.....	123	10	..	..... ½ mile.
Lone apple tree.....	133	16	..	..... 131 yards.
Chimney of house among trees.....	145	38	..	..... 1¾ miles.
Right chimney of house near water.....	163	31	..	..... 1 mile.
Right chimney of large house.....	211	27	..	..... 7 miles.
"Choptank River Light".....	232	11	30	..... 8½ miles.
Near peak of barn.....	253	22	..	..... 6 miles.
Left chimney of house.....	270	12	..	..... 3¾ miles.
Chimney outside left end of house.....	283	35	..	..... 7 miles.
Near peak of old hotel building on Sharps Island.....	337	47	..	..... 3½ miles.

## SHARPS ISLAND LIGHT.

*General locality.*—Eastern side of Chesapeake Bay off entrance to Choptank River, about 1 mile north-northwest of Sharps Island and 2½ miles southwest of Blackwalnut Point. (See Charts Nos. 33 and 36.)

*Immediate locality.*—Observed station is on structure with a cylindrical foundation known as Sharps Island Light.

*Marks.*—Observed station is center point of lantern on Sharps Island Light.

## References.—

	°	'	''	
"Black" (N 43° 36' E).....	0	00	00	..... 2¾ miles.

## JERE.

*General locality.*—Eastern side of Chesapeake Bay on Sharps Island, about 1½ miles south-southeast of Sharps Island Light. (See Charts Nos. 33 and 36.)

*Immediate locality.*—Observed station is on hard ground about 7 feet above high water, 95 yards south-southeast of old hotel building, 95 yards west-southwest of shore, 150 yards southwest of a point, and in such a position that Sharps Island Light shows to the right of the old hotel building.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Sharps Island Light" (N 24° 06' W).....	0	00	00	..... 1½ miles.
Church cupola.....	46	35	50	..... 5¼ miles.
Chimney on left end of roof of large house....	47	44	..	..... 5 miles.
Chimney of large house.....	104	25	..	..... 4¼ miles.
Large chimney of large house.....	115	46	..	..... 4¾ miles.
Chimney on right end of large house.....	142	21	..	..... 5¾ miles.
Near corner of house.....	346	59	..	..... 95 yards.

## BAR.

*General locality.*—Western shore of entrance to Harris Creek on Upper Bar Neck Point about 1¾ miles north-northeast of Blackwalnut Point and 1½ miles south-southeast of Tilghman Island Wharf. (See Chart No. 33.)

*Immediate locality.*—Observed station is in cultivated field about 6 feet above high water, 3 yards west of edge of bank, and 60 yards north of line of trees at edge of marsh. Cement monument marking reference station is 45.81 meters S 83° 00' W of observed station, nearly on line to large lone persimmon tree 15 inches diameter.

*Marks.*—Observed station is center of 4-inch tile pipe with top about 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

## References.—

	°	'	''	
"Large Water Tank" (S 61° 46' E) . . . . .	0	00	00	9¼ miles.
Nail in blaze in oak stump . . . . .	63	18	00	51.17 meters.
Nail in blaze in wild cherry tree . . . . .	78	58	40	46.66 meters.
Nail in blaze in cedar tree . . . . .	88	35	30	47.69 meters.
Nail in blaze in lone persimmon tree . . . . .	144	33	10	49.48 meters.
REFERENCE STATION . . . . .	144	46	00	45.81 meters.
Right chimney of first house to right of woods . . . . .	205	39	..	¾ mile.
Schoolhouse cupola . . . . .	213	11	40	1¾ miles.
Stack of cannery . . . . .	216	19	..	1½ miles.
Stack of cannery . . . . .	227	10	..	1¾ miles.
Right chimney of house showing over woods . . . . .	239	07	..	2¾ miles.
Neavitt schoolhouse cupola . . . . .	269	25	..	3¾ miles.
Chimney of house . . . . .	276	58	..	2¾ miles.

## M. E. CHURCH.

*General locality.*—Eastern shore of Chesapeake Bay on Tilghman Island, about 2¾ miles north of Blackwalnut Point and ¾ mile south of Knapps Narrows. (See Chart No. 33.)

*Immediate locality.*—Observed station is on main road about halfway between the shores of Chesapeake Bay and Harris Creek, about ¼ mile east of Tilghman Island Wharf on building known as Tilghman Island M. E. Church.

*Marks.*—Observed station is center of small square cupola on church.

*References.*—None necessary.

## AVALON.

*General locality.*—Western shore of Harris Creek on Tilghman Island on point about 100 yards north of shore end of Tilghman Island Wharf. (See Chart No. 33.)

*Immediate locality.*—Observed station is on marsh and clay point, about 1 foot above high water, 9 yards south of shore, 12 yards northwest of shore, 20 yards north-northwest of northeast corner of a house, about 1 yard east of produced line of end of house, 10 yards north of 2 pine trees, and 6 yards north-northwest of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Narrows" (N 34° 29' E) . . . . .	0	00	00	¾ mile.
Near peak of house with 2 chimneys . . . . .	2	47	..	3¾ miles.
Stack of cannery on wharf . . . . .	8	34	..	¼ mile.
Near peak of house with 2 chimneys . . . . .	35	40	..	2½ miles.
Chimney next to skylight on highest house on Tilghman Island Wharf . . . . .	80	38	..	¼ mile.
Stack of cannery . . . . .	150	07	..	¼ mile.
Nail in blaze in pine tree (14 inches diameter) . . . . .	154	00	30	10.21 meters.
Northeast corner of a house . . . . .	161	11	50	17.24 meters.
Nail in blaze in northwest side of pine tree (15 inches diameter) . . . . .	181	14	00	9.81 meters.
Nail in blaze in cherry tree (12 inches diameter) . . . . .	224	12	30	10.66 meters.
Lightning rod on east peak of house . . . . .	243	47	..	150 yards.
Weather vane on schoolhouse . . . . .	270	59	10	¾ mile.
Near peak of house with chimney . . . . .	322	18	..	300 yards.



## SCHOOLHOUSE CUPOLA.

*General locality.*—Eastern shore of Chesapeake Bay on Tilghman Island about 3 miles north of Blackwalnut Point and  $\frac{1}{2}$  mile south of Knapps Narrows. (See Chart No. 33.)

*Immediate locality.*—Observed station is on main road about halfway between the shores of Chesapeake Bay and Harris Creek about  $\frac{3}{8}$  mile northwest of Tilghman Island Wharf on schoolhouse building.

*Marks.*—Observed station is center of bell cupola on schoolhouse.

*References.*—None necessary.

## PEOPLES CHAPEL.

*General locality.*—Eastern shore of Chesapeake Bay on Tilghman Island about  $3\frac{1}{4}$  miles north of Blackwalnut Point and  $\frac{1}{4}$  mile south of Knapps Narrows. (See Chart No. 33.)

*Immediate locality.*—Observed station is in the town of Tilghman about  $\frac{1}{2}$  mile north of Tilghman Island Wharf on building known as Peoples Chapel.

*Marks.*—Observed station is center of small square cupola on chapel.

*References.*—None necessary.

## NARROWS.

*General locality.*—Western shore of Harris Creek about  $\frac{1}{4}$  mile northeast of east entrance to Knapps Narrows, and  $1\frac{1}{4}$  miles west of Change Point. (See Chart No. 33.)

*Immediate locality.*—Observed station is in cultivated field back of a fringe of trees about 6 feet above high water, 45 yards west-northwest of shore, 15 yards west-northwest of edge of field, 90 yards south-southwest of corner of field, and 145 yards northeast of a point of bank where wire fence meets trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Eagle" (N 37° 30' E).....	0	00	00	..... 1 mile.
Near peak of Morris House with two chimneys	0	41	..	..... 2 $\frac{3}{8}$ miles.
Nail in blaze in wild-cherry tree (6 inches diameter).....	23	33	40	..... 22.07 meters.
Near peak of Wayman house.....	56	08	..	..... 1 $\frac{1}{2}$ miles.
Nail in blaze in mulberry tree (7 inches diameter).....	80	59	10	..... 12.90 meters.
"Choptank River Light".....	88	32	00	..... 8 $\frac{3}{4}$ miles.
Nail in blaze in pine tree (12 inches diameter)	110	15	00	..... 17.83 meters.
Near corner peak of house on Tilghman Island Wharf.....	160	59	..	..... $\frac{3}{4}$ mile.
Left stack of cannery.....	172	51	..	..... 1 mile.
Near peak of hotel with chimney almost in range.....	183	53	..	..... $\frac{7}{8}$ mile.
"Peoples Chapel".....	206	48	40	..... $\frac{5}{8}$ mile.
Near peak of house with one chimney.....	284	38	..	..... $\frac{3}{8}$ mile.
Left peak of house.....	326	02	..	..... $\frac{1}{4}$ mile.

## EAGLE.

*General locality.*—Western shore of Harris Creek on Bald Eagle Point about  $\frac{3}{4}$  mile west of Turkey Neck Point, and 2 miles north-northeast of Tilghman Island Wharf. (See Chart No. 33.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 2 yards west of shore, 45 yards north by west of point of marsh, 150 yards south by east of point of marsh, and 120 yards east of woods. Cement monument marking reference station is 15.41 meters S 88° 35' W of observed station.

*Marks.*—Observed station is a nail in a cedar stub 4 inches diameter projecting 2 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

## Survey of Oyster Bars, Talbot County, Md.

## References.—

	°	'	"	
"Dunk" (N 0° 42' E).....	0	00	00	..... 1 mile.
Near peak of house on Indian Point.....	20	44	..	..... 1 $\frac{3}{8}$ miles.
Square chimney of house with ell.....	46	03	..	..... 1 $\frac{3}{8}$ miles.
Center of chimney of house among trees.....	86	17	..	..... 1 $\frac{1}{4}$ miles.
Large chimney of house.....	112	42	..	..... 1 $\frac{1}{2}$ miles.
Right chimney of house.....	131	57	..	..... 1 $\frac{1}{4}$ miles.
Stack of cannery.....	213	34	..	..... 1 $\frac{1}{2}$ miles.
REFERENCE STATION.....	267	52	50	..... 15.41 meters.
Near peak of house.....	342	51	..	..... $\frac{3}{8}$ mile.

## DUNK.

*General locality.*—Western shore of Harris Creek on Seths Point at northeast side of entrance to Dun Cove, about 3 miles from the Choptank River. (See Chart No. 33.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 6 yards northwest of shore, 23 yards north-northeast of point, 26 yards northeast of shore of Duns Cove, 12 yards west of shore of Harris Creek, 100 yards east of bushes extending north and south, and 250 yards east of woods. Cement monument marking reference station is 11.22 meters N 78° 54' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of marsh. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

## References.—

	°	'	"	
"Hawk" (N 2° 48' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Near peak of house with square chimneys....	1	50	..	..... 1 $\frac{3}{8}$ miles.
Near peak of roof of house with three chimneys	18	22	..	..... 2 miles.
Weathervane on right end of house with two chimneys.....	41	35	..	..... 1 $\frac{3}{4}$ miles.
Near peak of large barn.....	57	14	..	..... 1 mile.
Cupola on Neavitt School.....	129	32	30	..... 1 $\frac{3}{8}$ miles.
Weathervane on middle of house with two chimneys.....	151	00	..	..... 1 $\frac{3}{4}$ miles.
Chimney on left end of house among trees...	155	53	..	..... 2 miles.
Chimney at left of house among trees.....	204	26	..	..... 1 $\frac{1}{2}$ miles.
REFERENCE STATION.....	283	54	20	..... 11.22 meters.
Brick house.....	338	06	..	..... $\frac{1}{2}$ mile.
Left peak of old house.....	352	04	..	..... $\frac{3}{8}$ mile.

## HAWK.

*General locality.*—Western shore of Harris Creek about  $\frac{1}{2}$  mile north of Seths Point and  $\frac{1}{2}$  mile west of Indian Point. (See Chart No. 33.)

*Immediate locality.*—Observed station is in cultivated field about 4 feet above high water and 22 yards northwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Dunk" (S 2° 48' E).....	0	00	00	..... $\frac{1}{2}$ mile.
Nail in blaze in mulberry tree (8 inches diameter).....	21	00	30	..... 13.53 meters.
North chimney of Harrison house.....	47	04	..	..... 400 yards.
Dead pine tree with hawk nest in top.....	141	11	..	..... $\frac{1}{4}$ mile.
Cupola on house.....	168	35	..	..... 1 $\frac{1}{4}$ miles.

References—Continued.	°	'	"	
South chimney of house.....	182	46	..	1 $\frac{1}{8}$ miles.
Chimney of McQuay oyster house.....	227	23	..	1 $\frac{3}{8}$ miles.
South gable of barn.....	252	12	..	1 $\frac{1}{4}$ miles.
North chimney of house.....	275	58	..	1 mile.
Nail in blaze in hackberry tree (10 inches diameter).....	304	34	..	8.62 meters.
Chimney of house.....	312	35	..	1 $\frac{1}{2}$ miles.
North gable of barn.....	330	40	..	2 $\frac{1}{4}$ miles.

## SMITH.

*General locality.*—Eastern shore of Harris Creek on Smith Point between Briary Cove and Waterhole Cove and about  $\frac{3}{4}$  mile west-southwest of Little Neck Point. (See Chart No. 33.)

*Immediate locality.*—Observed station is on marsh point, about 1 foot above high water, and 6 yards west of shore. Cement monument marking reference station is 13.44 meters N 62° 39' W of observed station.

*Marks.*—Observed station is nail in center of 3-inch stub projecting 1 foot above surface of ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

References.—	°	'	"	
"Hawk" (S 12° 31' W).....	0	00	00	.. $\frac{3}{4}$ mile.
Chimney of small house.....	3	01	..	1 $\frac{1}{4}$ miles.
North gable of barn.....	21	32	..	1 mile.
North chimney of house.....	26	39	..	$\frac{1}{2}$ mile.
North edge of Lamdin house.....	73	32	..	$\frac{1}{2}$ mile.
REFERENCE STATION.....	104	49	40	.. 13.44 meters.
South chimney of house.....	140	28	..	$\frac{3}{4}$ mile.
East chimney of house.....	174	38	..	$\frac{3}{4}$ mile.
Chimney of house.....	206	27	..	2 miles.
West gable of McQuay oyster house.....	242	43	..	$\frac{7}{8}$ mile.
Chimney of McQuay house.....	247	39	..	$\frac{7}{8}$ mile.
Chimney of small house.....	270	46	..	$\frac{3}{4}$ mile.
South chimney of Edmonds house.....	288	13	..	$\frac{3}{4}$ mile.
North chimney of house.....	308	16	..	1 mile.

## BRIARY.

*General locality.*—Western shore of Harris Creek, on a point at northeastern side of entrance to Briary Cove, about  $\frac{3}{8}$  mile west of Little Neck Point. (See Chart No. 33.)

*Immediate locality.*—Observed station is on a marsh point about 10 yards from extreme end of point.

*Marks.*—Observed station is center of 3-inch cedar stub projecting 8 inches above surface of ground.

*References.*—

NOTE.—This station was established in 1900 and was not reoccupied or re-marked during oyster survey, although relocated by concluded angles.

## VINE.

*General locality.*—Western shore of Harris Creek about  $\frac{1}{4}$  mile north-northwest of Little Neck Point. (See Charts Nos. 33 and 34.)

*Immediate locality.*—Observed station is in cultivated field about 7 feet above high water, 6 yards northwest of shore, and 3 yards northwest of top of vertical bank. Cement monument marking reference station is 15.86 meters N 67° 54' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

References.—

	°	'	"	
"Smith" (S 58° 54' W).....	0	00	00	..... 7/8 mile.
REFERENCE STATION.....	53	11	50	..... 15.86 meters.
Cupola on barn.....	59	52	..	..... 1 mile.
South gable of barn.....	91	31	..	..... 3/4 mile.
Large pine tree.....	182	09	..	..... 100 yards.
North chimney of house.....	199	50	..	..... 17/8 miles.
West chimney of house.....	210	28	..	..... 13/8 miles.
"Bozman M. E. Church Spire".....	213	43	..	..... 13/8 miles.
Chimney of Bridges kitchen.....	217	27	..	..... 3/4 mile.
West chimney of house.....	250	29	..	..... 1/2 mile.
North chimney of house.....	295	45	..	..... 1/2 mile.
West chimney of Edmonds house.....	309	43	..	..... 3/4 mile.
Lomax windmill.....	326	00	..	..... 3 1/2 miles.

CUMMINGS.

*General locality.*—Western shore of Harris Creek, on point on western side of entrance to Cummings Creek, about 1/2 mile north-northeast of Little Neck Point. (See Charts Nos. 33 and 34.)

*Immediate locality.*—Observed station is in a cultivated field about 10 feet above high water, 70 yards north of extreme end of point, and 50 yards northwest of lone pine tree near shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Dog" (N 49° 51' E).....	0	00	00	..... 3/8 mile.
West gable of barn at Bozman.....	52	24	..	..... 1 1/4 miles.
"Bozman M. E. Church spire".....	56	36	..	..... 1 1/8 miles.
West gable of house.....	60	30	..	..... 1 1/4 miles.
Lone pine tree near shore.....	75	31	..	..... 50 yards.
South chimney of house.....	122	51	..	..... 1 1/2 miles.
West gable of McQuay oysterhouse.....	149	15	..	..... 1/2 mile.
Cupola on barn.....	225	28	..	..... 1 1/4 miles.
Cupola on barn.....	286	52	..	..... 1 1/2 miles.
West chimney of house.....	297	13	..	..... 1 mile.
West chimney of house.....	337	32	..	..... 1 1/4 miles.

DAN.

*General locality.*—Eastern shore of Harris Creek on Little Neck Point about 3/4 mile east-northeast of Smith Point. (See Charts Nos. 33 and 34.)

*Immediate locality.*—Observed station is on narrow neck of oyster shells, about 35 yards east of south-west corner of McQuay's oysterhouse, 60 yards east of the extreme west end of point, 25 yards west of bank at edge of woods, and 3 yards south of shell path to oysterhouse. Cement monument marking reference station is 21.37 meters S 69° 28' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 5 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—

	°	'	"	
"Fox" (N 64° 54' E).....	0	00	00	..... 1/2 mile.
REFERENCE STATION.....	45	37	45	..... 21.37 meters.
Nail in blaze in persimmon tree (4 inches diameter).....	50	32	00	..... 21.84 meters.
Nail in blaze in persimmon tree (6 inches diameter).....	75	34	00	..... 22.99 meters.

References—Continued.

	°	'	''	
North chimney of Edmonds house . . . . .	134	29	..	5/8 mile.
North gable of barn . . . . .	166	20	..	2 miles.
Stack of cannery at Sherwood . . . . .	190	40	..	1 1/4 miles.
Cupola on house . . . . .	210	55	..	1 1/4 miles.
Chimney of small house . . . . .	227	04	..	1 1/4 miles.
East gable of McQuay oysterhouse . . . . .	237	37	..	35 yards.
Church spire at Wittman . . . . .	292	46	..	2 1/2 miles.
Chimney of small house . . . . .	321	41	..	1 1/2 miles.
Chimney of small house . . . . .	355	49	..	1 1/2 miles.

EDMOND.

*General locality.*—Eastern shore of Harris Creek, about 5/8 mile south-southwest of Little Neck Point, and 3/4 mile north-northeast of Indian Point. (See Chart No. 33.)

*Immediate locality.*—Observed station is in southwest corner of yard of a house about 15 feet above high water, 7 yards southeast of top of bank 15 feet high, and nearly on line with south side of house. Cement monument marking reference station is 16.56 meters S 59° 20' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument.

References.—

	°	'	''	
"Dan" (N 21° 25' E) . . . . .	0	00	00	5/8 mile.
Southwest corner of Edmonds house . . . . .	83	52	..	35 yards.
REFERENCE STATION . . . . .	99	06	10	16.56 meters.
North chimney on house . . . . .	149	51	..	3/4 mile.
North chimney of house . . . . .	217	13	..	1 1/4 miles.
Chimney of house . . . . .	245	25	..	1 1/4 miles.
Stack of cannery at Sherwood . . . . .	261	14	..	1 1/4 miles.
Cupola on house . . . . .	281	45	..	1 3/8 miles.
East gable of tin-roof barn . . . . .	316	25	..	1 1/4 miles.
East gable of McQuay's oysterhouse . . . . .	357	49	..	5/8 mile.

WARRIOR.

*General locality.*—Western shore of Harris Creek on Indian Point, about 2 1/2 miles north of Change Point. (See Chart No. 33.)

*Immediate locality.*—Observed station is in cultivated field about 7 feet above high water, 20 yards southeast of shore, 14 yards southeast of top of bank with uniform slope to shore, and 40 yards northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	''	
"Edmond" (N 29° 15' E) . . . . .	0	00	00	5/8 mile.
South gable of barn . . . . .	14	20	..	1/2 mile.
East chimney of house . . . . .	18	11	..	1 mile.
North chimney of house . . . . .	55	57	..	3/8 mile.
South chimney of house . . . . .	99	22	..	1/2 mile.
Chimney of house . . . . .	119	02	..	1 mile.
North gable of barn . . . . .	131	35	..	2 miles.
North chimney of house . . . . .	234	03	..	3/4 mile.
Cupola on house . . . . .	297	12	..	1 3/4 miles.
South chimney of house . . . . .	307	56	..	2 miles.
West gable of tin-roof barn . . . . .	323	41	..	2 1/4 miles.
Chimney on McQuay oysterhouse . . . . .	354	38	..	1 1/8 miles.

## BALL.

*General locality.*—Eastern shore of Harris Creek about  $\frac{3}{4}$  mile south-southeast of Indian Point and 1 mile north of Turkey Neck Point. (See Chart No. 33.)

*Immediate locality.*—Observed station is in cultivated field about 10 feet above high water, 15 yards east of shore, 8 yards from top of bank, and 50 yards north of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Eagle" (S 45° 39' W).....	0	00	00	..... 1 $\frac{1}{4}$ miles.
North chimney of house.....	13	27	..	..... 1 $\frac{1}{8}$ miles.
South chimney of brick house.....	72	08	..	..... 1 $\frac{1}{4}$ miles.
Chimney of house.....	91	35	..	..... 1 $\frac{3}{4}$ miles.
Stack of cannery at Sherwood.....	93	42	..	..... 1 $\frac{3}{4}$ miles.
Cupola on house.....	101	21	..	..... 2 $\frac{1}{2}$ miles.
North gable of barn.....	168	26	..	..... 400 yards.
Northwest corner of Ball house.....	294	38	..	..... 49 yards.
North gable of house.....	310	45	..	..... $\frac{3}{8}$ mile.
Right tangent of Turkey Point.....	322	24	..	..... 1 $\frac{1}{8}$ miles.
Stack of cannery at Tilghman Island.....	353	02	..	..... 3 $\frac{1}{8}$ miles.

## HEN.

*General locality.*—Eastern shore of Harris Creek on Turkey Neck Point about  $\frac{3}{4}$  mile north of Change Point. (See Chart No. 33.)

*Immediate locality.*—Observed station is in a cultivated field about 8 feet above high water, 9 yards southeast of edge of bank, 17 yards east by north of point of bank at line of trees, and 16 yards east-northeast of edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Change" (S 6° 09' E).....	0	00	00	..... $\frac{5}{8}$ mile.
Nail in blaze in cedar tree.....	26	39	10	..... 15.57 meters.
Nail in blaze in cedar tree.....	53	33	50	..... 15.29 meters.
Stack of cannery.....	64	03	..	..... 2 $\frac{1}{4}$ miles.
Lomax windmill.....	87	47	20	..... 1 $\frac{1}{2}$ miles.
Left peak of house with two chimneys.....	129	47	..	..... 1 mile.
Left chimney of brick house.....	157	58	..	..... 1 $\frac{1}{8}$ miles.
Tower of house.....	166	56	..	..... 3 miles.
Near chimney of house.....	193	46	..	..... 1 $\frac{1}{8}$ miles.
Near peak of house.....	245	28	..	..... $\frac{3}{8}$ mile.
Right peak of house.....	308	30	..	..... $\frac{3}{8}$ mile.
Nail in blaze in locust tree.....	350	22	00	..... 22.85 meters.

## CHANGE, 1910.

*General locality.*—Eastern shore of Harris Creek on Change Point about 1 $\frac{1}{2}$  miles east of Knapps Narrows. (See Charts Nos. 33 and 34.)

*Immediate locality.*—Observed station is in cultivated field about 8 feet above high water, 45 yards north-northeast of extreme end of point, 55 yards northwest of edge of bank, 35 yards east of edge of bank, 70 yards southeast by south of corner of wire fence, and 70 yards south-southwest of wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Nelson 3" (S 53° 21' E).....	0	00	00	1¾ miles.
"Windmill".....	5	53	50	9¼ miles.
Near peak of house.....	25	43	..	7 miles.
Chimney of house.....	89	04	..	2½ miles.
Near peak of house.....	117	29	..	2¼ miles.
Near peak of storehouse on Tilghman Island				
Wharf.....	123	16	..	1¾ miles.
Near peak of house.....	131	01	..	2¼ miles.
Near chimney of brick house.....	210	58	..	2¾ miles.
Right chimney of house.....	278	54	..	¼ mile.
Near peak of house.....	307	44	..	¼ mile.

## CHEF.

*General locality.*—Eastern shore of Chesapeake Bay on Cook Point at southern side of entrance to Choptank River about 4 miles east of Sharps Island. (See Charts Nos. 33, 36, and 37.)

*Immediate locality.*—Observed station is in cultivated field about 8 feet above high water, 30 yards inside of fringe of trees parallel with shore, 45 yards southwest of eastern end of fringe of trees, 70 yards east of western end of fringe of trees, and 190 yards northwest by north of gate in fence running east and west.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Sharps Island Light" (N 84° 01' W).....	0	00	00	4½ miles.
Nail in blaze in wild-cherry tree (4 inches diameter).....	18	41	10	31.43 meters.
Nail in blaze in locust tree (5 inches diameter).....	46	09	20	28.53 meters.
Large chimney of house.....	51	57	..	4¾ miles.
Nail in blaze in locust tree (5 inches diameter).....	79	02	50	29.94 meters.
Left peak of house.....	81	21	..	5 miles.
Near peak of barn.....	98	22	..	7½ miles.
Nail in blaze in locust tree (6 inches diameter).....	99	50	30	43.16 meters.
Near chimney on largest building in group.....	127	24	..	6 miles.
Left end of house.....	150	48	30	7¾ miles.
"Choptank River Light".....	158	02	10	5¾ miles.
Lone persimmon tree.....	165	47	..	231 yards.
"Large Water Tank".....	177	43	10	6¾ miles.
Right chimney outside house.....	194	02	..	2¼ miles.
Chimney on right one of two houses.....	222	37	..	¼ mile.
Right peak of barn.....	251	19	..	¼ mile.
Right peak of hotel on Sharps Island.....	341	27	..	4 miles.

## DOG.

*General locality.*—Eastern shore of Cummings Creek about ¾ mile north of Harris Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about on level with high water, and 16 yards west of clump of myrtle bushes. Cement monument marking reference station is 14.43 meters S 65° 30' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

## Survey of Oyster Bars, Talbot County, Md.

References.—	°	'	"	
"Cummings" (S 49° 51' W).....	0	00	00	..... ¾ mile.
East gable of old barn.....	75	03	..	..... ¾ mile.
West chimney of house.....	110	30	..	..... 1¼ miles.
South chimney of house.....	129	00	..	..... ¾ mile.
South chimney of house.....	133	50	..	..... ¾ mile.
Nail in blaze in pine tree (12 inches diameter).....	136	59	30	..... 35.70 meters.
REFERENCE STATION.....	244	38	10	..... 14.43 meters.
West chimney of house.....	325	16	..	..... 1¼ miles.
East chimney of house.....	332	55	..	..... 1¼ miles.
East edge of McQuay's oysterhouse.....	342	26	..	..... ¾ mile.
Chimney of house.....	348	58	..	..... 2¼ miles.

## RABBIT.

*General locality.*—Western shore of Harris Creek on eastern side of entrance to Cummings Creek about ¾ mile northeast of Little Neck Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field, about 8 feet above high water, 6 yards north of shore, 2 yards north of top of bank, and 50 yards east of the extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Koot" (S 52° 52' E).....	0	00	00	..... ¼ mile.
Nail in blaze in pine tree (6 inches diameter).....	20	16	00	..... 3.17 meters.
North gable of barn.....	67	14	..	..... ½ mile.
North chimney of house.....	86	05	..	..... 1 mile.
Stack of cannery at Sherwood.....	118	15	..	..... 2 miles.
Nail in blaze in pine tree (6 inches diameter).....	123	04	30	..... 8.73 meters.
Left edge of barn.....	182	34	..	..... 1¼ miles.
Left gable of old barn.....	281	42	..	..... 400 yards.
Chimney of small house.....	315	28	..	..... 1¼ miles.
Flagstaff on Bozman Hall.....	346	26	..	..... ¾ mile.

## GRACE.

*General locality.*—Northwestern shore of Harris Creek about ¾ mile east of entrance to Cummings Creek, and 1 mile northeast of Little Neck Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, and 5 yards north of the extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Rabbit" (S 82° 20' W).....	0	00	00	..... ¼ mile.
Nail in blaze in locust tree (12 inches diameter).....	85	01	10	..... 4.64 meters.
North chimney of Miller house.....	145	33	..	..... 1 mile.
Chimney of small house.....	165	31	..	..... ¾ mile.
South chimney of house.....	176	05	..	..... ½ mile.
North chimney of house.....	183	08	..	..... ¾ mile.
East chimney of house.....	220	03	..	..... ½ mile.
West chimney of house.....	249	24	..	..... ¾ mile.
North chimney of Bridges house.....	295	26	..	..... ¾ mile.
East gable of McQuay's oysterhouse.....	335	44	..	..... 1 mile.



## MINK.

*General locality.*—Western shore of Harris Creek about  $\frac{1}{2}$  mile northeast of entrance to Cummings Creek and  $\frac{1}{2}$  mile northwest of town of Bozman. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 2 yards northwest of shore, and 40 yards northeast of wire and board fence. Cement monument marking reference station is 8.73 meters N  $53^{\circ} 51'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

	°	'	''	
"Harrison" (N $16^{\circ} 58'$ E).....	0	00	00	..... $\frac{1}{4}$ mile.
South chimney of Harrison house.....	10	03	..	..... 2 miles.
South chimney of Miller house.....	32	35	..	..... $\frac{7}{8}$ mile.
North chimney of house.....	45	04	..	..... $\frac{1}{2}$ mile.
Chimney of house.....	86	35	..	..... $\frac{1}{2}$ mile.
Flagpole on Bozman Hall.....	135	42	..	..... $\frac{1}{2}$ mile.
East chimney of house.....	155	07	..	..... $\frac{3}{4}$ mile.
Chimney of small house.....	182	28	..	..... $\frac{3}{4}$ mile.
North chimney of Bridges house.....	190	39	..	..... 1 mile.
Nail in blaze in locust tree (5 inches diameter).....	240	57	10	..... 12.21 meters.
REFERENCE STATION.....	289	10	20	..... 8.73 meters.
Nail in blaze in mulberry tree (12 inches diameter).....	298	59	30	..... 9.41 meters.

## HARRISON.

*General locality.*—Western shore of upper Harris Creek about  $\frac{3}{4}$  mile north-northwest of town of Bozman. (See Chart No. 34.)

*Immediate locality.*—Observed station is in edge of marsh in northeast corner of old apple orchard about 2 feet above high water, 11 yards northwest of shore, 23 yards west of extreme end of point, and 80 yards south-southeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Clump" (N $32^{\circ} 34'$ E).....	0	00	00	..... $\frac{3}{8}$ mile.
North chimney of Miller house.....	30	14	..	..... $\frac{1}{2}$ mile.
South chimney of house.....	51	15	..	..... $\frac{3}{4}$ mile.
North chimney of house.....	58	30	..	..... $\frac{3}{8}$ mile.
Chimney of house.....	107	57	..	..... $\frac{3}{8}$ mile.
Chimney of small house.....	120	55	..	..... $\frac{7}{8}$ mile.
North gable of barn.....	137	19	..	..... $\frac{3}{4}$ mile.
Nail in blaze in apple tree (8 inches diameter).....	173	47	20	..... 9.24 meters.
Center of old gristmill burr partly embedded in ground and about 4 feet diameter.....	270	32	..	..... 4.87 meters.
Northeast corner of Harrison house.....	301	51	..	..... 80 yards.

## CLUMP.

*General locality.*—Western shore of upper Harris Creek on a point about  $\frac{3}{4}$  mile north of town of Bozman. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 2 feet above high water, 6 yards west of shore, and 15 yards east of fringe of locust trees and vines.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Lawn" (N 0° 56' W).....	0	00	00	¼ mile.
South chimney of Harrison house.....	28	44	..	1¼ miles.
South gable of Harrison barn.....	31	41	..	1¼ miles.
South chimney of small house.....	97	09	..	¼ mile.
South chimney of house.....	108	42	..	1½ miles.
North chimney of house.....	150	09	..	¾ mile.
North chimney of house.....	172	07	..	¼ mile.
"Bozman M. E. Church spire".....	178	12	..	1 mile.
South chimney of Harrison lower house.....	221	48	..	¼ mile.
Nail in blaze in hackberry tree (6 inches diameter).....	280	58	50	17.75 meters.

## MILLER.

*General locality.*—Eastern shore of upper Harris Creek about 1 mile north of town of Bozman. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field about 15 feet above high water, 65 yards east of shore, and half way between a barn and a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Pink" (S 30° 58' W).....	0	00	00	¾ mile.
East gable of barn.....	50	20	..	1¼ miles.
Left corner of Seth bathhouse.....	92	44	..	¾ mile.
South chimney of house.....	106	48	..	1½ miles.
Southwest corner of Miller barn.....	151	31	..	25.28 meters.
West gable of barn.....	245	51	..	¾ mile.
South chimney of Harrison house.....	270	45	..	¼ mile.
Northwest corner of Miller house.....	327	46	..	29.23 meters.
West chimney of house.....	333	51	..	1 mile.

## PINK:

*General locality.*—Eastern shore of upper Harris Creek about ½ mile north of town of Bozman. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 6 yards southwest of shore, 12 yards southeast of extreme end of point, and 200 yards southwest of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Miller" (N 30° 57' E).....	0	00	00	¾ mile.
North chimney of Miller house.....	1	44	..	¾ mile.
Nail in blaze in twin oak tree (18 inches diameter).....	54	42	..	9.63 meters.
North chimney of Bridges house.....	191	10	..	1 mile.
East gable of barn.....	271	02	..	¾ mile.
South chimney of house.....	280	19	..	1 mile.
Cupola on tin-roof barn.....	319	36	..	1¾ miles.
South gable of house.....	335	51	..	2½ miles.
South chimney of Harrison house.....	342	23	..	1¼ miles.

## BOZMAN.

*General locality.*—Eastern shore of Harris Creek, about  $\frac{1}{4}$  mile northwest of town of Bozman and  $\frac{3}{4}$  mile east of entrance to Cummings Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in a cleared space about 8 feet above high water, 25 feet southeast of top of vertical bank 8 feet high, and 16 yards north of pine woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Koot" (S 71° 40' W) . . . . .	0	00	00	..... $\frac{1}{2}$ mile.
South chimney of house . . . . .	74	22	..	..... 1 mile.
South chimney of house . . . . .	77	10	..	..... $1\frac{3}{8}$ miles.
North chimney of Harrison house . . . . .	93	19	..	..... $\frac{1}{2}$ mile.
Cupola on tin-roof barn . . . . .	106	41	..	..... 2 miles.
Chimney of house . . . . .	145	31	..	..... $\frac{1}{4}$ mile.
South chimney of house . . . . .	176	17	..	..... $\frac{1}{4}$ mile.
Nail in blaze in locust tree (4 inches diameter) . . . . .	225	41	30	..... 24.93 meters.
Nail in blaze in pine tree (12 inches diameter) . . . . .	238	40	10	..... 22.47 meters.
North chimney of Bridges house . . . . .	347	31	..	..... 1 mile.

## BOZMAN M. E. CHURCH SPIRE.

*General locality.*—Southeastern shore of Harris Creek in the town of Bozman, on the northwest side of county road leading to Neavitt. (See Chart No. 34.)

*Immediate locality.*—Observed station is on edifice known as Bozman M. E. Church.

*Marks.*—Observed station is center of spire on Bozman M. E. Church.

*References.*—None necessary.

## KOOT.

*General locality.*—Southeastern shore of Harris Creek on a point of land between two coves, about  $\frac{3}{8}$  mile southeast of entrance to Cummings Creek, and  $\frac{1}{2}$  mile west of town of Bozman. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field about 6 feet above high water, 10 yards south of shore, 6 yards south of edge of bank 6 feet high, and 200 yards north of a graveyard.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Fox" (S 71° 28' W) . . . . .	0	00	00	..... $\frac{1}{4}$ mile.
Nail in blaze in oak tree (6 inches diameter) . . . . .	34	03	..	..... 7.86 meters.
North chimney of house . . . . .	68	34	..	..... $1\frac{1}{4}$ miles.
South gable of old barn . . . . .	86	28	..	..... $\frac{1}{4}$ mile.
South chimney of Miller house . . . . .	150	42	..	..... $1\frac{1}{8}$ miles.
Chimney of small house . . . . .	161	30	..	..... $\frac{3}{4}$ mile.
West chimney of house . . . . .	178	14	..	..... 1 mile.
Chimney of small house . . . . .	193	32	..	..... 1 mile.
Flagstaff on Bozman Hall . . . . .	214	42	..	..... $\frac{1}{2}$ mile.
Lone cherry tree in Bridges graveyard . . . . .	282	30	..	..... 200 yards.
North chimney of Bridges house . . . . .	307	06	..	..... 300 yards.
Nail in blaze in locust tree (6 inches diameter) . . . . .	347	25	50	..... 15.29 meters.

## FOX.

*General locality.*—Southeastern shore of Harris Creek on a point of land between two coves about  $\frac{1}{4}$  mile south of entrance to Cummings Creek, and  $\frac{1}{2}$  mile northeast of Little Neck Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, and 26 yards south of the extreme north end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Koot" (N 71° 28' E) . . . . .	0	00	00	..... $\frac{3}{8}$ mile.
North chimney of Bridges kitchen . . . . .	26	46	..	..... $\frac{1}{4}$ mile.
North chimney of house . . . . .	150	04	..	..... $\frac{3}{4}$ mile.
East gable of McQuay oyster house . . . . .	175	43	..	..... $\frac{1}{2}$ mile.
Smoke stack at Sherwood . . . . .	181	13	..	..... 2 $\frac{1}{4}$ miles.
East gable of barn . . . . .	217	41	..	..... 1 mile.
North chimney of house . . . . .	234	01	..	..... 1 $\frac{1}{4}$ miles.
South chimney of house . . . . .	265	55	..	..... 1 mile.
South chimney of house . . . . .	289	43	..	..... 1 $\frac{3}{8}$ miles.
North chimney of old house . . . . .	321	09	..	..... 1 $\frac{3}{8}$ miles.
Chimney of small house . . . . .	347	12	..	..... 1 $\frac{1}{4}$ miles.
North chimney of house . . . . .	358	58	..	..... 1 mile.

## NELSON 3.

*General locality.*—Northern shore of Choptank River on Nelson Island, between the entrances to Harris and Broad Creeks. (See Chart No. 34.)

*Immediate locality.*—Observed station is on southwest point of island on marsh about 2 feet above high water, 28 yards north-northeast of extreme end of point, 45 yards northwest of edge of marsh, and 14 yards east of marsh. Cement monument marking reference station is 32.27 meters N 32° 05' E of observed station.

*Marks.*—Observed station is center of nail in 3-inch square stub in tile pipe flush with ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

	°	'	"	
"Choptank River Light" (S 56° 09' E) . . . . .	0	00	00	..... 5 $\frac{1}{2}$ miles.
"Large Water Tank" . . . . .	10	09	50	..... 7 $\frac{1}{2}$ miles.
Right chimney of house . . . . .	31	48	..	..... 7 miles.
Near chimney outside of house . . . . .	45	44	..	..... 5 $\frac{3}{4}$ miles.
Near peak of barn on Cook Point . . . . .	67	40	..	..... 5 $\frac{1}{4}$ miles.
Left peak of hotel on Sharps Island . . . . .	98	03	..	..... 7 $\frac{3}{8}$ miles.
"Sharps Island Light" . . . . .	109	04	20	..... 7 $\frac{1}{8}$ miles.
Chimney of house . . . . .	137	36	..	..... 4 miles.
Stack of cannery at Tilghman Island . . . . .	153	43	..	..... 3 $\frac{1}{2}$ miles.
Windmill at Tilghman Island . . . . .	155	12	..	..... 3 $\frac{1}{2}$ miles.
Chimney of house on Change Point . . . . .	185	37	..	..... 1 $\frac{3}{4}$ miles.
Left peak of house . . . . .	197	50	..	..... 1 $\frac{1}{2}$ miles.
Chimney of house . . . . .	254	10	..	..... 2 $\frac{5}{8}$ miles.
"St. Michaels Church Spire" . . . . .	259	55	10	..... 6 $\frac{1}{4}$ miles.
REFERENCE STATION . . . . .	268	13	20	..... 32.27 meters.
Left peak of building . . . . .	293	43	..	..... 2 $\frac{1}{8}$ miles.
Near peak of house with three chimneys . . . . .	335	18	..	..... 3 miles.

ANNETTE.

*General locality.*—Western shore of Broad Creek about  $\frac{3}{4}$  mile north of Nelson Point, and on south side of entrance to Balls Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, and 4 yards west of shore. Cement monument marking reference station is 9.39 meters N  $75^{\circ} 59'$  W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 3 inches above surface of ground.

*References.*—

	°	'	''	
"Myrtle" (N $15^{\circ} 29'$ E).....	0	00	00	..... $\frac{5}{8}$ mile.
South chimney of house.....	18	39	..	..... $3\frac{5}{8}$ miles.
South chimney of house.....	29	53	..	..... $3\frac{3}{4}$ miles.
South gable of barn.....	35	01	..	..... $3\frac{1}{4}$ miles.
Chimney of house.....	36	35	..	..... $3\frac{1}{2}$ miles.
South gable of barn.....	72	54	..	..... 2 miles.
West chimney of house.....	102	19	..	..... $3\frac{3}{8}$ miles.
"Choptank River Light".....	116	34	40	..... $6\frac{1}{4}$ miles.
Water tank at Castle Haven.....	123	54	..	..... $8\frac{1}{4}$ miles.
North gable of barn on Todd Point.....	148	31	..	..... $6\frac{1}{2}$ miles.
Nail in blaze in cedar tree (10 inches diameter).....	187	26	00	..... 11.37 meters.
Nail in blaze in cedar tree (10 inches diameter).....	235	06	30	..... 16.81 meters.
REFERENCE STATION.....	268	29	40	..... 9.39 meters.

MYRTLE.

*General locality.*—Western shore of Broad Creek about  $1\frac{1}{4}$  miles north of Nelson Point and  $\frac{1}{4}$  mile north of Balls Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water and 4 yards northwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Annette" (S $15^{\circ} 29'$ W).....	0	00	00	..... $\frac{5}{8}$ mile.
East gable of house.....	18	33	..	..... $\frac{5}{8}$ mile.
Nail in blaze in pine tree (4 inches diameter).....	99	49	00	..... 11.51 meters.
Nail in blaze in locust tree (4 inches diameter).....	169	57	..	..... 5.09 meters.
South chimney of house.....	215	04	..	..... $3\frac{3}{4}$ miles.
Chimney of house.....	225	21	..	..... $3\frac{3}{8}$ miles.
Chimney of house.....	241	26	..	..... 2 miles.
West gable on barn.....	255	40	..	..... $2\frac{1}{8}$ miles.
North chimney of house.....	268	45	..	..... $2\frac{1}{2}$ miles.
Largest tree on Royston Island.....	300	41	..	..... $2\frac{1}{8}$ miles.
Water tank at Castle Haven.....	307	09	..	..... $8\frac{1}{2}$ miles.

COAL.

*General locality.*—Western shore of Broad Creek about 2 miles north of Nelson Point and 1 mile west of Deep Neck Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field about 4 feet above high water, 12 yards northwest of shore, 4 yards north of small lone cedar tree, and 200 yards north of pine woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Myrtle" (S 44° 23' W).....	0	00	00	..... 3/8 mile.
South gable of Bridges barn.....	136	22	..	..... 1/4 mile.
South chimney of Bridges house.....	152	03	..	..... 1/4 mile.
North chimney of house.....	167	18	..	..... 1 1/2 miles.
South chimney of house.....	170	31	..	..... 2 1/4 miles.
Chimney of small house.....	203	48	..	..... 2 3/8 miles.
Chimney of small house.....	209	52	..	..... 2 3/8 miles.
Chimney of small house.....	272	47	..	..... 1 1/2 miles.
Largest tree on Royston Island.....	288	22	..	..... 3 miles.
Left tangent of Nelson Island.....	331	41	..	..... 2 3/8 miles.

## TOBE.

*General locality.*—Western shore of Broad Creek on point at southern side of entrance to Leadenham Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in edge of cultivated field about 2 feet above high water, 19 yards south of shore, and back of a fringe of myrtle bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Ross" (S 68° 15' E).....	0	00	00	..... 1 3/8 miles.
North edge of house.....	6	29	..	..... 1 1/4 miles.
South chimney of Bridges house.....	43	44	..	..... 1/4 mile.
North gable of Bridges barn.....	52	02	..	..... 3/8 mile.
East chimney of house.....	179	12	..	..... 1/2 mile.
South chimney of old deserted house.....	264	38	..	..... 3/4 mile.
Cupola on "Beverly" house.....	297	12	..	..... 2 1/2 miles.
North chimney of house.....	342	28	..	..... 3 miles.

## WIRE.

*General locality.*—Southern shore of Leadenham Creek about 1 mile southwest of Mulberry Point, and 1/4 mile southwest of Broad Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field about 5 feet above high water, 4 yards southeast of shore at top of a vertical bank 5 feet high, and 125 yards west of board fence and row of cedar trees. Cement monument marking reference station is 18.90 meters S 23° 36' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

## References.—

	°	'	''	
"Tobe" (N 64° 26' E).....	0	00	00	..... 1/4 mile.
South chimney of Bridges house.....	55	31	..	..... 3/8 mile.
REFERENCE STATION.....	91	58	00	..... 18.90 meters.
North gable of barn.....	160	41	..	..... 1/2 mile.
Chimney of house.....	238	19	..	..... 3/4 mile.
North chimney of Fairbank house.....	249	09	..	..... 3/8 mile.
South chimney of house.....	256	04	..	..... 1 mile.
South chimney of house.....	320	50	..	..... 1 mile.
Chimney of small cabin.....	343	22	..	..... 3/8 mile.

## BLANCO.

*General locality.*—Southern shore of Leadenham Creek about  $\frac{3}{8}$  mile west of Broad Creek entrance to creek and  $\frac{3}{4}$  mile southwest of entrance to Grace Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in a cultivated field about 9 feet above high water and 13 yards south of edge of vertical bank at shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Fairbanks" (N 30° 58' E).....	0	00	00	..... $\frac{3}{8}$ mile.
West chimney of house.....	28	00	..	..... $1\frac{1}{4}$ miles.
West gable of house.....	37	03	..	..... 3 miles.
North gable of barn.....	136	49	..	..... $\frac{1}{4}$ mile.
South chimney of house.....	308	51	..	..... $\frac{1}{2}$ mile.
East chimney of house.....	322	07	..	..... $\frac{3}{4}$ mile.
Chimney of house.....	328	19	..	..... $\frac{3}{4}$ mile.
West chimney of house.....	356	26	..	..... $\frac{3}{8}$ mile.

## NED.

*General locality.*—Southern shore of Leadenham Creek about  $1\frac{1}{8}$  miles west of Broad Creek entrance to creek and opposite entrance to Caulk Cove. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 5 yards east of shore, 19 yards south of the extreme end of marsh point, and north of a heavy pine woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Caulk" (N 53° 48' E).....	0	00	00	..... $\frac{1}{4}$ mile.
West chimney of house.....	15	23	..	..... $\frac{3}{8}$ mile.
Nail in blaze in pine tree (12 inches diameter). 123	06	50	.....	10.47 meters.
Nail in blaze in pine tree (12 inches diameter). 177	59	10	.....	7.52 meters.
East chimney of house.....	226	43	..	..... $\frac{3}{8}$ mile.
Chimney of small house.....	262	10	..	..... $\frac{1}{2}$ mile.
East chimney of house.....	286	20	..	..... $\frac{3}{4}$ mile.

## CAULK.

*General locality.*—Northern shore of Leadenham Creek about  $\frac{3}{4}$  mile west of Broad Creek entrance to creek and  $\frac{1}{4}$  mile east-southeast of entrance to Caulk Cove. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh on a wooded shore about 1 foot above high water and 3 yards north of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Fairbanks" (N 84° 28' E).....	0	00	00	..... $\frac{3}{8}$ mile.
North gable of Bridges barn.....	28	28	..	..... 1 mile.
West chimney of house.....	125	30	..	..... $1\frac{1}{8}$ miles.
East chimney of house.....	172	52	..	..... $\frac{3}{8}$ mile.
Nail in blaze in pine tree (5 inches diameter). 216	17	00	.....	9.74 meters.
Nail in blaze in pine tree (6 inches diameter). 339	45	20	.....	24.77 meters.
West chimney of house.....	356	03	..	..... $\frac{3}{8}$ mile.

## FAIRBANKS.

*General locality.*—Northern shore of Leadenham Creek about  $\frac{1}{2}$  mile west of Broad Creek entrance to creek and on first point southwest of entrance to Grace Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 75 yards south of a house and 13 yards north of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is cement of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Pine" (N 50° 00' E).....	0	00	00	..... $\frac{3}{8}$ mile.
South corner of small house.....	33	48	..	..... 3 miles.
West gable of Bridges barn.....	80	22	..	..... $\frac{3}{4}$ mile.
West chimney of house.....	138	27	..	..... $\frac{1}{2}$ mile.
South gable of corn crib.....	257	04	..	..... 100 yards.
East chimney of house.....	300	34	..	..... 75 yards.
South gable of barn.....	317	19	..	..... 300 yards.

## PINE.

*General locality.*—Northern shore of Leadenham Creek on point between entrances to Leadenham Creek and Grace Creek, and about  $\frac{1}{2}$  mile west of Broad Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on wooded shore about 5 feet above high water, 5 yards west of shore, 60 yards north of the extreme end of point, and at intersection of two lanes cut through woods. Cement monument marking reference station is 9.52 meters N 67° 25' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Fairbanks" (S 50° 00' W).....	0	00	00	..... $\frac{3}{8}$ mile.
REFERENCE STATION.....	52	35	00	..... 9.52 meters.
"Cabin" (staff on west end of cabin).....	161	49	00	..... $\frac{5}{8}$ mile.
West chimney of house.....	207	11	..	..... $\frac{5}{8}$ mile.
North chimney of house.....	219	50	..	..... 2 $\frac{3}{8}$ miles.
South gable of small house.....	235	06	..	..... 3 $\frac{3}{4}$ miles.
South gable of house.....	274	20	..	..... 2 $\frac{1}{2}$ miles.
South chimney of Bridges house.....	284	24	..	..... $\frac{3}{4}$ mile.
North gable of Bridges barn.....	290	34	..	..... $\frac{3}{4}$ mile.
East chimney of house.....	336	13	..	..... $\frac{3}{4}$ mile.

## LUNA.

*General locality.*—Western shore of Grace Creek on a prominent point about  $\frac{1}{2}$  mile northwest of Broad Creek entrance to creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 5 feet above high water, 5 yards north of shore, 11 yards west of the extreme end of point, and 3 yards east of a dense growth of small pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Cabin" (N 80° 51' E).....	0	00	00	..... $\frac{1}{4}$ mile.
North chimney of house.....	19	07	..	..... $\frac{3}{8}$ mile.
South gable of barn.....	37	30	..	..... $\frac{3}{8}$ mile.
North gable of Bridges barn.....	92	10	..	..... 1 mile.
Nail in blaze in pine tree (5 inches diameter). .	188	48	10	..... 3.29 meters.
Nail in blaze in pine tree (5 inches diameter). .	256	00	00	..... 2.61 meters.
West chimney of house.....	287	57	..	..... $\frac{1}{4}$ mile.



## CABIN.

*General locality.*—Eastern shore of Grace Creek about  $\frac{1}{2}$  mile north of Broad Creek entrance to creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on west gable of deserted cabin about 10 feet above high water, and 17 yards east of shore.

*Marks.*—Observed station is a twenty-penny wire nail driven 2 feet below the peak of west gable of a deserted cabin, and surmounted by a staff erected over nail.

*References.*—None necessary.

## SKINNER.

*General locality.*—Western shore of Broad Creek at eastern side of entrance to Grace Creek, about  $\frac{3}{4}$  mile west of Mulberry Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 3 yards north-east of shore, 42 yards east of the extreme end of point, and 40 yards southwest of a small clump of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	"	
"Ross" (S 45° 32' E).....	0	00	00	1 $\frac{1}{4}$ miles.
South chimney of house.....	5	48	..	2 $\frac{1}{4}$ miles.
North gable of house.....	21	10	..	2 $\frac{1}{4}$ miles.
West chimney of Bridges house.....	45	46	..	$\frac{3}{4}$ mile.
North gable of Bridges barn.....	51	32	..	$\frac{3}{4}$ mile.
East chimney of house.....	108	33	..	$\frac{3}{8}$ mile.
North chimney of house.....	163	55	..	$\frac{1}{2}$ mile.
South chimney of house.....	212	06	..	$\frac{3}{4}$ mile.
Chimney of cabin.....	228	36	..	$\frac{1}{2}$ mile.
South gable of barn.....	272	26	..	$\frac{1}{4}$ mile.
West chimney of house.....	318	07	..	2 miles

## BALD.

*General locality.*—Western shore of Broad Creek on Mulberry Point on northern side of entrance to Leadendam Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 2 yards north of shore, 50 yards west of extreme east end of point, and 40 yards southeast of a rail fence. Cement monument marking reference station is 16.84 meters N 40° 26' W of observed station. Cedar stub marking old triangulation station "Mulberry" is 22.46 meters N 52° 57' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Old triangulation station "Mulberry" is nail in 2-inch cedar stub projecting 2 inches above surface of ground.

*References.*—

	o	/	"	
"Tobe" (S 57° 09' W).....	0	00	00	$\frac{7}{8}$ mile.
East gable of house.....	19	19	..	1 $\frac{1}{4}$ miles.
East chimney of house.....	47	05	..	$\frac{1}{4}$ mile.
REFERENCE STATION.....	118	25	00	16.84 meters.
South chimney of Willey house.....	158	43	..	1 $\frac{1}{2}$ miles.
Cupola on "Beverly" house.....	166	28	..	1 $\frac{1}{4}$ miles.
OLD TRIANGULATION STATION MULBERRY.....	175	48	40	22.46 meters.
Right tangent of north end of Willey Island..	215	38	..	$\frac{3}{4}$ mile.
Right tangent of marsh at Deep Neck Point..	286	05	..	1 $\frac{1}{8}$ miles.
North gable of Bridges barn.....	344	46	..	1 mile.

## ROSE.

*General locality.*—Western shore of upper Broad Creek on a very prominent point about  $\frac{3}{8}$  mile north-northeast of Mulberry Point and  $\frac{5}{8}$  mile west-northwest of the south end of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 2 feet above high water, 4 yards west of end of point, and 20 yards east of point of pine woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Gram" (N 5° 29' W).....	0	00	00	..... $\frac{1}{2}$ mile.
South chimney of house.....	4	32	..	..... $1\frac{1}{4}$ miles.
South chimney of Willis house.....	42	53	..	..... $\frac{3}{4}$ mile.
Cupola on "Beverly" house.....	53	03	..	..... 1 mile.
West chimney of "Beverly" tenant house....	66	59	..	..... $1\frac{1}{2}$ miles.
West gable of house.....	111	08	..	..... $1\frac{3}{8}$ miles.
North chimney of house.....	136	32	..	..... $2\frac{1}{2}$ miles.
Right tangent of woods on Deep Neck Point..	179	32	..	..... $1\frac{1}{8}$ miles.
Left tangent of Nelson Island.....	208	24	..	..... $3\frac{3}{4}$ miles.
West gable on Bridges barn.....	225	04	..	..... $1\frac{3}{8}$ miles.
South chimney of house.....	232	29	..	..... $\frac{3}{8}$ mile.
North chimney of house.....	259	06	..	..... $\frac{3}{8}$ mile.
Cupola on barn.....	359	21	..	..... $1\frac{1}{4}$ miles.

## GRAM.

*General locality.*—Western shore of upper Broad Creek about  $\frac{3}{4}$  mile north of Mulberry Point and about  $\frac{1}{2}$  mile west of upper end of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 2 feet above high water, 10 yards west of extreme east end of point, and about  $\frac{1}{4}$  mile northeast of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Royal" (N 8° 49' E).....	0	00	00	..... $\frac{3}{8}$ mile.
North chimney of house.....	12	31	..	..... $\frac{5}{8}$ mile.
North chimney of Price house.....	41	36	..	..... $\frac{3}{4}$ mile.
South chimney of Willey house.....	63	08	..	..... $\frac{1}{2}$ mile.
Cupola on "Beverly" house.....	66	45	..	..... $\frac{3}{4}$ mile.
West chimney of house.....	96	11	..	..... $1\frac{1}{8}$ miles.
Right tangent of woods on Deep Neck Point..	165	22	..	..... $1\frac{5}{8}$ miles.
North chimney of house.....	231	02	..	..... $\frac{1}{4}$ mile.
South gable of Miller barn.....	313	28	..	..... 2 miles.
South chimney of Harrison house.....	316	54	..	..... $1\frac{7}{8}$ miles.
Cupola on barn.....	344	46	..	..... $\frac{3}{4}$ mile.
South chimney of house.....	353	26	..	..... $\frac{3}{4}$ mile.

## BENGAL.

*General locality.*—Western shore of upper Broad Creek about  $\frac{3}{4}$  mile west of north end of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on narrow marsh point about 1 foot above high water, 4 yards south of shore, 55 yards west of extreme end of point, and north of a fringe of pine and cedar trees along bank. Cement monument marking reference station is 8.81 meters S 52° 34' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

<i>References.</i> —	°	'	"	
"Gram" (S 51° 52' E).....	0	00	00	..... ½ mile.
Nail in blaze in pine tree (18 inches diameter) 96	33	50	.....	11.68 meters.
REFERENCE STATION.....	104	26	10	..... 8.81 meters.
Nail in blaze in cedar stump 1 foot high (10 inches diameter).....	109	01	00	..... 9.43 meters.
East chimney of Jump house.....	169	00	..	..... ½ mile.
Belfry on Harrison outhouse.....	201	55	..	..... 1 ½ miles.
South chimney of Harper house.....	216	54	..	..... ¾ mile.
Cupola on barn.....	251	54	..	..... ½ mile.
South chimney of house.....	266	18	..	..... ¾ mile.
"St. Michaels Water Tank".....	268	51	..	..... 2 miles.
North chimney of house.....	293	15	..	..... ⅝ mile.
Cupola on "Beverly" house.....	326	00	..	..... 1 ¼ miles.
North chimney of house.....	343	15	..	..... 1 ½ miles.

## EASTMAN.

*General locality.*—Western shore of upper Broad Creek about 1 ¼ miles west-northwest of north end of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 2 feet above high water, 12 yards south of extreme end of point, 3 yards northeast of clump of myrtle bushes, and 200 yards east of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Woodill" (N 23° 46' W).....	0	00	00	..... ¾ mile.
Belfry on Harrison outhouse.....	4	06	..	..... 1 mile.
South gable of barn.....	12	36	..	..... 2 miles.
South chimney of Willis house.....	18	31	..	..... 1 ¼ miles.
Chimney of Burke house.....	22	59	..	..... ¾ mile.
North chimney of Harper house.....	38	29	..	..... ½ mile.
North chimney of house.....	82	43	..	..... 1 mile.
North chimney of house.....	124	09	..	..... 1 ½ miles.
Chimney of Sutton house.....	297	13	..	..... 200 yards.
East chimney of Jump house.....	327	23	..	..... ½ mile.

## WOODILL.

*General locality.*—Western shore of upper Broad Creek about ¾ mile east of Bozman and 1 ½ miles northwest of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on wooded shore about 6 feet above high water, 8 yards southwest of shore, and 5 yards north of a pile of oyster shells.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Mars" (S 77° 03' E).....	0	00	00	..... ¾ mile.
South chimney of house.....	8	38	..	..... 2 ½ miles.
Nail in blaze in pine tree (12 inches diameter) 104	16	20	.....	23.70 meters.
Nail in blaze in pine tree (12 inches diameter) 166	31	20	.....	16.21 meters.
Belfry on Harrison outhouse.....	238	54	..	..... ⅞ mile.
South chimney of house.....	251	54	..	..... 2 miles.

## References—Continued.

	°	'	"	
South chimney of Willis house.....	258	51	..	¾ mile.
Chimney of Burke house.....	272	07	..	½ mile.
North chimney of Harper house.....	305	59	..	¾ mile.
Cupola on barn.....	327	48	..	¾ mile.
North chimney of house.....	350	00	..	1 mile.

## DELTA.

*General locality.*—Western shore of upper Broad Creek about ¾ mile northeast of Bozman, and 1¾ miles northwest of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 10 yards west of shore, and about 100 yards east of an orchard.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Willis" (N 13° 54' E).....	0	00	00	.. ½ mile.
North chimney of Harper house.....	92	01	..	½ mile.
Cupola on "Beverly" house.....	103	01	..	2½ miles.
North chimney of house.....	109	34	..	2¼ miles.
North chimney of Jump house.....	209	09	..	¼ mile.
South gable of barn.....	341	14	..	1 mile.

## MARION.

*General locality.*—Western shore of upper Broad Creek about 2½ miles northwest of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on east side of a tenant house in a cultivated field about 8 feet above high water, 12 yards south of shore, and 12 yards northwest of old open well.

*Marks.*—Observed station is center of hole drilled in east face of center one of three posts supporting east front of a tenant house, and surmounted by spindle erected over hole.

*References.*—None necessary.

## WILLIS.

*General locality.*—Eastern shore of upper Broad Creek, on a point at northern side of entrance to a small creek about 2½ miles west of St. Michaels. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point at west edge of yard of a house about 1 foot above high water, 8 yards east of shore, 5 yards west of top of slope, about 4 feet higher than station, and 65 yards southwest of the southwest corner of a house.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe.

## References.—

	°	'	"	
"Neptune" (S 15° 36' E).....	0	00	00	.. ¾ mile.
North chimney of house.....	37	51	..	½ mile.
North gable of house.....	41	18	..	½ mile.
"Marion" (staff on east side of house).....	70	53	10	.. ¼ mile.
Chimney on Harrison tenant house.....	70	55	..	¼ mile.
South chimney of Harrison house.....	113	36	..	¼ mile.
South chimney of Miller house.....	125	01	..	¾ mile.
South chimney of Harrison house.....	165	07	..	1¼ miles.
Nail in blaze in cedar tree (15 inches diameter).....	174	34	50	.. 16.59 meters.
South chimney of house.....	182	18	..	½ mile.
Southwest corner of Willis house.....	246	43	..	63 yards.
Nail in blaze in cedar tree (5 inches diameter).....	302	55	50	.. 11.81 meters.
Chimney of house.....	356	35	..	¾ mile.

## NEPTUNE.

*General locality.*—Eastern shore of upper Broad Creek about 2 miles north of Mulberry Point and 2 miles west of St. Michaels. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated garden about 7 feet above high water, 10 yards north of shore, 20 yards east of the extreme end of point, 2 yards north of top of bank with uniform slope to shore, and 40 yards west of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Venus" (S 17° 02' E) . . . . .	0	00	00	1/8 mile.
North chimney of house . . . . .	72	41		1/2 mile.
Nail in blaze in locust tree (5 inches diameter) . . . . .	101	55	00	8.67 meters.
Chimney of Harrison tenant house . . . . .	141	01		3/8 mile.
Belfry on Harrison outhouse . . . . .	153	54		3/8 mile.
South gable of house . . . . .	171	23		1 1/4 miles.
West chimney of Willis house . . . . .	186	57		3/8 mile.
North chimney of house . . . . .	222	44		2 miles.
Chimney of Burke house . . . . .	287	38		40 yards.

## VENUS.

*General locality.*—Eastern shore of upper Broad Creek about 1/2 mile north of entrance to Edgar Cove. (See Chart No. 34.)

*Immediate locality.*—Observed station is on wooded point about 6 feet above high water and 3 yards northeast of edge of a vertical bank 6 feet high. Cement monument marking reference station is 13.28 meters S 79° 28' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	''	
"Delta" (N 83° 41' W) . . . . .	0	00	00	1/4 mile.
South chimney of Miller house . . . . .	38	50		1 mile.
Belfry on Harrison outhouse . . . . .	45	34		3/4 mile.
South gable of barn . . . . .	55	58		1 1/4 miles.
Chimney of Burke house . . . . .	77	11		1/8 mile.
Nail in blaze of twin oak tree (24 inches diameter) . . . . .	136	06	10	14.17 meters.
REFERENCE STATION . . . . .	184	13	25	13.28 meters.
Nail in blaze of oak tree (5 inches diameter) . . . . .	195	36	50	3.48 meters.
West gable of Sutton barn . . . . .	289	11		3/4 mile.
South chimney of house . . . . .	336	36		1/2 mile.

## MARS.

*General locality.*—Eastern shore of upper Broad Creek about 1 mile northwest of north end of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 2 feet above high water and 7 yards east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## Survey of Oyster Bars, Talbot County, Md.

## References.—

	°	'	"	
"Royal" (S 69° 17' E).....	0	00	00	½ mile.
North chimney of house.....	3	51	..	1 mile.
North gable of cornerib.....	105	52	..	½ mile.
West chimney of Sutton house.....	136	00	..	½ mile.
Right corner of Eastman bungalow.....	147	10	..	¾ mile.
South chimney of house.....	183	24	..	¾ mile.
Chimney of Harrison tenant house.....	210	33	..	1 mile.
South chimney of house.....	232	05	..	¾ mile.
North chimney of house.....	333	35	..	½ mile.

## ROYAL.

*General locality.*—Eastern shore of upper Broad Creek about ½ mile northwest of north end of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 5 yards northeast of shore, 45 yards south of a lone leaning cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Mars" (N 69° 16' W).....	0	00	00	½ mile.
North chimney of house.....	1	57	..	1¼ miles.
Nail in blaze in red oak tree (3 feet diameter).....	92	31	00	76.08 meters.
West chimney of house.....	113	59	..	¼ mile.
South chimney of "Beverly" house.....	178	12	..	1 mile.
Right tangent of woods on Deep Neck Point.....	247	53	..	2 miles.
North chimney of house.....	273	53	..	¾ mile.
North chimney of Sutton house.....	338	34	..	1 mile.
West chimney of Jump house.....	348	18	..	1 mile.

## GRAVE.

*General locality.*—Eastern shore of upper Broad Creek on point of mainland between Broad Creek and Back Creek about ¼ mile west of north end of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 2 feet above high water, 11 yards northeast of shore, and about ¼ mile southwest of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Ray" (S 26° 29' E).....	0	00	00	½ mile.
Right tangent of woods Deep Neck Point.....	31	14	..	1¾ miles.
North chimney of house.....	83	25	..	¾ mile.
South gable of barn.....	123	29	..	1¼ miles.
North chimney of Jump house.....	132	30	..	1¾ miles.
South chimney of house.....	172	29	..	¾ mile.
South chimney of Price house.....	249	57	..	¼ mile.
Cupola on "Beverly" house.....	300	07	..	¾ mile.
North chimney of Willey house.....	309	23	..	¼ mile.

## RAY.

*General locality.*—Eastern shore of Broad Creek on western side of Hambleton Island about ½ mile north of the south end of island, and ¾ mile northeast of Mulberry Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 4 yards east of shore, and 13 yards west of fringe of small trees at top of bank near edge of cultivated field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of marsh. Subsurface mark is center of a 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Willey" (S 7° 15' E).....	0	00	00	3/8 mile.
Right tangent of woods Deep Neck Point....	23	27	..	1 3/8 miles.
West gable of Bridges barn.....	55	34	..	2 miles.
East chimney of house.....	73	30	..	1 mile.
North chimney of house.....	109	33	..	3/4 mile.
North chimney of house.....	126	25	..	1 3/4 miles.
South chimney of house.....	159	58	..	1 1/4 miles.
Nail in blaze in cedar tree (6 inches diameter). 245	59	10	..	11.08 meters.
Nail in blaze in wild cherry tree (7 inches diameter).....	303	17	50	20.52 meters.

## WILLEY.

*General locality.*—Eastern shore of Broad Creek on southern end of Hambleton Island about 5/8 mile north of Cedar Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field about 15 feet above high water, and 50 yards north of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Bald", (S 87° 48' W).....	0	00	00	3/4 mile.
North chimney of house.....	39	42	..	1 mile.
Chimney of house.....	57	22	..	2 miles.
South chimney of house.....	75	32	..	1 1/8 miles.
Chimney of "Beverly" tenant house.....	117	34	..	3/8 mile.
Cupola on outhouse.....	189	21	..	3/4 mile.
Chimney of house.....	194	37	..	1 1/2 miles.
West chimney of house.....	208	32	..	1 1/2 miles.
North gable of barn.....	230	19	..	2 1/2 miles.
Left tangent of Nelson Island.....	304	30	..	3 3/8 miles.
East chimney of house.....	353	02	..	1 7/8 miles.

## JUDGE.

*General locality.*—Western shore of Back Creek on a prominent point on eastern side of Hambleton Island about 1/2 mile north of Edge Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 2 feet above high water, 7 yards west of the extreme end of point, and 8 yards east of a cut inshore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Willey" (S 14° 47' W).....	0	00	00	1/2 mile.
Lone cedar tree.....	51	09	..	95 yards.
South chimney of Willey house.....	136	07	..	1/2 mile.
North chimney of house.....	142	22	..	3/4 mile.
West chimney of "Beverly" house.....	164	37	..	1/2 mile.
East chimney of "Beverly" tenant house....	204	55	..	3/8 mile.
Chimney of house.....	238	00	..	1/2 mile.
East chimney of house.....	265	10	..	3/8 mile.
North chimney of house.....	299	54	..	3/4 mile.
Right edge of small house.....	328	18	..	3 miles.

## THELMA.

*General locality.*—Western shore of Back Creek on northern part of Hambleton Island, about 1 mile north of Edge Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in front yard of a house about 6 feet above high water, 3 yards west of shore, 20 yards southeast of a house, and nearly on line with south side of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Elmore" (N 23° 18' E) . . . . .	0	00	00	. . . . . 3/8 mile.
Chimney on oyster house . . . . .	17	11	..	. . . . . 1 1/4 miles.
Cupola on "Beverly" house . . . . .	59	33	..	. . . . . 1/4 mile.
West chimney of house . . . . .	105	48	..	. . . . . 3/4 mile.
North chimney of house . . . . .	225	57	..	. . . . . 1 1/4 miles.
Nail in cherry tree (12 inches diameter) . . . . .	235	51	50	. . . . . 14.47 meters.
Northeast corner of Willey house . . . . .	296	30	30	. . . . . 17.78 meters.
North chimney of house . . . . .	324	01	..	. . . . . 1/4 mile.
"St. Michaels P. E. Church spire" . . . . .	352	44	20	. . . . . 1 5/8 miles.

## ELMORE.

*General locality.*—Western shore of Back Creek, about 3/8 mile north of north end of Hambleton Island and 1 1/4 miles south of St. Michaels. (See Chart No. 34.)

*Immediate locality.*—Observed station is near edge of a cultivated field, about 6 feet above high water, 5 yards south of edge of vertical bank at shore, and 20 yards west of extreme end of point of marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Beverly" (N 29° 48' E) . . . . .	0	00	00	. . . . . 1/4 mile.
Chimney of house . . . . .	11	31	..	. . . . . 1 mile.
Chimney of oyster house . . . . .	20	30	..	. . . . . 3/4 mile.
Chimney of house . . . . .	27	51	..	. . . . . 1/2 mile.
Nail in blaze in cedar tree (12 inches diameter) . . . . .	118	21	20	. . . . . 5.40 meters.
Cupola on "Beverly" house . . . . .	136	42	..	. . . . . 1/4 mile.
Nail in blaze in locust tree (5 inches diameter) . . . . .	155	41	50	. . . . . 5.39 meters.
South chimney of Willey house . . . . .	175	20	..	. . . . . 3/8 mile.
North chimney of house . . . . .	211	..	..	. . . . . 1/4 mile.
"St. Michaels Water Tank" . . . . .	338	25	..	. . . . . 1 3/8 miles.
"St. Michaels P. E. Church spire" . . . . .	344	08	30	. . . . . 1 1/4 miles.

## BEVERLY.

*General locality.*—Eastern shore of Back Creek, about 3/4 mile south of St. Michaels, and 5/8 mile north of north end of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on sandy marsh point about 1 foot above high water, 8 yards northeast of shore and south of a heavy growth of small pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.



References.—	°	'	"	
"Ansley" (S 9° 09' E).....	0	00	00	¼ mile.
North chimney of "Beverly" house.....	15	53	..	¼ mile.
North chimney of Willey house.....	36	43	..	⅜ mile.
North gable of barn.....	51	28	..	⅜ mile.
East gable of house.....	110	02	..	1 mile.
Chimney of small deserted house.....	114	57	..	¾ mile.
Nail in root of cedar stump.....	154	50	..	1.56 meters.
Nail in blaze in cedar tree (10 inches diam- eter).....	243	21	20	5.65 meters.
Chimney of house.....	277	31	..	¾ mile.
North chimney of house.....	293	12	..	⅜ mile.
Northeast peak of small outhouse.....	313	02	..	¼ mile.

## SAMUEL.

*General locality.*—Eastern side of Back Creek on northern side of small creek, about 1 mile south of St. Michaels and ¾ mile northeast of north end of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is on point near edge of cultivated field, about 6 feet above high water, 15 yards north of shell covered shore, and 30 yards northwest of extreme end of marsh point, and near a number of small cedar and locust trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Ansley" (S 20° 10' W).....	0	00	00	¼ mile.
West chimney of "Beverly" kitchen.....	0	48	..	⅜ mile.
North chimney of Willey house.....	16	12	..	¾ mile.
North chimney of house.....	31	57	..	½ mile.
Nail in blaze in locust tree (5 inches diam- eter).....	99	48	20	6.47 meters.
Nail in blaze in cedar tree (12 inches diam- eter).....	188	22	00	13.64 meters.
Chimney of small house.....	215	22	..	¾ mile.
Chimney of oyster house.....	252	12	..	250 yards.
North chimney of house.....	276	00	..	¼ mile.
Chimney of old deserted house.....	317	21	..	¾ mile.

## ANSLEY.

*General locality.*—Eastern shore of Back Creek, about 1 mile south of St. Michaels, ½ mile northeast of north end of Hambleton Island, and ½ mile south of entrance to a small creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 3 yards south of shore and in center of triangle formed by three pine stubs driven flush with marsh to support theodolite. Cement monument marking reference station is 21.25 meters N 71° 13' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument.

References.—	°	'	"	
"Samuel" (N 20° 10' E).....	0	00	00	¼ mile.
Nail in blaze in pine tree (12 inches diam- eter).....	35	33	50	18.74 meters.
REFERENCE STATION.....	51	02	40	21.25 meters.
Nail in blaze in pine tree (18 inches diam- eter).....	66	12	00	12.72 meters.

## References—Continued.

	°	'	"	
Cupola on "Beverly" house.....	179	34	..	¼ mile.
North chimney of Willey house.....	205	52	..	½ mile.
North chimney of house.....	253	19	..	¾ mile.
South gable of barn.....	323	55	..	¾ mile.

## HARPER.

*General locality.*—Eastern shore of Back Creek on a prominent point opposite north end of Hambleton Island about 1½ miles south of St. Michaels. (See Chart No. 34.)

*Immediate locality.*—Observed station is in the northwest corner of yard of a house about 4 feet above high water, 13 yards south of edge of a stone sea wall, and 55 yards northwest of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Judge" (S 3° 05' E).....	0	00	00	¾ mile.
Left tangent of Nelson Point.....	34	24	..	4½ miles.
North chimney of Willey house.....	81	54	..	¾ mile.
East chimney of house.....	115	40	..	2½ miles.
South chimney of house.....	128	25	..	¼ mile.
South gable of barn.....	180	40	..	1¼ miles.
"St. Michaels Water Tank".....	188	28	..	1¾ miles.
Nail in pecan tree (24 inches diameter).....	237	42	40	20.29 meters.
Northwest corner of "Beverly" kitchen.....	315	47	..	54 yards.
Nail in leaning locust tree.....	348	34	..	18.72 meters.

## TAFT.

*General locality.*—Eastern shore of Back Creek about 2 miles south of St. Michaels, ½ mile north of Edge Creek, and nearly opposite extreme eastern point of Hambleton Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field about 7 feet above high water, 12 yards east of shore, 15 yards north of edge of a bank 6 feet above marsh, and 5 yards east of edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Hopkins" (S 9° 00' E).....	0	00	00	¾ mile.
Nail in blaze in cedar tree (10 inches diameter).....	34	26	00	13.43 meters.
South chimney of Willey house.....	144	19	..	¾ mile.
North chimney of house.....	153	14	..	¾ mile.
North chimney of "Beverly" house.....	164	54	..	½ mile.
East chimney of "Beverly" tenant house.....	190	23	..	¾ mile.
Chimney of house.....	239	16	..	¼ mile.
West chimney of Hopkins house.....	283	21	..	300 yards.
Nail in blaze in cedar tree (15 inches diameter).....	356	21	..	21.59 meters.

## HOPKINS.

*General locality.*—Northern shore of Edge Creek on eastern side of entrance to Back Creek about ¾ mile north-northeast of Cedar Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field about 8 feet above high water, 15 yards north of shore, 20 yards from three small cedar trees near shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	'	"	
"Spencer" (S 43° 22' E).....	0	00	00	¾ mile.
North gable of barn.....	25	30	..	2½ miles.
Right tangent of pine woods on Deep Neck Point.....	84	37	..	1¼ miles.
Left edge of barn roof.....	107	32	..	2 miles.
Chimney of house.....	137	23	..	1¾ miles.
South chimney of house.....	195	15	..	1¾ miles.
West chimney of "Beverly" house.....	205	21	..	¾ mile.
West chimney of house.....	234	13	..	¾ mile.
Chimney of house.....	336	04	..	1 mile.
South chimney of house.....	343	28	..	¾ mile.

## SPENCER.

*General locality.*—Northern shore of Edge Creek at western side of entrance to Solitude Creek about 1 mile east of Broad Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 4 yards north-east of shore, and 21 yards northwest of extreme end of point, with a long bar of oyster shells extending 65 yards into creek. Cement monument marking reference station is 11.22 meters N 8° 44' E of observed station.

*Marks.*—Observed station is nail in 3-inch cedar stub projecting 4 inches above surface of marsh. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

<i>References.</i> —	o	'	"	
"Hopkins" (N 43° 22' W).....	0	00	00	¾ mile.
South gable of barn.....	36	01	..	¼ mile.
REFERENCE STATION.....	52	05	10	11.22 meters.
Chimney of house.....	96	18	..	¾ mile.
West chimney of house.....	110	51	..	¾ mile.
South chimney of house.....	180	45	..	1½ miles.
West chimney of house.....	201	47	..	1¾ miles.
Chimney of small house.....	243	19	..	1½ miles.
East chimney of house.....	306	49	..	2¼ miles.
East gable of house.....	316	57	..	2¾ miles.
South chimney of house.....	345	29	..	2 miles.

## MARSHALL.

*General locality.*—Northern shore of Edge Creek opposite Elberts Cove about 1¼ miles east of Cedar Point at Broad Creek entrance to creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field about 6 feet above high water, 16 yards northeast of shore, 3 yards northeast of an old row of fence posts, 13 yards northwest of wire fence and line of cedar trees, and 125 yards west of an old deserted house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 7 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	'	"	
"Holly" (S 13° 25' E).....	0	00	00	½ mile.
West chimney of house.....	21	00	..	¾ mile.
North gable of house.....	62	58	..	1 mile.
North gable of barn.....	75	45	..	1¼ miles.

## Survey of Oyster Bars, Talbot County, Md.

## References—Continued.

	°	'	"	
East chimney of house.....	120	35	..	2¼ miles.
Chimney of house.....	162	45	..	1½ miles.
East chimney of house.....	176	04	..	¾ mile.
Lone dead tree (18 inches diameter).....	206	48	..	125 yards.
West chimney of old deserted house.....	288	17	..	125 yards.
Nail in blaze in cedar tree (5 inches diameter).....	214	43	10	12.55 meters.
West chimney of house.....	340	56	..	1½ miles.

## CLARK.

*General locality.*—Northern shore of Edge Creek on western side of entrance to Spencer Creek about 1½ miles east of Cedar Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field behind a fringe of locust and cedar trees about 6 feet above high water, 17 yards north of shore, and 35 yards northwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Holly" (S 26° 12' W).....	0	00	00	¾ mile.
East chimney of house.....	12	39	..	¾ mile.
Nail in blaze in locust tree (7 inches diameter).....	72	11	..	7.58 meters.
East chimney of deserted house.....	97	34	..	¼ mile.
South chimney of house.....	142	23	..	½ mile.
West gable of Hammond wharf house.....	180	40	..	¾ mile.
North chimney of house.....	216	23	..	¾ mile.
South gable of house.....	255	52	..	¾ mile.
North chimney of house.....	276	48	..	1 mile.
West chimney of house.....	295	05	..	¾ mile.
West chimney of house.....	314	52	..	¾ mile.
Nail in blaze in cedar tree (6 inches diameter).....	323	03	40	3.67 meters.

## HOLLY.

*General locality.*—Southern shore of Edge Creek about 2 miles east of Broad Creek and nearly opposite entrance to Spencer Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about on level with high water, 13 yards north of a fringe of cedar trees and 100 yards west of a cove. Cement monument marking reference station is 11.68 meters S 14° 24' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

## References.—

	°	'	"	
"Marsh" (N 62° 58' W).....	0	00	00	¾ mile.
East gable of barn.....	3	14	..	2¾ miles.
South chimney of house.....	28	36	..	1¼ miles.
Chimney of small house.....	44	51	..	¾ mile.
Chimney of deserted house.....	54	38	..	½ mile.
Chimney of large house.....	125	00	..	¾ mile.
South chimney of house.....	162	29	..	1¼ miles.
Nail in blaze in holly tree (8 inches diameter).....	256	50	40	12.88 meters.
REFERENCE STATION.....	257	21	50	11.68 meters.
Nail in blaze in tree (6 inches diameter).....	293	42	00	14.35 meters.
East chimney of house.....	303	31	..	¾ mile.

## MARSH.

*General locality.*—Southern shore of Edge Creek at eastern side of entrance to Elbert Cove about 1½ miles east of Broad Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 18 yards west of shore, 27 yards south of extreme north end of point, and 35 yards north of an old fence line with a row of cedars. Cement monument marking reference station is 13.58 meters S 14° 47' W of observed station.

*Marks.*—Observed station is nail in 3-inch cedar stub projecting 5 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	''	
"Clark" (N 66° 24' E).....	0	00	00	..... ½ mile.
Chimney of house.....	11	54		..... 1 mile.
West gable of barn.....	19	43		..... 1½ miles.
South chimney of house.....	37	31		..... 1½ miles.
REFERENCE STATION.....	128	23	10	..... 13.58 meters.
South chimney of house.....	195	10		..... 1 mile.
East gable of barn.....	234	19		..... 2¾ miles.
South chimney of house.....	260	24		..... 2½ miles.
East chimney of house.....	296	34		..... ¾ mile.

## CEDAR.

*General locality.*—Eastern shore of Broad Creek on Cedar Point at southern side of entrance to Edge Creek about ⅝ mile south of south end of Hambleton Island and ½ mile east-northeast of Deep Neck Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a hard oyster shell bank about 3 feet above high water, 3 yards south of shore, and in front of a thicket of cedar and oak trees. Cement monument marking reference station is 11.16 meters S 27° 55' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch cedar stub projecting 2 inches above surface of ground. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	°	'	''	
"Willey" (N 4° 24' W).....	0	00	00	..... ⅝ mile.
"St. Michaels Water Tank".....	8	03		..... ¾ miles.
West chimney on house.....	26	29		..... 1½ miles.
Cupola on house.....	52	10		..... 1 mile.
East chimney of house.....	54	03		..... 1¼ miles.
North chimney of house.....	79	29		..... 1½ miles.
REFERENCE STATION.....	156	28	10	..... 11.16 meters.
Nail in blaze in twin oak tree (12 inches diameter).....	168	20	00	..... 6.14 meters.
Nail in blaze in elm tree (12 inches diameter).....	213	09	50	..... 4.13 meters.
North chimney of house.....	270	59		..... 1¾ miles.
East gable of house.....	284	43		..... 1½ miles.
East chimney of house.....	308	11		..... 1¼ miles.
East chimney of house.....	330	38		..... 1½ miles.
South chimney of house.....	351	51		..... 2 miles.

## ROSS.

*General locality.*—Eastern shore of Broad Creek on Deep Neck Point about 1 mile south-southeast of Mulberry Point and ½ mile west-southwest of Cedar Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on wooded shore about 10 feet above high water, and 6 yards southeast of top of vertical bank which is washing rapidly. Cement monument marking reference station is 14.94 meters S 61° 43' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below bottom of surface pipe. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Cedar" (N 65° 14' E).....	0	00	00	..... ½ mile.
Nail in blaze in pine tree (18 inches diameter).....	22	11	30	..... 16.32 meters.
REFERENCE STATION.....	53	03	10	..... 14.94 meters.
Nail in blaze in pine tree (15 inches diameter).....	81	02	20	..... 11.81 meters.
Left tangent of Nelson Point.....	156	27	..	..... 2½ miles.
South gable of Bridges barn.....	212	06	..	..... 1 mile.
South gable of house.....	226	21	..	..... 1½ miles.
South chimney of house.....	243	18	..	..... 1¾ miles.
South chimney of house.....	263	21	..	..... 1 mile.
Cupola on barn.....	288	25	..	..... 2½ miles.
"St. Michaels Water Tank".....	306	04	..	..... 3½ miles.
"St. Michaels P. E. Church Spire".....	308	18	..	..... 3¾ miles.
East chimney of house.....	320	33	..	..... 1¾ miles.

## COOK.

*General locality.*—Eastern shore of Broad Creek about 1¾ miles north of Choptank River and ½ mile south of entrance to Bridge Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on point of marsh about 1 foot above high water and 2 yards east of shore. Cement monument marking reference station is 11.63 meters N 61° 29' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

	o	'	"	
"Ross" (N 4° 06' E).....	0	00	00	..... 1¼ miles.
East chimney of house.....	11	56	..	..... 1¼ miles.
Nail in blaze in cedar tree (6 inches diameter).....	54	02	20	..... 13.79 meters.
REFERENCE STATION.....	57	23	00	..... 11.63 meters.
Nail in blaze in persimmon tree (8 inches diameter).....	73	37	30	..... 9.79 meters.
Left tangent of Nelson Island.....	228	18	..	..... 2 miles.
North gable of barn.....	293	09	..	..... 2¼ miles.
South gable of Bridges barn.....	321	47	..	..... 1½ miles.
South chimney of house.....	343	04	..	..... 2½ miles.
South chimney of house.....	354	47	..	..... 3½ miles.

## PEARY.

*General locality.*—Eastern shore of Broad Creek about 1 mile north of entrance to Broad Creek, 1½ miles north of Royston Island, and 1¾ miles east-northeast of Nelson Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on wooded shore about 6 feet above high water, 3 yards east of vertical bank, which is washed by high water, 100 yards south of north end of pine woods. Cement monument marking reference station is 20.93 meters N 43° 30' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 3 inches above surface of ground. Reference station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
"Roys" (S 17° 35' E).....	0	00	00	1½ miles.
Left tangent of Cook Point.....	44	53	..	6¼ miles.
Right tangent of Nelson Point.....	96	09	..	1¾ miles.
East chimney of house.....	117	03	..	2 miles.
East gable of Parlett house.....	131	52	..	2¾ miles.
South gable of barn.....	168	59	..	1¾ miles.
Nail in blaze in pine tree (15 inches diameter)	233	25	40	17.49 meters.
REFERENCE STATION.....	241	04	50	20.93 meters.
Nail in blaze in pine tree (15 inches diameter)	307	35	10	15.45 meters.

## IRISH.

*General locality.*—Northeastern shore of Choptank River on west side of entrance to Irish Creek, about ¾ mile northeast of Royston Island. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land, about 5 feet above high water, 13 yards east-northeast of edge of bank, 5 yards north of foot of bank, 4 yards north of a cedar tree, 10 yards west of a small cedar tree at west end of line of locust trees, and 23 yards east-southeast of rounded point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Pont" (N 13° 04' E).....	0	00	00	½ mile.
Near peak of building.....	25	49	..	1¼ miles.
Nail in blaze in locust tree (2 inches diameter).....	68	52	50	16.33 meters.
Left peak of house.....	98	15	..	¾ mile.
Left peak of barn.....	123	13	..	1 mile.
Nail in blaze in cedar tree (7 inches diameter).....	152	52	10	4.29 meters.
Near peak of house.....	185	06	..	5 miles.
Nail in blaze in cedar tree (2 inches diameter).....	206	33	40	6.24 meters.
"Sharps Island Light".....	230	10	20	9 miles.
Near peak of house.....	291	12	..	3¾ miles.
Near peak of barn.....	348	54	..	300 yards.

## ROYS.

*General locality.*—Northeastern side of Choptank River on southern end of Royston Island, about ½ mile southwest of entrance to Irish Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 5 feet above high water, 15 yards north of shore, 25 yards east of shore, and 25 yards northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Choptank River Light" (S 44° 37' E).....	0	00	00	3¾ miles.
"Large Water Tank".....	9	09	00	5¾ miles.
Peak of large barn.....	49	44	..	4½ miles.
Right peak of barn.....	71	08	..	5¾ miles.
Windmill.....	71	16	..	5¾ miles.
"Sharps Island Light".....	109	16	30	8¾ miles.
Church spire.....	134	43	..	6 miles.

## References—Continued.

	°	'	"	
Church spire . . . . .	134	47	..	6 miles.
Large spire . . . . .	134	57	..	6 miles.
Windmill . . . . .	146	07	..	5¾ miles.
Chimney of house . . . . .	170	03	..	3 miles.
Near peak of large barn . . . . .	200	28	..	3¼ miles.
Nail in blaze in oak tree (3 inches diameter) . . . . .	215	43	10	10.64 meters
Nail in blaze in oak tree (3 inches diameter) . . . . .	281	24	20	6.22 meters.
Nail in blaze in cedar tree (5 inches diameter) . . . . .	358	28	40	15.92 meters.

## PONT.

*General locality.*—Western shore of Irish Creek on point about ½ mile north of Choptank River entrance to creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in pasture land, about 5 feet above high water, 3 yards west of edge of bank, 30 yards south-southwest of point of bank, 35 yards north by west of point of bank, and ⅛ mile northeast of 2½-story frame house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Sticky" (N 14° 01' W) . . . . .	0	00	00	¼ mile.
Nail in blaze in locust tree (5 inches diameter) . . . . .	25	36	50	24.71 meters.
Right peak of barn . . . . .	43	34	..	⅝ mile.
Left peak of house . . . . .	80	10	..	1 mile.
Near peak of barn . . . . .	143	06	..	⅝ mile.
Near peak of 2½-story house . . . . .	231	32	..	⅝ mile.

## STICKY.

*General locality.*—Western shore of Irish Creek about ¾ mile from Choptank River entrance to creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on small marsh point about 1 foot above high water, 8 yards east of shore, 8 yards west of shore, 4 yards south of a 3-foot terrace covered with small cedar and pine trees, and 23 yards north-northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Vue" (N 89° 43' E) . . . . .	0	00	00	½ mile.
Left peak of large house . . . . .	2	04	..	1 mile.
Right corner of house . . . . .	47	19	..	⅞ mile
Near peak of house . . . . .	92	58	..	⅜ mile.
Nail in blaze in pine tree (6 inches diameter) . . . . .	231	25	40	8.72 meters.
Nail in blaze in pine tree (4 inches diameter) . . . . .	244	49	10	9.85 meters.
Nail in blaze in pine tree (4 inches diameter) . . . . .	269	21	30	8.63 meters.
Near peak of barn . . . . .	317	55	..	½ mile.



## VUE.

*General locality.*—Northern shore of Irish Creek, about  $\frac{3}{4}$  mile from Choptank River entrance to creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 4 yards west-northwest of shore, 5 yards northeast of shore, and 8 yards north of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Ila" (S 2° 45' W) .....	0	00	00	..... $\frac{1}{4}$ mile.
Right peak of barn .....	49	28	..	..... $\frac{3}{8}$ mile.
Right peak of house .....	52	30	..	..... $\frac{5}{8}$ mile.
Nail in blaze in cedar tree (4 inches diameter).....	160	52	10	..... 24.91 meters.
Nail in blaze in cedar tree (12 inches diameter).....	186	14	40	..... 45.03 meters.
Left corner of house .....	265	31	..	..... 400 yards.
Left peak of house .....	271	30	..	..... $\frac{3}{8}$ mile.
Near peak of house .....	311	21	..	..... $\frac{1}{2}$ mile.
Right corner of house .....	352	34	..	..... $\frac{5}{8}$ mile.

## IIA.

*General locality.*—Eastern shore of Irish Creek, about  $\frac{1}{2}$  mile from Choptank River entrance to creek, on a point at north side of entrance to a cove. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 5 feet above high water, 3 yards south-southwest of edge of bank, 20 yards northeast of edge of bank at trees, 17 yards southeast of point of bank, and 23 yards east by north of point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Creek" (S 16° 51' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Nail in blaze in locust tree (3 inches diameter).....	13	57	30	..... 16.07 meters.
Nail in blaze in locust tree (4 inches diameter).....	28	06	10	..... 19.32 meters.
Nail in blaze in locust tree (3 inches diameter).....	53	06	20	..... 21.36 meters.
Left corner of barn .....	59	17	..	..... $\frac{1}{2}$ mile.
Near peak of barn .....	130	36	..	..... $\frac{3}{4}$ mile.
Left corner of left chimney of house.....	155	18	..	..... $\frac{5}{8}$ mile.
Left peak of house .....	191	36	..	..... $\frac{3}{8}$ mile.
Left peak of house .....	222	01	..	..... $\frac{1}{2}$ mile.
Left corner of left chimney of large house.....	265	09	..	..... $\frac{3}{8}$ mile.
Right peak of house .....	334	56	..	..... $\frac{3}{8}$ mile.

## CREEK.

*General locality.*—Northeastern shore of Choptank River on east side of entrance to Irish Creek, about  $\frac{5}{8}$  mile east-northeast of Royston Island. (See Chart No. 34.)

*Immediate locality.*—Observed station on marsh point about 1 foot above high water, 11 yards south-east of shore, 11 yards east of shore, 17 yards north-northeast of shore and 14 yards south of cut in shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Dot" (S 17° 34' W) . . . . .	0	00	00	4 $\frac{5}{8}$ miles.
Right corner of house . . . . .	118	45	..	$\frac{5}{8}$ mile.
Right corner of house . . . . .	146	12	..	1 $\frac{1}{4}$ miles.
Left peak of house . . . . .	184	09	..	1 $\frac{1}{8}$ miles.
Left corner of large chimney . . . . .	230	02	..	$\frac{5}{8}$ mile.
Near peak of large building . . . . .	354	09	..	5 $\frac{1}{4}$ miles.

## BENONI 2.

*General locality.*—Northern shore of Choptank River on Benoni Point at western side of entrance to Tred Avon River, about 1 $\frac{3}{8}$  miles northwest of Choptank River Light. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 5 feet above high water, 9 yards south-southwest of foot of knoll and edge of marsh, 4 yards northeast of edge of bank, 25 yards east-southeast of point of bank, 30 yards north by west of point of marsh, and 100 yards southwest of a cove. Cement monument marking reference station is 7.45 meters N 42° 02' E of observed station.

*Marks.*—Observed station is nail in center of stub projecting 4 inches above a 4-inch tile pipe with top of pipe flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	"	
"Choptank River Light" (S 40° 01' E) . . . . .	0	00	00	1 $\frac{1}{4}$ miles.
"Large Water Tank" . . . . .	13	10	20	3 $\frac{1}{2}$ miles.
Left corner of house . . . . .	65	40	..	4 $\frac{1}{2}$ miles.
Nail in blaze in water bush . . . . .	181	09	10	7.68 meters.
Nail in blaze in water bush . . . . .	231	34	40	4.54 meters.
Near peak of small house . . . . .	245	50	..	1 $\frac{3}{4}$ miles.
Left corner of burnt house . . . . .	261	14	..	2 miles.
REFERENCE STATION . . . . .	262	02	40	7.45 meters.
Peak of near gable of large house . . . . .	277	30	..	1 $\frac{3}{4}$ miles.
Nail in blaze in water bush . . . . .	288	09	40	10.40 meters
Left corner of house . . . . .	306	56	..	1 $\frac{3}{8}$ miles

## MUTTON.

*General locality.*—Western shore of Tred Avon River opposite town of Oxford, about 1 $\frac{1}{4}$  miles north-northeast of Benoni Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 5 feet above high water, 13 yards west of edge of tree-fringed bank at edge of strip of marsh, 20 yards southwest of edge of bank, and 25 yards northeast of edge of bank at bend.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Choptank River Light" (S 6° 44' E) . . . . .	0	00	00	2 $\frac{1}{4}$ miles.
Right corner of barn . . . . .	70	54	..	$\frac{1}{4}$ mile.
Near corner of barn . . . . .	108	44	..	600 yards.
Center of chimney outside of house . . . . .	161	53	..	$\frac{1}{4}$ mile.
Near corner of house . . . . .	214	32	..	$\frac{1}{2}$ mile.
Nail in blaze in persimmon tree (12 inches diameter) . . . . .	223	57	20	18.44 meters.
Nail in blaze in cedar tree (8 inches diameter) . . . . .	242	32	30	13.48 meters.
Nail in blaze in cedar tree (10 inches diameter) . . . . .	279	04	40	11.80 meters.
Nail in blaze in locust tree (6 inches diameter) . . . . .	354	18	20	17.18 meters.

TRED.

*General locality.*—Western shore of Tred Avon River about  $\frac{1}{2}$  mile west of Oxford. (See Chart No. 34.)

*Immediate locality.*—Observed station is about on level with high water, 2 yards west of shore of marsh strip, 6 yards east of foot of a bank, 6 feet high, 30 yards south by east of small house among trees, 13 yards south by east of end of fence, and 20 yards north of small point of marsh strip. Cement monument marking reference station is 4.98 meters N 68° 24' W of observed station and at foot of bank.

*Marks.*—Observed station is nail in center of cypress stub projecting 5 inches above 4-inch tile pipe with top of pipe flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	o	'	''	
"Choptank River Light" (S 0° 22' E).....	0	00	00	2 $\frac{5}{8}$ miles.
REFERENCE STATION.....	111	59	00	4.98 meters.
Near peak of small house.....	171	43	..	29 yards.
Windmill on wooden tower.....	212	46	..	1 $\frac{3}{8}$ miles.
Left peak between two chimneys of large house.....	238	08	..	1 $\frac{5}{8}$ miles.
Left peak of Oxford wharf house.....	277	22	..	$\frac{3}{8}$ mile.
Windmill.....	324	51	..	1 mile.

BELLEVUE.

*General locality.*—Western shore of Tred Avon River at Bellevue steamboat landing about  $\frac{3}{4}$  mile northwest of Oxford steamboat landing. (See Chart No. 34.)

*Immediate locality.*—Observed station is on south side of roadway pier to Bellevue wharf, about 16 yards south by west of a crab house, and 25 yards west of wharf house.

*Marks.*—Observed station is center of 3-inch square staff 12 feet high.

*References.*—

Right corner of storehouse.....	N. E.	.....	16.00 meters.
Left corner of wharf house.....	E. by N.	.....	24.25 meters.
Right corner of wharf house.....	E. by S.	.....	24.18 meters.
Center one of four nails in plank.....	N. by E.	.....	3.42 meters.
Center one of four nails in plank.....	E. by S.	.....	.73 meters.
Center one of four nails in plank.....	W. by N.	.....	.82 meters.

TAR.

*General locality.*—Western shore of Tred Avon River on point between Tar Creek and Plaindealing Creek about  $1\frac{1}{8}$  miles north of Oxford steamboat wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a long point about 4 feet above high water, 10 yards east-northeast of Tar Creek, 9 yards north by west of point of bank, 10 yards northwest by west of edge of bank, 6 yards west-southwest of edge of bank, and 60 yards west by north of extreme end of point of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	''	
"Peck" (S 55° 15' E).....	0	00	00	$\frac{1}{2}$ mile.
Spindle on left cupola of long barn.....	10	35	..	1 $\frac{1}{2}$ miles.
Stack of ice plant at Oxford.....	52	20	..	1 $\frac{1}{8}$ miles.
Weather vane on barn cupola.....	105	41	..	$\frac{3}{4}$ mile.
Left peak of 2 $\frac{1}{2}$ -story frame house.....	128	04	..	$\frac{1}{2}$ mile.
Right corner of frame house.....	203	00	..	127 yards.
Front peak of frame house.....	246	08	..	$\frac{1}{2}$ mile.
Left peak of cupola.....	337	08	..	$\frac{3}{8}$ mile.

## PECK.

*General locality.*—Northeastern shore of Tred Avon River on Peck Point about 1 mile northeast of Oxford Steamboat wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is in woods about 8 feet above high water, 4 yards north of edge of bank, 4 yards northwest of edge of bank, and 8 yards east of edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Tall" (S 82° 32' E).....	0	00	00	..... ½ mile.
Spindle on left cupola on long barn.....	41	55	..	..... 1¾ miles.
Right peak of building with cupola.....	82	05	..	..... ¾ mile.
Nail in blaze in locust tree (6 inches diameter)	83	59	10	..... 2.80 meters.
Left corner of large 2½-story house.....	150	40	..	..... 1¼ miles.
Spindle on barn cupola.....	160	35	..	..... 1¼ miles.
Nail in blaze in cherry tree (4 inches diameter)	200	59	20	..... 5.65 meters.
Nail in blaze in persimmon tree (3 inches diameter).....	314	22	30	..... 3.93 meters.

## TALL.

*General locality.*—Northwestern shore of Tred Avon River on a prominent point 1¾ miles northeast of Oxford steamboat wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is among cedar and wild pear trees about 2 feet above high water 7 yards northwest of shore, 40 yards east by north of shore, and 50 yards north-northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of the ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Plain" (N 25° 25' E).....	0	00	00	..... ¾ mile.
Right peak of house.....	37	35	..	..... 1¾ miles.
Top of roof of tower.....	65	17	..	..... ¾ mile.
Nail in blaze in cedar tree (6 inches diameter).....	79	02	30	..... 2.62 meters.
Spindle on barn cupola.....	105	15	..	..... 1¼ miles.
Spindle on left cupola of large barn.....	135	04	..	..... 1 mile.
Nail in blaze in cedar tree (5 inches diameter).....	162	48	30	..... 4.65 meters.
Right peak of Oxford wharf house.....	211	08	..	..... 1¾ miles.
Nail in blaze in cedar tree (5 inches diameter).....	218	45	30	..... 6.90 meters.
Spindle on top of water tank.....	240	35	..	..... 1½ miles.
Nail in blaze in cedar tree (8 inches diameter).....	308	46	40	..... 3.08 meters.

## PLAIN.

*General locality.*—Western shore of Tred Avon River about ½ mile west of north side of entrance to Trippe Creek, and 1¾ miles south-southwest of Double Mills wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 3 feet above high water, 5 yards southwest of shore, 10 yards west of shore at first water bush, and 150 yards northwest of point of shore. Cement monument marking reference station is 17.90 meters S 55° 16' E of observed station.

*Marks.*—Observed station is nail in center of 2-inch stub in center of 2-inch tile pipe with top of stub projecting 12 inches above surface of ground. Subsurface mark is another 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 2 inches above surface of ground.

<i>References.</i> —	°	'	''	
"Spin" (N 1° 18' W).....	0	00	00	..... 3/8 mile.
Near peak of very large house.....	7	50	..	..... 7/8 mile.
Center of cupola on wharf house at Double Mills.....	19	00	..	..... 1 3/8 miles.
Spindle on barn cupola.....	34	02	..	..... 1 1/2 miles.
REFERENCE STATION.....	126	01	20	..... 17.90 meters.
Spindle on left cupola on long barn.....	174	45	..	..... 1 5/8 miles.
Windmill.....	205	40	..	..... 1 1/8 miles.
Near peak of large house.....	246	46	..	..... 3/8 mile.
Near peak of house.....	318	18	..	..... 3/8 mile.

## SPIN.

*General locality.*—Western shore of Tred Avon River on a point of land between two small creeks about 3/4 mile northwest of entrance to Trippe Creek, and 1/8 mile south-southwest of Double Mills wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is in pasture land near 4 large trees about 10 feet above high water, 20 yards north by west of bank edge, 30 yards west by north of point of bank and 90 yards northeast of a slight cut in the bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"Martin" (N 32° 01' E).....	0	00	00	..... 3/8 mile.
Left corner of large frame house.....	12	37	..	..... 1 mile.
Nail in blaze in pine tree (34 inches diameter).....	23	28	00	..... 9.74 meters.
Near corner of brick house.....	45	26	..	..... 1/2 mile.
Nail in blaze in cedar tree (14 inches diameter).....	10	47	50	..... 10.45 meters.
Nail in blaze in holly tree (17 inches diameter).....	180	28	..	..... 6.90 meters.
Nail in blaze in mulberry tree (30 inches diameter).....	213	54	20	..... 7.01 meters.
Windmill.....	231	53	..	..... 3/8 mile.
Right corner of house.....	278	13	..	..... 3/8 mile.
Right corner of very long frame house.....	350	46	..	..... 3/8 mile.
Cupola on Double Mills wharf house.....	358	18	..	..... 7/8 mile.

## MARTIN.

*General locality.*—Western shore of Tred Avon River about 1 mile north-northwest of entrance to Trippe Creek, and 1/2 mile southwest of Double Mills wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a long narrow point about 2 feet above high water, 8 yards southwest of shore, 11 yards north of piling protecting shore, 30 yards northwest of extreme end of point, and 14 yards east of middle one of three apple trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center point of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	"	
"Neva" (N 24° 39' E).....	0	00	00	¾ mile.
Spindle on cupola of Double Mills wharf house	4	12	..	¾ mile.
Left peak of large 2½-story house.....	29	27	..	½ mile.
Right corner of brick house.....	96	51	..	¾ mile.
Nail in blaze in apple tree.....	224	29	50	21.72 meters.
Nail in blaze in apple tree (8 inches diameter).....	234	06	20	16.72 meters.
Left corner large house .....	247	10	..	146 yards.
Nail in blaze in apple tree (6 inches diameter).....	250	47	20	12.89 meters.
Left corner house.....	313	03	..	¼ mile.
Left peak of roof of house.....	347	41	..	¾ mile.

## NEVA.

*General locality.*—Western shore of Tred Avon River at Double Mills wharf about 1¾ miles north of entrance to Trippe Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in southeast corner of a pasture about 3 feet above high water 100 yards west-southwest of Double Mills wharf 5 yards west-southwest of wire and lath fence at road, 14 yards north of bank 1 foot high at river, and 14 yards northwest of corner post of fence.

*Marks.*—Observed station is center of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	"	
"Robertson" (N 11° 57' E).....	0	00	00	¾ mile.
Spindle on cupola on Double Mills wharf house.....	63	00	..	100 yards.
Nail in blaze in horse chestnut tree (8 inches diameter).....	89	03	40	5.86 meters.
Right corner of right chimney outside of house.	92	03	..	¼ mile.
Right corner of brick house.....	152	08	..	¾ mile.
Spindle on left cupola on long barn.....	173	02	..	2¾ miles.
Right corner of house.....	267	40	..	250 yards.
Nail in blaze in linden tree (10 inches diameter).....	315	58	30	20.30 meters.

## ROBERTSON.

*General locality.*—Northwestern shore of Tred Avon River about ¾ mile north of Double Mills Wharf and ¾ mile west of end of Long Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on grassy land about 2 feet above high water, 7 yards north of shore, 2 yards south of fence, 3 yards east of a few very small cedar trees, and 40 yards west of cedar trees on high land beyond gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	"	
"Stretch" (S 88° 57' E).....	0	00	00	¼ mile.
Windmill on wooden tower.....	9	47	..	1 mile.
Right corner of building.....	40	22	..	¾ mile.
"Aye" (weather vane on largest barn cupola)	46	18	26	½ mile.
Right corner of house.....	60	22	..	½ mile.
Weather vane on Double Mills Wharf house..	93	29	..	¾ mile.
Right peak of large house.....	116	33	..	¾ mile.
Nail in blaze in fence post.....	175	05	10	4.47 meters.
Nail in blaze in fence post.....	214	15	20	2.27 meters.
Nail in blaze in fence post.....	306	04	50	1.80 meters.

## STRETCH.

*General locality.*—Western shore of upper Tred Avon River on Long Point at south side of entrance to Maxmore Creek about  $\frac{1}{2}$  mile northeast of Double Mills Wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a rounded marsh point about 1 foot above high water, 16 yards west-northwest of shore, and 22 yards west-southwest of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"May" (N $71^{\circ} 30'$ E).....	0	00	00	$\frac{3}{4}$ mile.
Near peak of barn cupola.....	34	22	..	$\frac{3}{4}$ mile.
"Aye" (weather vane on largest barn cupola).....	100	20	10	$\frac{3}{4}$ mile.
Right corner of quarter house.....	100	39	..	$\frac{3}{4}$ mile.
Right corner of large house.....	120	16	..	$\frac{3}{4}$ mile.
Weather vane on Double Mills Wharf house..	154	44	..	$\frac{1}{2}$ mile.
Chimney among trees.....	275	51	..	$\frac{3}{4}$ mile.

## MAY.

*General locality.*—Northwestern shore of upper Tred Avon River about  $\frac{3}{8}$  mile east of entrance to Maxmore Creek and  $\frac{1}{8}$  mile northeast of Double Mills wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is at point of woods on marsh about 1 foot above high water, 10 yards west-northwest of shore, 11 yards north of shore, and 20 yards east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Peebee" (N $48^{\circ} 14'$ E).....	0	00	00	$\frac{3}{4}$ mile.
Left corner of house.....	10	43	..	$\frac{3}{4}$ mile.
Left corner of large house.....	56	43	..	1 mile.
Spindle on barn cupola.....	75	59	..	$\frac{1}{2}$ mile.
"Aye" (weather vane on largest barn cupola). 165	46	40	..	$\frac{3}{4}$ mile.
Weather vane on Double Mills Wharf house..	190	15	..	$\frac{7}{8}$ mile.
Nail in blaze in pine tree (8 inches diameter). 269	50	00	..	6.81 meters.
Nail in blaze in pine tree (4 inches diameter). 290	09	50	..	9.39 meters.
Nail in blaze in cedar tree (6 inches diameter) 316	15	00	..	6.44 meters.

## PEEBEE.

*General locality.*—Western shore of upper Tred Avon about  $1\frac{1}{4}$  miles northeast of Double Mills Wharf and  $\frac{3}{8}$  mile northwest of entrance to Peachblossom Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 4 feet above high water, 6 yards southwest of edge of bank, 14 yards west-northwest of edge of bank, 16 yards northwest of extreme point of bank, 50 yards northeast of a clump of cedar trees, and 400 yards east of dense woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Neck" (N $28^{\circ} 58'$ E).....	0	00	00	$\frac{1}{4}$ mile.
Spindle on barn cupola.....	32	39	..	$\frac{1}{2}$ mile.
Nail in blaze in cedar tree (16 inches diameter) 68	50	10	..	9.08 meters.
Left corner of house among trees.....	114	40	..	$\frac{3}{4}$ mile.
Left corner of frame building showing through cedar trees.....	193	46	..	1 mile.
Nail in blaze in cedar tree (7 inches diameter). 305	54	00	..	16.90 meters.
Nail in blaze in cedar tree (12 inches diameter).....	328	43	00	9.83 meters.
Peak of building.....	358	14	..	2 miles.

## NECK.

*General locality.*—Western shore of upper Tred Avon River on Neck Point opposite Camden Point and about  $\frac{1}{2}$  mile north-northwest of entrance to Peachblossom Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 1 foot above high water, 5 yards west-southwest of shore, 12 yards north of shore, and 8 yards northwest of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Stab" (N 11° 49' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Near peak of barn.....	14	33	..	..... $\frac{1}{2}$ mile.
Near peak of large house.....	66	06	..	..... $\frac{3}{4}$ mile.
Right peak of large house.....	100	13	..	..... $\frac{1}{2}$ mile.
Left corner of large house among trees.....	170	24	..	..... $\frac{3}{4}$ mile.
Windmill on wooden tower.....	175	32	..	..... $\frac{3}{4}$ mile.
Near peak of house.....	246	31	..	..... $1\frac{1}{2}$ miles.

## STAB.

*General locality.*—Western shore of upper Tred Avon River, on first point north of Neck Point, about  $\frac{1}{8}$  mile north-northwest of entrance to Peachblossom Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land, about 8 feet above high water, 3 yards northwest of edge of bank, 25 yards northeast of an oak tree at ravine, and 6 yards west of point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Water" (N 21° 19' E).....	0	00	00	..... $\frac{3}{8}$ mile.
Left peak of barn.....	15	02	..	..... $1\frac{1}{8}$ miles.
Peak of dormer window of house.....	29	34	..	..... $\frac{3}{4}$ mile.
Spindle on barn cupola.....	99	43	..	..... $\frac{5}{8}$ mile.
Left corner of large house among trees.....	140	32	..	..... $1\frac{1}{8}$ miles.
Windmill on wooden tower.....	143	50	..	..... $1\frac{1}{8}$ miles.
Nail in blaze in oak tree (30 inches diameter).....	199	15	10	..... 22.06 meters.
Right peak of large barn.....	249	17	..	..... $\frac{3}{8}$ mile.
Nail in blaze in cedar tree (12 inches diameter).....	351	13	10	..... 23.61 meters.

## WATER.

*General locality.*—Western shore of upper Tred Avon River, opposite Watermelon Point, about  $\frac{3}{4}$  mile north of Neck Point, and  $1\frac{1}{4}$  miles north of entrance to Peachblossom Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field west of a broad marsh about 6 feet above high water, 2 yards west of edge of bank, 35 yards north-northwest of point of bank, 20 yards south of point of bank, and 45 yards east-northeast of inside curve of cut.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Melon" (N 83° 37' E).....	0	00	00	..... $\frac{1}{4}$ mile.
Left large chimney of house.....	59	15	..	..... $\frac{3}{4}$ mile.
Spindle on barn cupola.....	65	10	..	..... $\frac{1}{2}$ mile.
Center of cedar tree.....	198	39	..	..... 120 yards.
Left corner of house.....	251	33	..	..... $\frac{5}{8}$ mile.
Right corner of house.....	293	02	..	..... $\frac{1}{8}$ mile.



RADCLIFFE.

*General locality.*—Northwestern shore of Tred Avon River, on point of land between Dixon Creek and Tred Avon River. (See Chart No. 34.)

*Immediate locality.*—Observed station is on small piece of fast land at end of marsh point, about 2 feet above high water, 11 yards northeast by north of shore, 15 yards north of shore, 40 yards southeast of shore, and among several pine and oak trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	"	
"Bateman" (S 70° 22' E).....	0	00	00	..... ¼ mile.
End of stable.....	24	55	..	..... ¾ mile.
Left end of boat house roof.....	103	19	..	..... ¼ mile.
Near peak of barn.....	122	55	..	..... ¼ mile.
Left chimney of house.....	173	21	..	..... ⅝ mile.
Nail in blaze in pine tree (20 inches diameter).....	192	56	50	..... 12.59 meters.
Near peak of house.....	206	02	..	..... ¼ mile.
Nail in blaze in oak tree (12 inches diameter).....	290	06	10	..... 5.01 meters.
Near peak of barn.....	337	43	..	..... ½ mile.
Nail in blaze in pine tree (20 inches diameter).....	339	07	20	..... 9.77 meters.

BATEMAN.

*General locality.*—Southeastern shore of upper Tred Avon River, about ⅓ mile east of entrance to Dixon Creek, and 1½ miles southwest of Easton Point Wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 5 yards southeast of shore, 12 yards southwest of shore, and 20 yards northeast of high land.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2-inches below base of monument.

<i>References.</i> —	°	'	"	
"Melon" (S 41° 10' W).....	0	00	00	..... ¾ mile.
Left end of boathouse roof.....	25	18	..	..... ½ mile.
Peak of barn.....	37	06	..	..... ½ mile.
Near peak of corn house.....	38	37	..	..... ½ mile.
Left chimney of large house.....	63	45	..	..... ⅞ mile.
Weather vane on large house.....	77	28	..	..... ¼ mile.
Middle dormer window of large house.....	139	25	..	..... ¾ mile.
Peak of barn.....	162	05	..	..... ¾ mile.
Windmill.....	263	34	..	..... ¼ mile.

MELON.

*General locality.*—Eastern shore of upper Tred Avon River, on Watermelon Point, about ½ mile south of entrance to Dixon Creek, ¾ mile north of Camden Point, and 1½ miles north of entrance to Peachblossom Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 9 feet above high water, 30 yards south-southeast of edge of bank, 60 yards east by south of point of bank at large cedar tree, 35 yards east of edge of bank, 150 yards northwest of a cove, and 100 yards west by south of small cedar tree at cut in bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## Survey of Oyster Bars, Talbot County, Md.

## References.—

	°	'	''	
"Stab" (S 47° 10' W).....	0	00	00	..... ¼ mile.
Peak of porch of house .....	79	03		..... ½ mile.
Weather vane on barn .....	112	04		..... ¾ mile.
Near peak of large barn .....	127	37		..... ¾ mile.
Peak of left dormer window of large house .....	156	56		..... ¾ mile.
Right side of right porch pillar on house .....	192	56		..... ¾ mile.
Left corner of large chimney of house .....	305	26		..... ¾ mile.

## GASH.

*General locality.*—Eastern shore of upper Tred Avon River on point of land between Camden Point and Watermelon Point, about ¾ mile north of entrance to Peachblossom Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 5 feet above high water, 16 yards north of shore, 25 yards east-northeast of point of shore, 18 yards east-southeast of bank, 10 yards west of field, and near several large pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Camden" (S 11° 43' W).....	0	00	00	..... ¾ mile.
Left corner of near chimney of house.....	84	18		..... ¾ mile.
Nail in blaze in pine tree (24 inches diameter).....	123	43	50	..... 8.30 meters.
Nail in blaze in locust tree (5 inches diameter).....	203	43	50	..... 11.93 meters.
Nail in blaze in oak tree (12 inches diameter).....	298	35	00	..... 7.24 meters.
Weather vane on barn cupola.....	318	38		..... ¾ mile.
Spindle on barn cupola.....	351	44		..... ¾ mile.

## CAMDEN.

*General locality.*—Eastern shore of upper Tred Avon River on Camden Point at north side of entrance to a small cove, and about ¾ mile north of entrance to Peachblossom Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on sandy grass land about 2 feet above high water, 8 yards north-northeast of sandy shore, 22 yards south-southeast of shore of Tred Avon River, 30 yards east of extreme end of point, 10 yards southeast of a mudhole, and 30 yards southwest of clump of cedar and hackberry trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Blossom" (S 6° 31' E).....	0	00	00	..... ¼ mile.
Windmill on wooden tower.....	1	29		..... ¾ mile.
Left peak of long building.....	55	07		..... 1¼ miles.
Near peak of barn.....	179	21		..... ¾ mile.
Nail in blaze in cedar tree (7 inches diameter).....	212	39	20	..... 27.27 meters.
Nail in blaze in hackberry tree (3 inches diameter).....	224	03	00	..... 26.84 meters.
Nail in blaze in cedar tree (14 inches diameter).....	239	40	40	..... 27.81 meters.
Left corner of roof of house.....	329	14		..... ¾ mile.

## BLOSSOM.

*General locality.*—Eastern shore of Tred Avon River at north side of entrance to Peachblossom Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 14 yards east by south of shore of river, 12 yards west-northwest of shore of small elliptical cove, and 40 yards north by west of entrance to cove.

*Marks.*—Observed station is center point of triangle on standard cement monument with top projecting 4 inches above the surface of the ground. Subsurface mark is center of 2-inch tile pipe 24 inches long buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Wall" (S 50° 07' W).....	0	00	00	..... ½ mile.
Weather vane on Double Mills Wharf house..	17	03	..	..... 1¾ miles.
Near peak of barn.....	122	51	..	..... 1¼ miles.
Near peak between two large chimneys on large house.....	157	49	..	..... ½ mile.
Left corner of steps on large house among trees.....	259	40	..	..... ¾ mile.
Left corner of left porch post on large house among trees.....	298	23	..	..... ¾ mile.
Windmill on wooden tower.....	305	38	..	..... ¾ mile.

## WALL.

*General locality.*—Southeastern shore of Tred Avon River on a point of land at west side of entrance to a small creek about 1 mile east-northeast of Double Mills Wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is in pasture land about 5 feet above high water, 20 yards south of extreme edge of bank, 4 yards west of terrace, 20 yards west of shore, 18 yards south-southeast of edge of bank, and 20 yards east of gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Aye" (weather vane on largest barn cupola) (S 61° 00' W).....	0	00	00	..... ¾ mile.
Right corner of house.....	7	59	..	..... ¾ mile.
Weather vane on Double Mills Wharf house..	14	49	..	..... 1 mile.
Nail in blaze in locust tree (30 inches diameter).....	37	36	50	..... 17.37 meters.
Nail in blaze in hackberry tree (14 inches diameter).....	154	55	20	..... 5.03 meters.
Windmill on wooden tower.....	231	09	..	..... ¾ mile.
Nail in blaze in cedar tree (28 inches diameter).....	255	31	40	..... 32.13 meters.
Nail in blaze in oak tree (30 inches diameter). 340	33	40	.....	20.96 meters.

## AYE.

*General locality.*—Southeastern shore of Tred Avon River about ½ mile east of Double Mills Wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is on cupola on largest barn.

*Marks.*—Observed station is spindle on cupola.

*References.*—None necessary.

## HUNTER.

*General locality.*—Eastern shore of Tred Avon River at south side of entrance to a cove about  $\frac{1}{2}$  mile south-southeast of Double Mills Wharf, and 1 mile north of entrance to Trippe Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 3 yards southwest of shore, 5 yards east-northeast of shore, 6 yards southeast of point of marsh, and 10 yards west of a clump of wild cherry, hackberry, and cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Weave" (S $27^{\circ}$ 35' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Near peak between two chimneys of large house.....	18	39	..	..... $1\frac{5}{8}$ miles.
Near peak of cupola on building.....	35	36	..	..... $1\frac{1}{4}$ miles.
Right peak of large house.....	69	07	..	..... $\frac{1}{2}$ mile.
Peak of dormer window of large house.....	116	34	..	..... $\frac{1}{2}$ mile.
Weather vane on wharf house at Double Mills.....	128	57	..	..... $\frac{1}{2}$ mile.
Left corner of large house.....	157	40	..	..... $\frac{3}{8}$ mile.
"Aye" (weather vane on largest barn copola).....	175	18	20	..... $\frac{3}{8}$ mile.
Nail in blaze in wild-cherry tree (5 inches diameter).....	208	35	20	..... 10.70 meters.
Nail in blaze in hackberry tree (6 inches diameter).....	232,	14	00	..... 11.18 meters.
Nail in blaze in leaning cedar tree (8 inches diameter).....	263	50	50	..... 9.02 meters.
Nail in blaze in cedar tree (20 inches diameter).....	272	40	50	..... 13.34 meters.
Near peak of brick house.....	352	45	..	..... $\frac{1}{4}$ mile.

## WEAVE.

*General locality.*—Eastern shore of Tred Avon River about  $\frac{1}{2}$  mile north of entrance to Trippe Creek, and 1 mile south of Double Mills Wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 20 yards east of shore, 16 yards south of shore at small inlet, 6 yards west of small point on inlet, and 20 yards northeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Twin" (S $7^{\circ}$ 23' E).....	0	00	00	..... $\frac{3}{8}$ mile.
Spindle on left cupola on long barn.....	15	04	..	..... $1\frac{1}{2}$ miles.
Stack of ice plant at Oxford.....	51	05	..	..... 2 miles.
Near peak between two chimneys of large house.....	61	35	..	..... $1\frac{1}{4}$ miles.
Left corner of chimney outside left end of house.....	92	28	..	..... $\frac{1}{4}$ mile.
Left corner of large house.....	157	58	..	..... $\frac{1}{2}$ mile.
Peak of near gable of large house.....	181	16	..	..... 1 mile.
Weather vane on wharf house at Double Mills.....	189	42	..	..... $\frac{1}{2}$ mile.
Left corner of large house.....	205	26	..	..... $\frac{3}{8}$ mile.
Left peak of house.....	237	58	..	..... 300 yards.

## TWIN.

*General locality.*—Eastern shore of Tred Avon River on point of land on north side of entrance to Trippe Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 4 feet above high water, 45 yards east-southeast of shore of Tred Avon River, and 110 yards northwest of shore of Trippe Creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Toe" (N 69° 34' E).....	0	00	00	..... ½ mile.
Near peak of house.....	4	52'	..	..... 1¾ miles.
Top of roof of tower.....	87	15	..	..... ½ mile.
Spindle on left cupola on large barn.....	121	32	..	..... 1¼ miles.
Right corner of large house.....	189	12	..	..... ¾ mile.
Left peak of house.....	297	01	..	..... ½ mile.
Near peak of house in trees.....	345	37	..	..... 1 mile.

## TOE.

*General locality.*—Northern shore of Trippe Creek on a point of land about ½ mile northeast of point at north side of entrance to Trippe Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 10 yards northwest of shore, 14 yards southwest of shore, 12 yards north of round point of shore, 12 yards west of round point of shore, and 30 yards southeast of cedar and persimmon trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Trippe" (N 64° 19' E).....	0	00	00	..... ¼ mile.
Near peak of house.....	16	03	..	..... 1¼ miles.
Near peak of house.....	33	06	..	..... 1¾ miles.
Near peak of barn.....	126	49	..	..... 1 mile.
Top of tower of house.....	137	52	..	..... ¾ mile.
"Weather Bureau Staff".....	166	59	50	..... 2¾ miles.
Nail in blaze in persimmon tree (7 inches diameter).....	227	21	20	..... 25.74 meters.
Nail in blaze in cedar tree (6 inches diameter).....	250	42	30	..... 21.68 meters.
Right corner of house.....	327	07	..	..... ½ mile.

## TRIPPE.

*General locality.*—Northern shore of Trippe Creek about ⅝ mile east of Tred Avon River and ⅓ mile east of entrance to a small creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 23 yards northwest of shore at entrance to slough, 30 yards east-northeast of shore, and 50 yards north by east of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Venture" (S 72° 55' E).....	0	00	00	3/4 mile.
Near peak of dormer window on large house..	3	17	..	1 1/2 miles.
Left corner of large chimney.....	31	06	..	3/4 mile.
Left peak of house.....	93	10	..	1 mile.
Stack of ice plant.....	128	54	..	2 3/4 miles.
Near peak of barn.....	274	07	..	1/2 mile.
Near peak of large house.....	323	15	..	1/2 mile.
Right corner of house.....	335	44	..	3/8 mile.

## VENTURE.

*General locality.*—Northern shore of Trippe Creek on a point on the west side of a cove about 1 mile east of Tred Avon River. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 1 foot above high water on the inner edge of a strip of marsh at bottom of a bank 4 feet high, 4 yards north of shore of marsh, 8 yards north-northwest of point of marsh, 3 yards south by west of top of bank, 7 yards west of point of bank, and 6 yards west of a lone cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Plow" (N 87° 47' E).....	0	00	00	1/4 mile.
Nail in blaze in cedar tree (18 inches diameter).....	6	16	30	5.74 meters.
Peak of dormer window of large house.....	23	38	..	1 mile.
Right peak of right barn.....	51	10	..	3/4 mile.
Left corner of left chimney of house.....	72	08	..	1/2 mile.
Left peak of barn.....	246	17	..	1/4 mile.
Spindle on right cupola of barn.....	314	10	..	3/8 mile.

## PLOW.

*General locality.*—Northern shore of Trippe Creek on a point of land between two coves about 1 1/4 miles from Tred Avon River. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 15 yards west-northwest of shore, 25 yards north of shore, 20 yards east of extreme end of point, and 5 yards south of foot of bank 7 feet high.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Higher" (N 79° 14' E).....	0	00	00	1/4 mile.
Right corner of porch underpinning.....	32	14	..	3/8 mile.
Left peak of barn.....	54	52	..	1 mile.
Near peak of barn.....	103	30	..	1/2 mile.
Left corner of large chimney.....	117	10	..	1/2 mile.
Nail in blaze in persimmon tree (2 1/2 inches diameter).....	257	46	40	12.76 meters.
Nail in blaze in oak tree (5 inches diameter).....	267	47	10	14.53 meters.
Nail in blaze in persimmon tree (2 1/2 inches diameter).....	284	57	00	15.85 meters.
Near peak of barn.....	345	07	..	3/8 mile.

## HIGHER.

*General locality.*—Northern shore of Trippe Creek at east side of entrance to a cove about  $1\frac{3}{4}$  miles from Tred Avon River entrance to Trippe Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 30 yards northeast of edge of bank, 35 yards southeast by east of row of trees, 50 yards east-southeast of point of bank and trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"All" (S 20° 17' E).....	0	00	00	..... $\frac{1}{4}$ mile.
Near peak of house.....	9	45	..	..... $\frac{3}{4}$ mile.
Near peak of large barn.....	45	04	..	..... $\frac{5}{8}$ mile.
Left corner of large chimney.....	55	31	..	..... $\frac{5}{8}$ mile.
Nail in blaze in sassafras tree ( $2\frac{1}{2}$ inches diameter).....	138	19	00	..... 31.63 meters.
Nail in blaze in locust tree (5 inches diameter).....	142	20	50	..... 31.96 meters.
Spindle on left one of four barn cupolas.....	155	19	..	..... $\frac{3}{8}$ mile.
Nail in blaze in locust tree (5 inches diameter).....	173	32	30	..... 30.93 meters.
Spindle on cupola.....	288	25	..	..... 1 mile.

## ALL.

*General locality.*—Northern shore of Trippe Creek about  $1\frac{3}{4}$  miles from Tred Avon River entrance to Trippe Creek, and 300 yards west by north of a colonial house. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 1 foot above high water, 35 yards southeast of shore, 35 yards east of round point of shore, 80 yards northwest of cut in shore, and 40 yards south by east of left one of nine large pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"Cam" (S 70° 56' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Left peak of barn.....	38	26	..	..... $1\frac{1}{4}$ miles.
Spindle on left one of four cupolas.....	74	48	..	..... $\frac{1}{2}$ mile.
Left corner of underpinning of Goldsborough house.....	184	18	..	..... 300 yards.
Right corner of large chimney.....	226	04	..	..... $\frac{1}{4}$ mile.
Right peak of long barn.....	294	59	..	..... $\frac{1}{2}$ mile.
Left peak of house.....	333	38	..	..... $\frac{1}{4}$ mile.

## CAM.

*General locality.*—Southern shore of Trippe Creek on a prominent point about  $1\frac{1}{2}$  miles from Tred Avon River entrance to Creek. (See Chart No. 34.)

*General locality.*—Observed station is on marsh point about 10 yards southeast of shore, 20 yards south-southwest of point of shore, and 15 yards northeast by east of point of bank at marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"Deux" (S 56° 11' W).....	0	00	00	..... $\frac{1}{4}$ mile.
Left peak of barn showing through trees.....	58	53	..	..... $\frac{3}{8}$ mile.
"Aye" (weather vane on large barn cupola).....	83	01	20	..... $1\frac{3}{4}$ miles.
Right peak of barn with cupola.....	112	56	..	..... $\frac{1}{2}$ mile.

## Survey of Oyster Bars, Talbot County, Md.

## References—Continued.

	°	'	''	
Left corner of underpinning of Goldsborough house.....	196	26	..	3/8 mile.
Right corner large chimney.....	224	09	..	5/8 mile.
Left peak of house.....	243	42	..	5/8 mile.
Nail in blaze in persimmon tree (4 inches diameter).....	287	28	40	23.51 meters.
Nail in blaze in oak tree (5 inches diameter).....	313	59	30	15.77 meters.
Nail in blaze in oak tree (5 inches diameter).....	331	03	50	16.93 meters.
Left corner of large chimney.....	356	39	..	1/4 mile.

## DEUX.

*General locality.*—Southern shore of Trippe Creek about 1 1/2 miles from Tred Avon River. (See Chart No. 34.)

*Immediate locality.*—Observed station is in an orchard about 8 feet above high water, 50 yards north-northeast of rambling house, 20 yards southeast of top of bank, 14 yards southwest of top of bank, 13 yards south of point of bank at ditch, and 3 yards east of a drainage ditch.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Crack" (S 72° 51' W).....	0	00	00	1/4 mile.
Left peak of barn.....	52	55	..	1 mile.
Nail in blaze in pear tree (10 inches diameter).....	55	26	20	7.43 meters.
Near peak of barn.....	81	49	..	3/4 mile.
Left peak of large barn.....	114	08	..	5/8 mile.
Nail in blaze in twin locust tree.....	119	52	20	11.66 meters.
Nail in blaze in pear tree (6 inches diameter).....	193	56	50	6.29 meters.
Right corner of house.....	256	20	..	1/8 mile.
Near corner of house.....	312	55	..	51 yards.

## CRACK.

*General locality.*—Southern shore of Trippe Creek on point at west side of entrance to a small creek, about 1 1/4 miles from Tred Avon River entrance to creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 3 feet above high water, 13 yards south of edge of bank 15 yards northeast of shore, 40 yards east of extreme end of point, and among scattering locust trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Mistle" (N 31° 34' W).....	0	00	00	1/2 mile.
Near peak of shed.....	24	45	..	3/4 mile.
Spindle on right one of four cupolas.....	55	41	..	7/8 mile.
Near peak between two chimneys on large house.....	78	08	..	1 1/2 miles.
Left corner of house.....	109	03	..	1/4 mile.
Right peak of barn.....	135	14	..	3/4 mile.
Near peak of barn.....	181	59	..	3/4 mile.
Nail in blaze in cedar tree (3 inches diameter).....	258	17	20	13.98 meters.
Nail in blaze in locust tree (3 inches diameter).....	292	11	50	9.98 meters.
Nail in blaze in locust tree (2 inches diameter).....	349	50	40	7.78 meters.



## MISTLE.

*General locality.*—Southern shore of Trippe Creek on a very long point, about  $\frac{1}{4}$  mile east-northeast of Tred Avon River. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 10 yards south-southeast of shore, 14 yards west by north of shore, 24 yards southwest of extreme end of point, 4 yards south of a cedar tree, and 12 yards north of a cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Layor" (S 50° 38' W) . . . . .	0	00	00	..... $\frac{3}{8}$ mile.
Near peak of house . . . . .	135	45	..	..... $\frac{1}{4}$ mile.
Nail in blaze in cedar tree (6 inches diameter) . . . . .	163	22	40	..... 3.45 meters.
Near peak of large house . . . . .	183	36	..	..... $\frac{3}{8}$ mile.
Right corner of house . . . . .	222	45	..	..... 1 mile.
Left corner of large chimney . . . . .	254	06	..	..... $\frac{5}{8}$ mile.
Nail in blaze in cedar tree (12 inches diameter) . . . . .	302	11	20	..... 11.11 meters.
Nail in blaze in cedar tree (6 inches diameter) . . . . .	331	27	00	..... 13.42 meters.

## LAYOR.

*General locality.*—Southern shore of Trippe Creek, about  $\frac{1}{4}$  mile east of Tred Avon River. (See Chart No. 34.)

*Immediate locality.*—Observed station is in edge of cultivated land about 5 feet above high water, 50 yards south of shore, 17 yards east of bank, 2 yards south-southwest of water bushes, and 200 yards west of large lone tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Borough" (S 39° 05' W) . . . . .	0	00	00	..... $\frac{5}{8}$ mile.
Near peak of large house . . . . .	11	13	..	..... $1\frac{1}{2}$ miles.
Near peak of large frame house . . . . .	44	27	..	..... $1\frac{3}{8}$ miles.
Near peak of ell of house . . . . .	166	22	..	..... $\frac{7}{8}$ mile.
Right peak of house . . . . .	300	30	..	..... $\frac{1}{2}$ mile.
Top of roof of tower . . . . .	348	21	..	..... $\frac{3}{8}$ mile.

## BOROUGH.

*General locality.*—Southeastern shore of Tred Avon River, about  $\frac{1}{4}$  mile north-northeast of entrance to Goldsboro Creek, and  $\frac{1}{2}$  mile south-southwest of entrance to Trippe Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 3 feet above high water in cultivated land, 17 yards east-southeast of shore, 25 yards south of shore, 30 yards southwest of shore,  $\frac{1}{8}$  mile northwest of house in trees, and  $\frac{1}{8}$  mile west-southwest of large lone tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Golds" (S 38° 07' W) . . . . .	0	00	00	3/8 mile.
Spindle on barn cupola . . . . .	52	57		2 1/2 miles.
Near peak of large house . . . . .	70	07		1 mile.
Left corner of very large house . . . . .	130	22		1 1/2 miles.
Near peak of wharf house at Double Mills . . . . .	138	20		1 1/2 miles.
Right corner of large building . . . . .	172	49		1 1/2 miles.
Large lone tree . . . . .	202	34		3/8 mile.
Right corner of house among trees . . . . .	283	17		300 yards.
Spindle on left cupola on long barn . . . . .	340	52		3/8 mile.

## GOLDS.

*General locality.*—Eastern shore of Tred Avon River on a point of land between Goldsboro Creek and Mud Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on hard marsh about 1 foot above high water, 30 yards south of shore, 60 yards west-southwest of shore, and 60 yards south-southeast of point of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Mud" (N 78° 58' W) . . . . .	0	00	00	5/8 mile.
Right peak between two chimneys of large house . . . . .	28	43		1 mile.
Near peak of large house . . . . .	76	38		1 1/2 miles.
Near peak of large barn . . . . .	92	36		1 3/4 miles.
Right corner of old house . . . . .	167	39		1/2 mile.
Left corner of large house . . . . .	212	35		1/2 mile.
Near peak of large house . . . . .	259	21		1/2 mile.
Church spire . . . . .	320	06	40	1 3/4 miles.
Stack of iceplant at Oxford . . . . .	338	06		1 3/4 miles.

## MUD.

*General locality.*—Southeastern shore of Tred Avon River at western side of entrance to Mud Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is among trees on northeast point of a pasture about 4 feet above high water, 13 yards southwest of shore of pond on point, 20 yards north of end of pond, 25 yards northwest of shore of pond, and 45 yards south-southeast of a lone tree at shore of river.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Town" (N 85° 59' W) . . . . .	0	00	00	1/4 mile.
Spindle on barn cupola . . . . .	5	14		1 3/4 miles.
Near peak of 2 1/2-story house . . . . .	42	28		1 1/2 miles.
Right corner of 2 1/2-story house . . . . .	71	42		1/2 mile.
Nail in blaze in hackberry tree (24 inches diameter) . . . . .	87	08	10	5.51 meters.
Center of roof of tower . . . . .	157	45		1 1/2 miles.
Nail in blaze in twin elm tree . . . . .	216	59	10	8.98 meters.
Spindle on cupola of long barn . . . . .	220	40		3/8 mile.
Nail in blaze in elm tree (7 inches diameter) . . . . .	249	42	20	13.44 meters.
"Weather Bureau Staff" . . . . .	315	13	40	1 1/2 miles.

## TOWN.

*General locality.*—Southeastern shore of Tred Avon River about  $\frac{1}{4}$  mile northeast of east side of entrance to Town Creek, and  $\frac{3}{4}$  mile northeast of Oxford steamboat wharf. (See Chart No. 34.)

*Immediate locality.*—Observed station is in northwest corner of a cultivated field about 6 feet above high water, 10 yards south of edge of bank, 12 yards east-southeast of point of bank, 25 yards west-southwest of edge of bank, 3 yards northeast of a fence, and 4 yards northeast of gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	"	
"Riverview" (S 56° 27' W).....	o	oo	oo	..... $\frac{7}{8}$ mile.
Nail in blaze in cedar tree (6 inches diameter).....	11	23	40	..... 5.02 meters.
Weather vane on barn cupola.....	44	12	..	..... $1\frac{1}{8}$ miles.
Near peak of 2½-story house.....	92	35	..	..... 1 mile.
Left peak of large house.....	141	06	..	..... $\frac{1}{2}$ mile.
Near peak of house.....	184	59	..	..... $2\frac{3}{4}$ miles.
Top of roof of tower.....	199	40	..	..... $1\frac{3}{8}$ miles.
Spindle on left cupola of long barn.....	248	05	..	..... $1\frac{1}{2}$ miles.
Right peak of large house.....	283	35	..	..... $\frac{1}{2}$ mile.
Right of steamboat wharf house.....	359	41	..	..... $\frac{3}{4}$ mile.

## RIVERVIEW.

*General locality.*—Eastern shore of Tred Avon River about  $\frac{1}{8}$  mile west by south of Oxford steamboat wharf. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is about 3 feet above high water, 3 yards east of shore, 23 yards south-southwest of a fisherman's shanty, and 50 yards north by west of west end of "Lovers Lane."

*Marks.*—Observed station is center of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	"	
"First" (S 17° 40' E).....	o	oo	oo	..... $\frac{1}{2}$ mile.
"Choptank River Light".....	27	31	20	..... $2\frac{1}{2}$ miles.
Left peak of building.....	82	54	..	..... $\frac{3}{4}$ mile.
Spindle on barn cupola.....	171	17	..	..... $\frac{3}{8}$ mile.
Left corner of fisherman's shanty.....	206	21	50	..... 25.82 meters.
Right corner of fisherman's shanty.....	224	12	40	..... 21.61 meters.
Left peak of large house.....	239	57	..	..... $1\frac{1}{4}$ miles.
Right corner of steamboat wharf house.....	263	06	..	..... $\frac{1}{8}$ mile.
Stack of iceplant.....	273	00	..	..... $\frac{3}{8}$ mile.
Nail in blaze in oak tree (18 inches diameter). 342	44	40	.....	44.25 meters.

## WEATHER BUREAU STAFF.

*General locality.*—Eastern side of Tred Avon River in the town of Oxford. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in park south of High and Primary Schools, 55 yards east of shore of Tred Avon River, 55 yards west of Morris Street, and in center of circle of trees.

*Marks.*—Observed station is center of galvanized iron staff on square galvanized angle-iron tower.

*References.*—None necessary.

## FIRST.

*General locality.*—Eastern shore of Tred Avon River in town of Oxford about  $\frac{1}{8}$  mile north of railroad wharves. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is about 8 feet above high water, 2 yards east-southeast of edge of bank, 4 yards east by north of point of bank, 4 yards northeast of edge of bank at small gully, 2 yards south of corner fence post, and 35 yards west of house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Bach" (S 17° 38' W).....	0	00	00	..... $\frac{5}{8}$ mile.
Right peak of small house.....	51	59	..	..... $1\frac{5}{8}$ miles.
Right peak of modern house.....	67	10	..	..... $1\frac{5}{8}$ miles.
Left peak of small house.....	128	37	..	..... $1\frac{1}{8}$ miles.
Nail in blaze in fence post.....	207	52	00	..... 4.98 meters.
Nail in blaze in apple tree (20 inches diameter).....	237	43	30	..... 11.94 meters.
Nail in blaze in apple tree (12 inches diameter).....	266	24	50	..... 14.56 meters.
Windmill.....	346	43	..	..... $\frac{1}{4}$ mile.

## BACH.

*General locality.*—Eastern shore of entrance to Tred Avon River on Bachelor Point about  $1\frac{3}{8}$  miles north-northeast of Choptank River Light. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated field about 6 feet above high water, 30 yards east of edge of bank, 70 yards north-northeast of edge of bank on range with Choptank River Light, and 100 yards south by west of edge of bank of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Choptank River Light" (S 16° 59' W).....	0	00	00	..... $1\frac{3}{8}$ miles.
Tangent of Benoni Point.....	55	29	..	..... $1\frac{1}{4}$ miles.
Left peak of roof of house.....	147	25	..	..... $1\frac{5}{8}$ miles.
Left corner of burnt house.....	166	05	..	..... $1\frac{1}{8}$ miles.
Right corner of house.....	211	35	..	..... $\frac{1}{4}$ mile.
Left corner of left chimney on very large house.....	240	46	..	..... $\frac{5}{8}$ mile.
"Large water tank".....	338	00	20	..... $2\frac{3}{4}$ miles.

## BOONE.

*General locality.*—Northeastern shore of Choptank River about  $\frac{3}{8}$  mile northwest of entrance to Boone Creek,  $\frac{1}{2}$  mile southeast of Bachelor Point, and  $1\frac{1}{8}$  miles northeast of Choptank River Light. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is about 5 feet above high water, 13 yards northeast of edge of tree-fringed bank, 60 yards south-southwest of right corner of house, and 50 yards south-southeast of large apple tree.

*Marks.*—Observed station is center point of triangle on standard cement monument with top 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Choptank River Light" (S 33° 54' W).....	0	00	00	..... 1¼ miles.
Nail in blaze in locust tree (5 inches diameter).....	21	01	40	..... 10.26 meters.
Nail in blaze in locust tree (10 inches diameter).....	65	31	10	..... 20.59 meters.
Near peak of house.....	107	59	..	..... ¼ mile.
Right corner of house.....	159	12	..	..... 57 yards.
Near peak of house.....	195	28	..	..... ¾ mile.
Nail in blaze in locust tree (4 inches diameter).....	323	14	00	..... 13.02 meters.

## ENTER.

*General locality.*—Northern shore of Island Creek on point at east side of entrance to a small cove, about ⅛ mile northeast of Choptank River and 1⅜ miles east-northeast of Choptank River Light. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated land about 6 feet above high water, 16 yards north of edge of bank of creek, 18 yards south-southeast of edge of bank of cove, 30 yards east-northeast of outlet of cove, and 250 yards west by south of frame house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Choptank River Light" (S 72° 00' W).....	0	00	00	..... 1⅜ miles.
Nail in blaze in locust tree (6 inches diameter).....	67	05	40	..... 39.96 meters.
Nail in blaze in cedar tree (10 inches diameter).....	109	17	20	..... 16.91 meters.
Left corner of left chimney of house.....	117	35	..	..... 2 miles.
Left corner of house.....	173	35	..	..... ⅙ mile.
Near corner of house.....	204	11	..	..... 1½ miles.
"Large water tank".....	301	37	00	..... 2½ miles.
Nail in blaze in locust tree (4 inches diameter).....	357	13	40	..... 23.93 meters.

## STRAW.

*General locality.*—Northern shore of Island Creek ⅝ mile east-northeast of Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is about 6 feet above high water, 3 yards northeast of edge of bank, 18 yards east of bank, 4 yards west of wire fence, 8 yards northwest by west of point where bank meets fence, and 5 yards south of southeast corner of a small house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Delahay" (N 66° 10' E).....	0	00	00	..... ¼ mile.
Nail in blaze in locust tree (4 inches diameter).....	15	43	00	..... 4.33 meters.
Nail in blaze in locust tree (14 inches diameter).....	72	08	10	..... 7.89 meters.
Left peak of barn.....	130	54	..	..... ⅙ mile.
Nail in blaze in locust tree (8 inches diameter).....	221	41	10	..... 14.86 meters.
Left corner of small house.....	240	26	..	..... 5.94 meters.
Near corner of small house.....	287	16	..	..... 4.04 meters.
Spindle on barn cupola.....	349	22	..	..... ½ mile.

## DELAHAY.

*General locality.*—Northern shore of Island Creek about 1 mile east-northeast of Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated land about 5 feet above high water, 2 yards northwest of edge of bank, 100 yards east of edge of bank of inlet, 27 yards northeast of point of bank, and 75 yards southwest of farm buildings.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Kent" (N 75° 56' E).....	0	00	00	..... ¾ mile.
Left corner of house.....	15	16	..	..... ¾ mile.
Near peak of barn.....	25	17	..	..... ¾ mile.
Near peak of large modern house.....	122	02	..	..... 1 mile.
Near peak of large barn.....	137	38	..	..... 1¼ miles.
Nail in blaze in apple tree (10 inches diameter).....	165	30	40	..... 21.08 meters.
Nail in blaze in apple tree (10 inches diameter).....	183	52	40	..... 21.36 meters.
Nail in blaze in apple tree (7 inches diameter).....	269	51	50	..... 10.12 meters.
Spindle on barn cupola.....	313	09	..	..... 250 yards.

## KENT.

*General locality.*—Northern shore of Island Creek on a point about 1¼ miles northeast of Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in a cultivated field about 5 feet above high water, 50 yards northwest of top of bank, 80 yards east of bank, 75 yards north-northeast of point and 110 yards east-south-east of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Harry" (N 36° 27' E).....	0	00	00	..... ¾ mile.
Left corner of chimney outside left end of house.....	44	41	..	..... ½ mile.
Near peak of barn.....	80	50	..	..... ¾ mile.
Peak of ell of large house.....	187	03	..	..... 1¼ miles.
Near peak of building.....	217	54	..	..... ¾ mile.
Spindle on barn cupola.....	240	41	..	..... ¼ mile.
Near peak of large house.....	309	12	..	..... ½ mile.

## HARRY.

*General locality.*—Northern shore of Island Creek about 1½ miles from Choptank River. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is about 6 feet above high water, 9 yards northwest of edge of bank at cedar trees, 20 yards northeast of cut in bank, and 50 yards south-southwest of bank at cut in shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Charles" (N 55° 36' E).....	0	0	00	..... ¾ mile.
Nail in blaze in locust tree (4 inches diameter)	11	57	00	..... 17.38 meters.
Nail in blaze in locust tree (4 inches diameter)	39	23	00	..... 8.81 meters.
Nail in blaze in cedar tree (4 inches diameter)	78	04	30	..... 8.04 meters.
Left chimney outside of left end of house.....	92	16	..	..... ¾ mile.
Right corner of building.....	131	06	..	..... ¾ mile.
Spindle on barn cupola.....	186	37	..	..... ½ mile.
Near peak of building.....	263	45	..	..... ¾ mile.

## CHARLES.

*General locality.*—Northern shore of Island Creek about 2 miles from Choptank River. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in southwest corner of truck garden about 6 feet above high water, 6 yards north of edge of bank, 25 yards west of top of bank near locust tree, and 3 yards east of edge of a 12-foot hole 6 feet deep.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Potato" (N 78° or' E).....	0	00	00	..... ¼ mile.
Nail in blaze in locust tree (4 inches diameter)	23	23	00	..... 12.97 meters.
Nail in blaze in locust tree (4 inches diameter)	32	29	00	..... 9.19 meters.
Near peak of small building.....	53	18	..	..... ¾ mile.
Nail in blaze in cherry tree (12 inches diameter).....	112	20	20	..... 4.17 meters.
Right corner of chimney on quarter house....	125	27	..	..... ½ mile.
Near peak of large barn.....	213	02	..	..... ¾ mile.
Nail in blaze in locust tree (5 inches diameter)	216	27	20	..... 4.82 meters.
Left corner of barn.....	265	14	..	..... 100 yards.

## POTATO.

*General locality.*—Northern shore of Island Creek about 2¼ miles northeast of Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 50 yards northwest of edge of bank, 70 yards west of shore at lowest point of bank, 70 yards north of edge of bank and 400 yards south of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Ritter" (N 72° 30' E).....	0	00	00	..... ¼ mile.
Right corner of Ritter house.....	4	55	..	..... ¾ mile.
Right peak of large barn.....	56	11	..	..... ¾ mile.
Near peak of large barn.....	134	51	..	..... ¾ mile.
Near peak of house.....	162	28	..	..... 1½ miles.
Right corner of chimney of house.....	194	53	..	..... ¼ mile.
Left peak of outhouse.....	321	08	..	..... ¼ mile.

## RITTER.

*General locality.*—Northern side of Island Creek about  $2\frac{1}{4}$  miles from Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 120 yards north-northwest of nearest point of shore, 160 yards southwest by west of shore of small creek at lowest part of bank, 50 yards east of a wire fence, and 120 yards south of a fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Show" (N $50^{\circ} 41'$ E).....	0	00	00	$\frac{1}{4}$ mile.
Near peak of barn.....	17	51	..	$\frac{1}{2}$ mile.
Left corner of large chimney of house.....	22	44	..	$\frac{1}{2}$ mile.
Right corner of vine-covered chimney.....	66	25	..	$\frac{5}{8}$ mile.
Left side of tall chimney.....	179	43	..	1 mile.
Near peak of large barn.....	236	48	..	350 yards.
Left peak of long barn.....	317	43	..	$\frac{3}{4}$ mile.

## SHOW.

*General locality.*—Northern shore of upper Island Creek on a point of land between two coves about  $2\frac{3}{4}$  miles east of Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is about 9 feet above high water, 6 yards northwest of top of bank, and 35 yards east by north of a large cherry tree in clump of large trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Kit" (S $33^{\circ} 29'$ E).....	0	00	00	$\frac{1}{8}$ mile.
Nail in blaze in locust tree (5 inches diameter).....	19	01	30	7.98 meters.
Nail in blaze in locust tree (5 inches diameter).....	66	41	00	16.48 meters.
Left peak large house.....	204	52	..	$\frac{1}{4}$ mile.
Left corner of house.....	300	27	..	$\frac{3}{4}$ mile.
Nail in blaze in locust tree (4 inches diameter).....	311	32	..	10.13 meters.
Right corner of vine-covered house.....	348	00	..	$\frac{1}{2}$ mile.

## KIT.

*General locality.*—Southeastern shore of Island Creek on a prominent point extending into a bend in the creek about  $2\frac{3}{4}$  miles from Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated land about 8 feet above high water, 13 yards east of top of bank at trees, 20 yards southeast of point of bank, and 30 yards south of top of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Moke" (S $46^{\circ} 04'$ W).....	0	00	00	$\frac{1}{4}$ mile.
Nail in blaze in oak tree (8 inches diameter).....	32	44	00	11.27 meters.
Nail in blaze in oak tree (10 inches diameter).....	48	48	50	11.73 meters.
Right peak of large house.....	116	07	..	$\frac{1}{2}$ mile.
Right peak of barn.....	184	27	..	$\frac{3}{8}$ mile.
Right corner of vine-covered house.....	262	41	..	$\frac{3}{8}$ mile.
Nail in blaze in oak tree (5 inches diameter).....	328	59	30	14.97 meters.



## MOKE.

*General locality.*—Northern shore of Island Creek on a prominent point extending into a bend in the creek, about  $2\frac{1}{2}$  miles from Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in a pasture about 8 feet above high water, 23 yards north-northwest of edge of bank, 100 yards northeast of edge of bank at point, and 100 yards southeast of edge of bank at cedar tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Poco" (S $74^{\circ} 55'$ W).....	0	00	00	..... $\frac{1}{4}$ mile.
Right corner of large chimney.....	27	28	..	..... $\frac{3}{4}$ mile.
Left corner of Ritter house.....	51	23	..	..... $\frac{1}{4}$ mile.
Left peak of large house.....	107	01	..	..... $\frac{3}{4}$ mile.
Nail in blaze in locust tree (6 inches diameter).....	199	04	00	..... 29.58 meters.
Left peak of large barn.....	208	51	..	..... $\frac{1}{2}$ mile.
Nail in blaze in locust tree (4 inches diameter).....	209	47	10	..... 34.39 meters.
Nail in blaze in locust tree (5 inches diameter).....	270	56	40	..... 22.86 meters.

## POCO.

*General locality.*—Southern shore of upper Island Creek on point about  $2\frac{1}{4}$  miles from Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated field about 9 feet above high water, 70 yards east-southeast of shore at low bank, 80 yards south by east of edge of bank, 100 yards west of a point of bank, and 130 yards south by west of a point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Healey" (S $74^{\circ} 26'$ W).....	0	00	00	..... $\frac{1}{4}$ mile.
Windmill on wooden tower.....	35	36	..	..... $\frac{1}{8}$ mile.
Left corner of chimney at left end of house..	246	15	..	..... $\frac{1}{2}$ mile.
Peak of ell of house.....	318	08	..	..... $\frac{3}{8}$ mile.
Left peak of barn.....	331	48	..	..... $\frac{1}{2}$ mile.
Left peak of building.....	346	40	..	..... $\frac{3}{8}$ mile.

## HEALEY.

*General locality.*—Southern shore of Island Creek at west side of entrance to a cove, about  $1\frac{1}{8}$  miles from Choptank River. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated field about 10 feet above high water, 11 yards west-southwest of bank fringed with trees, and 150 yards south of a point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	"	
"Maslin" (S 53° 47' W).....	0	00	00	3/8 mile.
Left peak of large barn.....	69	32	..	3/4 mile.
Nail in blaze in oak tree (3 inches diameter)..	126	39	50	15.68 meters
Peak of house at chimney.....	159	37	..	1/2 mile.
Nail in blaze in wild cherry tree (5 inches diameter).....	174	27	00	9.89 meters.
Nail in blaze in wild cherry tree (5 inches diameter).....	231	16	00	19.37 meters.
Near peak of barn.....	317	40	..	1/2 mile.
Right side of right chimney of house.....	356	06	..	3/8 mile.

## MASLIN.

*General locality.*—Southeastern side of Island Creek about 1½ miles northeast of Choptank River entrance to creek. (See Charts No. 34 and 35.)

*Immediate locality.*—Observed station is about 8 feet above high water, 95 yards southeast of shore near rail fence, 30 yards north by west of quarter buildings, 9 yards west of fence corner, 6 yards north-west by west of wire fence, 7 yards southwest by west of wire fence, and 25 yards northwest by north of a graveyard.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	"	
"Mean" (S 37° 19' W).....	0	00	00	1/4 mile.
Spindle on barn cupola.....	48	25	..	5/8 mile.
Left peak of barn.....	160	18	..	1/2 mile.
Left corner of house.....	294	59	..	68 yards.
Nail in blaze in walnut tree (3 feet in diameter).....	308	17	00	12.82 meters.
Near corner of brick outhouse.....	338	37	40	21.38 meters.

## MEAN.

*General locality.*—Southern shore of Island Creek on a point at north side of entrance to a south fork of creek, about 1¼ miles east-northeast of Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated land about 5 feet above high water, 13 yards east of edge of bank, 10 yards north of line of trees at edge of bank, and 12 yards northeast of point of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	o	'	"	
"Choptank River Light" (S 77° 07' W).....	0	00	00	2 3/4 miles.
Spindle on barn cupola.....	39	34	..	1/2 mile.
Near peak of house.....	80	17	..	1/2 mile.
Near peak of barn.....	206	41	..	3/8 mile.
Nail in blaze in cherry tree (3 inches diameter).....	241	53	40	13.48 meters.
Nail in blaze in locust tree (3 inches diameter).....	286	16	40	8.12 meters.
Nail in blaze in locust tree (3 inches diameter).....	334	39	20	12.35 meters.

## JAY.

*General locality.*—Southern shore of Island Creek about 1 mile east of Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in northeast corner of cultivated field about 5 feet above high water, 3 yards southwest of point of bank, 3 yards south-southeast of edge of bank, 3 yards west-southwest of edge of bank, and 30 yards east-northeast of scattering trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Choptank River Light" (S 78° 47' E).....	0	00	00	2 3/8 miles.
Near peak of barn.....	40	38		7/8 mile.
Spindle on barn cupola.....	85	29		3/8 mile.
Near peak of house.....	103	54		3/4 mile.
Left corner of chimney outside left end of house.....	153	40		5/8 mile.
Left peak of barn.....	186	13		3/8 mile.
Near peak of large barn.....	284	23		1/2 mile.

## BERRY.

*General locality.*—Southern shore of Island Creek on a prominent point about 1/2 mile east of Choptank River entrance to creek. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated land about 6 feet above high water, 17 yards south-southwest of edge of bank, 17 yards west-southwest of edge of bank, 21 yards southeast of edge of bank, 20 yards southeast of a small house, and 3 yards west of a line of four trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Choptank River Light" (S 79° 08' W).....	0	00	00	2 miles.
Right corner of house.....	23	03		1/2 mile.
Right corner of house.....	52	15		3/8 mile.
Nail in blaze in apple tree (8 inches diameter).....	100	30	10	14.62 meters.
Nail in blaze in apple tree (12 inches diameter).....	119	11	30	5.92 meters.
Spindle on barn cupola.....	139	01		1/2 mile.
Left peak on long barn.....	170	43		1 mile.
Near corner of house.....	233	42		18.33 meters.
Nail in blaze in apple tree (14 inches diameter).....	252	23	30	6.94 meters.
Right corner of house.....	282	07		5/8 mile.

## LANDEYE.

*General locality.*—Northeastern shore of Choptank River on point at south side of entrance to Island Creek, about 1 1/2 miles east of Choptank River Light. (See Charts Nos. 34 and 35.)

*Immediate locality.*—Observed station is in cultivated land about 5 feet above high water, 15 yards east-southeast of edge of bank, 50 yards southwest of fringe of trees and bushes, 55 yards south-southwest of point of field and end of fringe of trees and bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	''	
"Choptank River Light" (S 83° 39' W).....	0	00	00	..... 1½ miles.
Chimney of house near Bachelors Point.....	48	33	..	..... 1¼ miles.
Left corner of barn.....	122	21	..	..... ¾ mile.
Left corner of barn.....	230	18	..	..... ¾ mile.
"Large water tank".....	297	25	50	..... 2¾ miles.

## CHOPTANK RIVER LIGHT.

*General locality.*—In Choptank River about 1¼ miles southeast of Benoni Point, 1 mile south of entrance to Tred Avon River, and 8¼ miles east of Blackwalnut Point. (See Charts Nos. 34, 35, and 37.)

*Immediate locality.*—Observed station is on hexagonal screw-pile structure known as Choptank River Lighthouse.

*Marks.*—Observed station is center of lantern on Choptank River Lighthouse.

## References.—

	°	'	''	
Chlora (S 57° 04' E).....	0	00	00	..... 2¾ miles.

## ST. MICHAELS P. E. CHURCH SPIRE.

*General locality.*—Western side of Miles River in town of St. Michaels at southeast corner of Talbot and Mill Streets. (See Chart No. 34.)

*Immediate locality.*—Observed station is on stone edifice known as St. Michaels Protestant Episcopal Church.

*Marks.*—Observed station is center point of steeple on St. Michaels Protestant Episcopal Church.

*References.*—None necessary.

## MARGO.

*General locality.*—Northeastern shore of Miles River, about 1¼ miles north-northwest of Long Point and 2 miles east of St. Michaels. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 30 yards north of edge of marsh, 35 yards east of extreme point, and 55 yards west of bushes at edge of marsh. Cedar stub marking old triangulation station "Marengo 1899" is at edge of marsh, 29.61 meters S 57° 11' W of observed station.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument. Reference station "Marengo 1899" is center of five copper nails in top of 5-inch cedar stub 5 feet long with top flush with the surface of the ground.

## References.—

	°	'	''	
"St. Michaels Water Tank" (N 86° 02' W)....	0	00	00	..... 2¾ miles.
Right chimney of Fogg house.....	8	04	..	..... 1¾ miles.
Peak of near gable of house.....	17	01	..	..... 2 miles.
Weather vane on square tower on Dodson house.....	37	54	..	..... 2 miles.
Right tangent of point.....	46	46	..	..... 3¼ miles.
Persimmon tree.....	72	03	..	..... 120 yards.
Left of trees on narrowest part of Long Point..	202	46	..	..... ¾ mile.
Near peak of large house with large square chimney.....	288	29	..	..... 1¼ miles.
Large square chimney on Dodson tenant house.....	298	21	..	..... 1 mile.
"Marengo, 1899".....	323	12	50	..... 29.61 meters.
Spindle on M. E. Church cupola.....	354	51	..	..... 2 miles.
"St. Michaels P. E. Church spire".....	355	53	20	..... 2 miles.

## GIBBS.

*General locality.*—Northeastern shore of Miles River about  $\frac{1}{2}$  mile northwest of extreme end of Long Point, and  $1\frac{1}{2}$  miles south-southeast of entrance to Leeds Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 17 yards north of shore, 25 yards east of shore, 20 yards northeast of extreme end of point, 35 yards west-northwest of point of woods, and 35 yards southwest of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Long" (S 44° 29' E) . . . . .	0	00	00	..... $\frac{1}{2}$ mile.
Chimney on side of roof of large building . . . . .	21	03	..	..... $1\frac{3}{4}$ miles.
West peak of long building . . . . .	33	20	..	..... $1\frac{3}{4}$ miles.
Southeast chimney of house . . . . .	61	44	..	..... 1 mile.
Chimney outside of northeast end of Slater house . . . . .	102	28	..	..... 1 mile.
Near peak of Leonard house . . . . .	134	31	..	..... $1\frac{1}{2}$ miles.
"St. Michaels Water Tank" . . . . .	151	57	40	..... $2\frac{5}{8}$ miles.
Right chimney of house . . . . .	171	17	..	..... 3 miles.
Weather vane on Dodson house . . . . .	181	10	..	..... $2\frac{3}{4}$ miles.
Right tangent of Tilghman Point . . . . .	191	41	..	..... $7\frac{1}{4}$ miles.
Left tangent of Fairview Point . . . . .	192	55	..	..... 2 miles.
Nail in blaze in pine tree . . . . .	265	45	40	..... 44.35 meters.
Nail in blaze in pine tree . . . . .	301	38	50	..... 29.15 meters.
Nail in blaze in pine tree . . . . .	327	58	40	..... 30.44 meters.

## LONG.

*General locality.*—Northern shore of Miles River on Long Point about  $\frac{1}{8}$  mile southwest of entrance to Hunting Creek, and  $1\frac{1}{4}$  miles north of railroad bridge across entrance to Oak Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cedar and pine woods about 6 feet above high water, 10 yards east-southeast of edge of bank protected by log breakwater, 11 yards northeast of point of bank, 4 yards northwest of edge of bank, and 30 yards northwest of point of sandy marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Hunting" (N 56° 23' E) . . . . .	0	00	00	..... $\frac{1}{2}$ mile.
Nail in blaze in cedar tree (8 inches diameter) . . . . .	6	25	00	..... 4.45 meters.
Left peak of roof of house . . . . .	23	21	..	..... $1\frac{3}{8}$ miles.
Spindle on barn cupola . . . . .	103	47	..	..... $1\frac{1}{8}$ miles.
Smoke pipe of Royal Oak railroad station . . . . .	131	37	..	..... $1\frac{1}{8}$ miles.
Nail in blaze in cedar tree (6 inches diameter) . . . . .	181	35	10	..... 2.53 meters.
"St. Michaels Water Tank" . . . . .	235	36	40	..... 3 miles.
Nail in blaze in twin cedar tree (16 inches diameter) . . . . .	286	15	30	..... 4.47 meters.
Left corner of roof of house . . . . .	358	32	..	..... $\frac{5}{8}$ mile.

## BEG.

*General locality.*—Southwestern shore of Hunting Creek on first prominent point north of Miles River entrance to Hunting Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in scant pine woods about 5 feet above high water, 3 yards south of bank, 9 yards northwest of bank, and 11 yards west of point of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Search" (N 20° 58' W).....	0	00	00	..... 3/8 mile.
Spindle on barn cupola.....	10	11	..	..... 7/8 mile.
Nail in blaze in pine tree (10 inches diameter).....	22	49	50	..... 2.34 meters.
Front peak of large house.....	46	16	..	..... 3/8 mile.
Peak of near gable of house.....	90	13	..	..... 1/2 mile.
Left peak of roof of house.....	108	29	..	..... 1 1/4 miles.
Nail in blaze in pine tree (7 inches diameter).....	164	32	30	..... 2.97 meters.
Nail in blaze in pine tree (2 inches diameter).....	240	49	10	..... 2.23 meters.

SEARCH.

*General locality.*—Western shore of Hunting Creek about 1/2 mile north of Miles River. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 11 yards northwest of shore, 40 yards south-southwest of shore, 35 yards west-southwest of point of shore, 3 yards east of water bushes, 20 yards south of bushes, and 25 yards southwest of water bushes.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Tug" (N 50° 43' E).....	0	00	00	..... 1/4 mile.
Spindle on barn cupola.....	47	45	..	..... 1/2 mile.
Lightning rod on house.....	52	01	..	..... 3/8 mile.
Peak of front gable of house.....	74	09	..	..... 1 1/4 miles.
Nail in blaze in pine tree (14 inches diameter).....	154	11	10	..... 16.62 meters.

TUG.

*General locality.*—Eastern shore of Hunting Creek about 1/2 mile north of Miles River. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 6 feet above high water, 10 yards east of edge of bank, 32 yards north of extreme point of shore, 7 yards northeast of a shanty, 14 yards northwest of shore, and trees along shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Hunting" (S 33° 40' E).....	0	00	00	..... 1/2 mile.
Nail in blaze in cedar tree (4 inches diameter).....	20	41	00	..... 7.74 meters.
Left corner of shanty.....	53	38	..	..... 7.47 meters.
Right corner of shanty.....	83	08	..	..... 6.64 meters.
"St. Michaels Water Tank".....	132	29	00	..... 3 miles.
Left corner of house behind very large oak tree.....	185	12	..	..... 1/4 mile.
Left peak of ell of house.....	272	52	..	..... 1/4 mile.
Nail in blaze in birch tree (5 inches diameter).....	288	04	00	..... 18.48 meters.
Nail in blaze in birch tree (9 inches diameter).....	304	51	10	..... 12.84 meters.
Right peak of barn with cupola.....	350	50	..	..... 3/8 mile.

HUNTING.

*General locality.*—Northwestern shore of Miles River on east side of entrance to Hunting Creek and ½ mile northeast of Long Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is in south corner of cultivated field, about 5 feet above high water, 2 yards northwest of edge of bank with bushes, 6 yards west of edge of bank, 7 yards northeast of point of bank, 50 yards north of edge of lower land, and 200 yards south of a large barn with a cupola.

*Marks.*—Observed station is center point of triangle on standard cement ground projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Spree" (N 79° 09' E).....	0	00	00	..... ¼ mile.
Left peak of house.....	3	42	..	..... 1 mile.
Near peak of large barn.....	46	35	..	..... ¾ mile.
Nail in blaze in persimmon tree (6 inches diameter).....	100	17	50	..... 5.87 meters.
Spindle on barn cupola.....	105	03	..	..... 1½ miles.
Left peak of building near railroad bridge.....	119	46	..	..... 1½ miles.
Left tree on Long Point.....	154	17	..	..... ½ mile.
Near peak of large building.....	240	35	..	..... 1½ miles.
Spindle on barn cupola.....	271	29	..	..... 200 yards.
Peak of near gable on house.....	337	27	..	..... ¼ mile.
Nail in blaze in cherry tree (3 inches diameter).....	339	21	10	..... 7.98 meters.

SPREE.

*General locality.*—Northwestern shore of Miles River, about ½ mile east of entrance to Hunting Creek, and ¾ mile northeast of Long Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 2 yards north of shore, 15 yards west-southwest of wire fence, and 25 yards south of trees. Cement monument marking reference station is 10.57 meters N 2° 18' E of observed station and on line with cherry tree.

*Marks.*—Observed station is center of 2-inch tile pipe with top flush with surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

*References.*—

	°	'	''	
"Whit" (N 60° 48' E).....	0	00	00	..... ½ mile.
Left corner of boathouse.....	1	07	..	..... ¼ mile.
Near corner of large house.....	3	50	..	..... 1 mile.
Left peak of roof of house.....	38	17	..	..... ⅝ mile.
Spindle on barn cupola.....	115	26	..	..... ¾ mile.
Spindle on barn cupola.....	135	22	..	..... ⅞ mile.
Left corner of roof of house.....	166	42	..	..... 2 miles.
Nail in blaze in hackberry tree (5 inches diameter).....	265	58	00	..... 22.08 meters.
Nail in blaze in cherry tree (6 inches diameter).....	300	33	..	..... 23.17 meters.
REFERENCE STATION.....	301	30	30	..... 10.57 meters.
Right peak of colonial house.....	354	15	..	..... ¼ mile.
Nail in blaze in fence post.....	358	52	30	..... 15.04 meters.

## WHIT.

*General locality.*—Northwestern shore of Miles River on east side of entrance to a small cove about  $1\frac{1}{4}$  miles northeast of Long Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is on a small marsh point near a small clump of cedar and hackberry trees about 1 foot above high water, 5 yards northwest of shore, 4 yards northeast of shore, and 6 yards north of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Dorrance" (N 25° 25' E) . . . . .	0	00	00	..... $\frac{3}{8}$ mile.
Nail in blaze in leaning hackberry tree (4 inches diameter) . . . . .	2	56	10	..... 8.07 meters.
Left corner of house . . . . .	6	39	..	..... $\frac{5}{8}$ mile.
Center of windmill tower . . . . .	19	49	..	..... $1\frac{1}{2}$ miles.
Center of windmill tower . . . . .	32	32	..	..... $1\frac{1}{2}$ miles.
Near peak of house . . . . .	42	55	..	..... $\frac{5}{8}$ mile.
Left peak of roof of house . . . . .	126	31	..	..... $\frac{3}{8}$ mile.
Left corner of square house . . . . .	186	34	..	..... 1 mile.
Left corner of roof of house . . . . .	220	51	..	..... $\frac{1}{4}$ mile.
Near peak of large house . . . . .	257	19	..	..... $\frac{3}{4}$ mile.
Nail in blaze in twin hackberry tree (20 inches diameter) . . . . .	291	51	40	..... 4.49 meters.
Nail in blaze in hackberry tree (5 inches diameter) . . . . .	325	35	10	..... 4.98 meters.
Near peak of Dorrance house . . . . .	356	02	..	..... $\frac{3}{8}$ mile.

## DORRANCE.

*General locality.*—Northwestern shore of Miles River about  $1\frac{3}{8}$  miles southwest of Miles River bridge and  $1\frac{5}{8}$  miles northeast of Long Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is about 5 feet above high water, 2 yards northwest of edge of bank, 9 yards west-southwest of a large tree on point of bank, 11 yards west of point of bank, and 12 yards southwest of edge of bank.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe, buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Tang" (N 40° 20' E) . . . . .	0	00	00	..... $\frac{1}{4}$ mile.
Center of windmill tower . . . . .	9	59	..	..... $1\frac{3}{8}$ miles.
Left corner of large house . . . . .	18	06	..	..... 2 miles.
Near corner of Henderson house . . . . .	24	22	..	..... $1\frac{3}{8}$ miles.
Center of windmill on tower . . . . .	25	18	..	..... $1\frac{3}{8}$ miles.
Nail in blaze in hickory tree (20 inches diameter) . . . . .	27	42	50	..... 8.58 meters.
Spindle on barn cupola . . . . .	62	42	..	..... $\frac{1}{2}$ mile.
Right peak of house . . . . .	70	39	..	..... $\frac{3}{8}$ mile.
Near peak of house . . . . .	136	04	..	..... $\frac{3}{4}$ mile.
Nail in blaze in hickory tree (18 inches diameter) . . . . .	153	18	00	..... 5.79 meters.
Right corner of house . . . . .	207	10	..	..... 300 yards.
Left peak of small tenant house . . . . .	259	04	..	..... 300 yards.
Near corner of Dorrance house . . . . .	328	55	..	..... 300 yards.
Right corner of house . . . . .	355	57	..	..... $\frac{1}{2}$ mile.



## TANG.

*General locality.*—Northwestern shore of Miles River at south side of entrance to a cove, about  $1\frac{1}{4}$  miles southwest of Miles River bridge. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh point about 1 foot above high water, 20 yards northwest of shore, 25 yards north of point of shore, 35 yards west-southwest of another point of shore, and 150 yards southeast of wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	'	"	
"Johnson" (N 40° 46' E) . . . . .	0	00	00	$\frac{1}{4}$ mile.
Center of windmill tower . . . . .	12	31	..	$\frac{3}{4}$ mile.
Right eave of Goldsborough house . . . . .	21	26	..	$1\frac{1}{8}$ miles.
Center of windmill tower . . . . .	31	37	..	$1\frac{1}{8}$ miles.
Near corner of large chimney of mansion . . . . .	48	50	..	1 mile.
Right peak of Mumford house . . . . .	119	57	..	$\frac{3}{8}$ mile.
Near peak of roof . . . . .	149	05	..	$\frac{3}{8}$ mile.
Near peak of Dorrance house . . . . .	193	47	..	$\frac{1}{4}$ mile.
Near peak of house . . . . .	288	44	..	$\frac{1}{4}$ mile.
Right corner of house . . . . .	351	46	..	$\frac{1}{4}$ mile.

## BETHEL.

*General locality.*—Southeastern shore of Miles River at north side of entrance to a small creek, about  $\frac{3}{4}$  mile southwest of Miles River bridge. (See Chart No. 34.)

*Immediate locality.*—Observed station is in a clump of pine trees about 3 feet above high water, 9 yards south of shore of rounded point, and 20 yards east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	o	'	"	
"Figs" (S 38° 40' W) . . . . .	0	00	00	$\frac{3}{8}$ mile.
Near peak of Dorrance house . . . . .	36	02	..	$\frac{3}{4}$ mile.
Nail in blaze in cedar tree (14 inches diameter) . . . . .	56	38	00	5.76 meters.
Left corner of second story of Lowndes house . . . . .	87	26	..	$\frac{3}{8}$ mile.
Nail in blaze in persimmon tree (6 inches diameter) . . . . .	125	54	30	4.91 meters.
Center of windmill on tower . . . . .	173	33	..	$\frac{1}{2}$ mile.
Left corner of Goldsborough house . . . . .	174	39	..	1 mile.
Nail in blaze in locust tree (10 inches diameter) . . . . .	197	25	40	4.74 meters.
Center of windmill on tower . . . . .	205	39	..	$\frac{3}{8}$ mile.
Left corner of large chimney . . . . .	267	50	..	$\frac{1}{2}$ mile.

## FIG.

*General locality.*—Southeastern shore of Miles River, about 1 mile southwest of Miles River bridge. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 12 feet above high water, 4 yards southeast of edge of tree-covered bank, and 150 yards north-northwest of large barn with two cupolas.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## Survey of Oyster Bars, Talbot County, Md.

References.—	°	'	"	
"Doctor" (S 51° 35' W).....	0	00	00	..... ¼ mile.
Near peak of house.....	33	44	..	..... ⅝ mile.
Nail in blaze in hackberry tree.....	35	07	10	..... 8.66 meters.
Left corner of Dorrance house.....	52	05	..	..... ½ mile.
Nail in blaze in cedar tree (4 inches diameter).....	111	57	20	..... 9.39 meters.
Spindle on cupola on hip roof on house.....	149	46	..	..... ¾ mile.
Center of windmill on tower.....	162	56	..	..... ¾ mile.
Point of tower on house.....	166	12	..	..... ¾ mile.
Left corner of Henderson house.....	182	21	..	..... 1 mile.
Center of windmill on tower.....	183	42	..	..... 1 mile.
Near peak of tenant house.....	209	37	..	..... ¼ mile.
Spindle on left one of two cupolas on barn.....	289	54	..	..... 150 yards.
Near peak of large barn.....	333	00	..	..... ¼ mile.
Nail in blaze in oak tree (8 inches diameter).....	354	32	00	..... 19.14 meters.

## DOCTOR.

*General locality.*—Southeastern shore of Miles River, about 1¼ miles west-southwest of Miles River bridge and 1¾ miles northeast by east of Long Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land back of bushes about 4 feet above high water, 4 yards southeast of edge of bank, 55 yards southwest of a wire fence, 80 yards west of corner of wire fence, 100 yards west by south of a house, and 100 yards west-southwest of a marsh point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"McConnell" (S 31° 17' W).....	0	00	00	..... ¼ mile.
Spindle on barn cupola.....	3	57	..	..... ¾ mile.
Near peak of house.....	36	41	..	..... ⅝ mile.
Peak of house.....	113	30	..	..... ¾ mile.
Nail in blaze in bush (3 inches diameter).....	136	19	00	..... 6.66 meters.
Nail in blaze in apple tree (8 inches diameter).....	154	11	30	..... 17.93 meters.
Left corner of house.....	159	17	..	..... ½ mile.
Center of tower.....	186	31	..	..... 1½ miles.
Left corner of shed.....	213	28	..	..... 100 yards.
Nail in blaze in fence post.....	228	15	50	..... 71.35 meters.
Right peak of large barn.....	344	54	..	..... ⅝ mile.
Near peak of roof of house.....	350	02	..	..... ⅝ mile.

## McCONNELL.

*General locality.*—Southeastern shore of Miles River, near west side of entrance to a small cove about 1½ miles east-northeast of Long Point and 1⅝ miles southwest of Miles River bridge. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 6 feet above high water, 15 yards southeast of edge of bank, 20 yards south of point of bank, and 40 yards west of edge of field at trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Kirk" (S 51° 55' W).....	0	00	00	..... ⅝ mile.
Left peak of roof of house.....	3	39	..	..... 2¼ miles.
Left peak of large house.....	28	52	..	..... ¾ mile.
Front peak of house.....	45	04	..	..... ½ mile.
"St. Michaels Water Tank".....	46	40	20	..... 4¼ miles.
Spindle on barn cupola.....	114	02	..	..... ½ mile.

## References—Continued.

	°	'	"	
Left corner of plastered house.....	120	37	..	1/2 mile.
Right corner of large house.....	145	16	..	3/8 mile.
Right corner of house.....	169	12	..	3/8 mile.
Nail in blaze in cherry tree (5 inches diameter).....	190	40	30	39.78 meters.
Nail in blaze in cherry tree (8 inches diameter).....	213	24	40	37.57 meters.
Nail in blaze in cherry tree (10 inches diameter).....	237	57	00	53.92 meters.
Right peak of barn.....	311	22	..	1/4 mile.

## KIRK.

*General locality.*—Southeastern shore of Miles River, between two creeks about 1 mile east of Long Point. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field, 7 feet above high water, 15 yards south-east of edge of bank, 35 yards west-southwest of point of bank covered with trees, and 40 yards west-northwest of a large sycamore tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Ham" (S 42° 29' W).....	0	00	00	1/2 mile.
Near peak of large house.....	5	30	..	1 3/4 miles.
Left corner of large house.....	76	08	..	1/2 mile.
Highest near peak of house.....	94	49	..	3/8 mile.
Right front peak of large house.....	135	52	..	3/8 mile.
Nail in blaze in cedar tree (6 inches diameter).....	158	58	20	28.33 meters.
Left corner of large house.....	167	33	..	1 1/2 miles.
Center of windmill tower.....	178	17	..	2 1/2 miles.
Spindle on right barn cupola.....	189	36	..	3/4 mile.
Nail in blaze in cedar tree (5 inches diameter).....	203	16	10	37.05 meters.
Left peak of roof of large house.....	213	58	..	3/8 mile.
Nail in blaze in sycamore tree (3 feet diameter).....	234	24	30	34.98 meters.
Spindle on barn cupola.....	346	07	..	1/2 mile.
Left corner of square house.....	355	12	..	1/2 mile.

## HAM.

*General locality.*—Southeastern shore of Miles River, about 3/8 mile east-southeast of Long Point, 1/2 mile southeast of entrance to Hunting Creek, and 1/2 mile northeast of entrance to Newcomb Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated land about 6 feet above high water, 12 yards south-southeast of edge of bank, 20 yards west-southwest of wooden fence at orchard, 65 yards north-northwest of fence at road, 70 yards west-northwest of large, square house, and 70 yards northwest of corner of fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## Survey of Oyster Bars, Talbot County, Md.

References.—	°	'	''	
"Comb" (S 29° 52' W).....	0	00	00	..... ¾ mile.
Left peak of house.....	32	17	..	..... 1¾ miles.
Near peak of large house.....	62	08	..	..... 1¾ miles.
"St. Michaels P. E. Church spire".....	80	30	50	..... 3¾ miles.
"St. Michaels Water Tank".....	82	09	20	..... 3¾ miles.
Near peak of house.....	113	17	..	..... 1¾ miles.
Left corner of house.....	146	00	..	..... ¾ mile.
Front peak of large colonial house.....	175	06	..	..... ¾ mile.
Nail in blaze in fence post.....	187	33	20	..... 17.32 meters.
Near corner of large house.....	195	43	..	..... 3 miles.
Nail in blaze in cherry tree (24 inches diameter).....	230	54	00	..... 21.67 meters.
Left corner of house.....	250	47	..	..... 73 yards.
Nail in blaze in cherry tree (24 inches diameter).....	255	51	50	..... 36.78 meters.
Spindle on barn cupola.....	305	51	..	..... ¾ mile.
Large, long sycamore tree.....	359	17	..	..... ¼ mile.

## COMB.

*General locality.*—Southeastern shore of Miles River about ¼ mile north of entrance to Newcomb Creek and ¾ mile northeast of railroad bridge across entrance to Oak Creek. (See Chart No. 34.)

*Immediate locality.*—Observed station is in cultivated field about 6 feet above high water, 35 yards southeast of edge of bank, 30 yards east of edge of bank, 45 yards north of edge of bank on range with point, and 300 yards southwest of large lone sycamore tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above the surface of the ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Hall" (S 42° 06' W).....	0	00	00	..... ¾ mile.
Left peak of house.....	31	22	..	..... 1¾ miles.
"St. Michaels Water Tank".....	75	56	30	..... 3¾ miles.
Chimney outside of left end of Fogg cottage.....	80	56	..	..... 3¾ miles.
Weather vane on tower of Dodson house.....	95	57	..	..... 4 miles.
Cupola on barn.....	122	11	..	..... 1½ miles.
Left corner of house.....	146	52	..	..... 1 mile.
Large lone sycamore tree.....	168	36	..	..... 300 yards.
Windmill in range with house.....	187	18	..	..... 1¾ miles.
Stack of cannery.....	317	48	..	..... ¾ mile.
Spindle on barn cupola.....	325	59	..	..... ¼ mile.

## HALL.

*General locality.*—Southern shore of Miles River about 100 yards west of west end of railroad trestle across entrance to Oak Creek, and 100 yards east of Royal Oak railway station. (See Chart No. 34.)

*Immediate locality.*—Observed station is in marsh about 1 foot above high water, 30 yards southwest of shore, 40 yards south of shore, 85 yards west-northwest of shore at corner of shed, and 35 yards north-northeast of near rail of railway track.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above the surface of the ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Barnett" (N 39° 14' W).....	0	00	00	¾ mile.
Center of tower on Dodson house.....	7	37	..	4 1/8 miles.
Chimney of middle of Hall Building.....	28	03	..	2 3/8 miles.
Near chimney of Speck house.....	62	40	..	1 5/8 miles.
Chimney of Dorrance house.....	71	47	..	2 1/2 miles.
Chimney on southeast end of house.....	108	32	..	1/2 mile.
Left tangent of shed.....	147	08	..	85 yards.
Northwest peak of barn.....	165	55	..	1/4 mile.
North peak of Kirby house.....	234	38	..	1/2 mile.
Chimney of house.....	281	37	..	1/4 mile.
Chimney on railroad station.....	299	12	..	100 yards.
Left chimney of house.....	330	38	..	1/4 mile.

## BARNETT.

*General locality.*—Southern shore of Miles River about 3/4 mile northwest of entrance to Oak Creek, and 7/8 mile southeast of entrance to Spencers Cove. (See Chart No. 34.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 9 yards southwest of shore, 12 yards northwest of shore, 18 yards west-northwest of extreme end of point, and 8 yards northeast of foot of a bank 6 feet high.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Maiden" (N 26° 26' W).....	0	00	00	1/2 mile.
Cupola of Rieman barn.....	16	16	..	2 3/8 miles.
Left chimney of Hall house.....	25	57	..	2 miles.
Near chimney of house.....	76	47	..	1 1/2 miles.
Windmill.....	85	05	..	2 miles.
Left chimney of house.....	93	46	..	2 miles.
Near chimney of square roof house.....	102	21	..	1 5/8 miles.
Spindle on cupola on barn.....	140	28	..	1 mile.
Southwest peak of barn.....	162	36	..	3/8 mile.
Nail in blaze in oak tree (26 inches diameter).....	177	12	50	9.22 meters.
Nail in blaze in cedar tree (8 inches diameter).....	228	16	40	5.04 meters.
Nail in blaze in pine tree (16 inches diameter).....	256	11	20	10.29 meters.

## MAIDEN.

*General locality.*—Southwestern shore of Miles River about 1/2 mile west of Long Point and 2 1/2 miles southeast of St. Michaels. (See Chart No. 34.)

*Immediate locality.*—Observed station is just outside of a fringe of trees near a small marsh skirting the shore on a point about 3 feet above high water, 3 yards south of shore, 5 yards northeast of foot of bank, 7 yards east of point of bank. Cement monument marking reference station is 4.34 meters S 16° 57' W of observed station. Stone monument marking "Miles River" (1899) is 38.22 meters S 48° 29' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. New reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Old triangulation station (Miles River, 1899) is center of cross lines on 6-inch square top stone monument.

## References.—

	°	'	''	
"Stony" (N 48° 53' W).....	0	00	00	..... 7/8 mile.
Right chimney of house.....	5	01	..	..... 2 3/8 miles.
Weather vane on Dodson house.....	18	25	..	..... 2 7/8 miles.
Left tangent of woods on Fairview Point....	32	34	..	..... 2 1/2 miles.
Cupola on Rieman barn.....	42	46	..	..... 2 miles.
Northwest chimney of house.....	55	21	..	..... 1 5/8 miles.
Weather vane on barn cupola.....	69	32	..	..... 1 3/4 miles.
North chimney of house.....	128	13	..	..... 2 1/4 miles.
Large square chimney on old house.....	143	04	..	..... 1 1/2 miles.
"Miles River 1899," stone monument.....	180	24	00	..... 38.22 meters.
Chimney on near side of roof of large building.	190	48	..	..... 1 3/8 miles.
West peak of large building near draw.....	198	07	..	..... 1 3/8 miles.
REFERENCE STATION (cement monument)...	245	50	40	..... 4.34 meters.
Nail in blaze in cherry tree (22 inches diam- eter).....	259	04	50	..... 4.86 meters.
Nail in blaze in cedar tree (5 inches diam- eter).....	310	27	20	..... 3.37 meters.
Nail in blaze in cedar tree (8 inches diam- eter).....	335	15	20	..... 3.73 meters.
Chimney of Slater house.....	353	23	..	..... 3/4 mile.

## STONY.

*General locality.*—Southwestern shore of Miles River on point at east side of entrance to Spencer Cove about 1/4 miles southeast of St. Michaels. (See Chart No. 34.)

*Immediate locality.*—Observed station is in clump of large oak and birch trees about 8 feet above high water, 14 yards south of shore, 16 yards south-southwest of a point and 12 yards west of another point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe with top 2 inches below base of monument.

## References.—

	°	'	''	
"Millwind" (N 31° 16' W).....	0	00	00	..... 1 1/2 miles.
Weather vane on tower of Dodson house....	7	41	..	..... 2 1/4 miles.
Near peak of cupola on Rieman barn.....	50	21	..	..... 1 5/8 miles.
Peak of west gable of Hall house.....	63	47	..	..... 1 3/8 miles.
Spindle on cupola of house.....	80	10	..	..... 1 1/4 miles.
Tangent of trees.....	162	22	..	..... 1/4 mile.
Nail in blaze in white oak tree (9 inches diameter).....	213	25	20	..... 4.51 meters.
Nail in blaze in holly tree (13 inches diam- eter).....	242	33	00	..... 9.43 meters.
Nail in blaze in pine tree (10 inches diam- eter).....	317	04	10	..... 12.34 meters.
Flagstaff on water tank.....	334	33	..	..... 1 1/2 miles.
Left chimney of house.....	342	59	..	..... 1 5/8 miles.

## CHLORA.

*General locality.*—Northeastern shore of Choptank River, on Chlora Point, about 1 1/2 miles south-southeast of entrance to Island Creek, 1 1/4 miles northwest of entrance to La Trappe Creek, and 2 3/8 miles southeast of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is about 8 feet above high water, 6 yards east-northeast of edge of bank, 9 yards south of wire fence, and 18 yards north of edge of bank at walnut tree. Cement monument marking reference station is 6.91 meters N 78° 43' E of observed station.

*Marks.*—Observed station is hole in center of cement-filled tile pipe 4 inches diameter with top about 2 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above the surface of the ground.

<i>References.</i> —	°	'	''	
"Choptank River Light" (N 57° 03' W) . . . . .	0	00	00	2 3/8 miles.
Nail in blaze in wild-cherry tree (3 inches diameter) . . . . .	74	39	10	3.11 meters.
Nail in blaze in cedar tree (4 inches diameter) . . . . .	129	31	00	9.01 meters.
REFERENCE STATION . . . . .	135	46	10	6.91 meters.
Nail in blaze in walnut tree (14 inches diameter) . . . . .	220	12	10	16.70 meters.
Near peak of house . . . . .	254	53	..	3 miles.
Spindle on cupola . . . . .	267	24	..	2 3/8 miles.
"Large Water Tank" . . . . .	294	46	30	1 1/2 miles.

TRAPPE.

*General locality.*—Northern shore of Choptank River, at west side of entrance to La Trappe Creek, about 1 1/2 miles southeast of Chlora Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on grassy gravel point about 3 feet above high water, 4 yards north of shore, 6 yards east-northeast of shore, and 17 yards south by east of large cedar tree. Cement monument marking reference station is 12.62 meters N 47° 40' E of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 2 inches above surface of ground.

<i>References.</i> —	°	'	''	
"Lan" (N 25° 07' E) . . . . .	0	00	00	1/2 mile.
Cedar tree . . . . .	11	05	..	35 yards.
Red beacon . . . . .	06	50	00	1/4 mile.
Right chimney of house . . . . .	130	16	..	3 miles.
"Black Beacon" . . . . .	145	54	40	1/4 mile.
Northerly peak of Travers Wharf house . . . . .	196	15	..	2 7/8 miles.
Center of smaller water tank . . . . .	241	02	..	2 5/8 miles.
"Large Water Tank" . . . . .	241	44	30	2 5/8 miles.
Nail in blaze in cedar tree (20 inches diameter) . . . . .	294	50	50	7.23 meters.
REFERENCE STATION . . . . .	350	06	40	12.62 meters.
Nail in blaze in cedar tree (22 inches diameter) . . . . .	353	23	40	15.99 meters.

LAN.

*General locality.*—Northwestern shore of La Trappe Creek, about 3/4 mile north of Choptank River. (See Chart No. 35.)

*Immediate locality.*—Observed station is on tree-fringed high land about 10 feet above high water, 8 yards southeast of shore, 85 yards north of shore, and 105 yards northeast of extreme end of point.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Rice" (N 60° 09' E).....	0	00	00	..... 3/8 mile.
Near peak of barn.....	16	13	..	..... 3/4 mile.
Chimney of abandoned house.....	41	40	..	..... 3/8 mile.
Chimney of 1½-story house.....	47	44	..	..... 3/8 mile.
Peak of metal-roofed barn.....	62	58	..	..... 1/2 mile.
Chimney of house in trees.....	69	06	..	..... 1/2 mile.
Nail in blaze in locust tree (4 inches diameter).....	185	07	30	..... 12.46 meters.
"Large Water Tank" (Castlehaven).....	198	49	00	..... 2 7/8 miles.
Chimney on small house.....	235	52	..	..... 1/4 mile.
Nail in blaze in locust tree (6 inches diameter).....	292	39	00	..... 26.39 meters.
Near peak of barn.....	336	14	..	..... 1/4 mile.

## RICE.

*General locality.*—Northwestern shore of La Trappe Creek, about 1/8 mile northeast of a wharf and 3/4 mile north-northeast of Choptank River. (See Chart No. 35.)

*Immediate locality.*—Observed station is on tree-fringed cultivated land, about 3 feet above high water, 28 yards south of shore, 15 yards south of edge of marsh and cultivated land, and 50 yards west of a small creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Gis" (S 14° 38' W).....	0	00	00	..... 3/8 mile.
Nail in blaze in locust tree (5 inches diameter).....	12	23	30	..... 21.00 meters.
Chimney between two 1-story houses.....	57	22	..	..... 125 yards.
Near peak of barn.....	91	01	..	..... 1/4 mile.
Chimney of small house.....	205	01	..	..... 150 yards.
Near peak of barn.....	254	34	..	..... 3/8 mile.
Nail in blaze in locust tree (5 inches diameter).....	255	54	40	..... 19.23 meters.
Nail in blaze in locust tree (3 inches diameter).....	314	02	20	..... 11.99 meters.

## INEZ.

*General locality.*—Eastern shore of La Trappe Creek, on southwestern shore of a small cove about 3/4 mile northeast of Choptank River. (See Chart No. 35.)

*Immediate locality.*—Observed station is on high land in pasture field about 10 feet above high water 3 yards south of edge of tree-fringed bank, and 125 yards northeast of small house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top about 2 inches below base of monument.

References.—	°	'	"	
"Gis" (S 60° 27' W).....	0	00	00	..... 1/8 mile.
Chimney of 1½-story house.....	3	22	..	..... 125 yards.
Near peak of abandoned house.....	19	36	..	..... 125 yards.
Nail in blaze in hackberry tree (3 inches diameter).....	41	31	20	..... 11.11 meters.
Point of dairy roof.....	82	20	..	..... 1/4 mile.
Chimney of 1½-story house.....	87	28	..	..... 1/4 mile.
Peak of roof of small house.....	122	59	..	..... 1/4 mile.



References—Continued.

	°	'	"	
Peak of barn.....	130	00	..	7/8 mile.
Nail in blaze in locust tree (4 inches diameter).....	151	19	40	3.44 meters.
Peak of barn.....	282	34	..	3/8 mile.
Right chimney of house in trees.....	302	19	..	1/4 mile.
"Black Beacon".....	339	49	40	3/8 mile.

GIS.

*General locality.*—Southeastern shore of LaTrappe Creek, about 1/4 mile south of a wharf, and 1/2 mile northeast of Choptank River. (See Chart No. 35.)

*Immediate locality.*—Observed station is on sand and marsh point about 1 foot above high water, 11 yards southeast of shore, 13 yards north of shore, 20 yards northeast of shore, and 30 yards north of high cultivated land.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Grubin" (S 20° 49' W).....	0	00	00	3/8 mile.
"Black Beacon".....	14	34	50	3/8 mile.
Red Beacon.....	20	09	30	3/8 mile.
Chimney of house.....	93	09	..	1/2 mile.
Left chimney on house.....	149	29	..	3/8 mile.
Chimney between two small houses.....	161	51	..	1/4 mile.
Near peak of 1 1/2-story house.....	180	36	..	3/8 mile.

GRUBIN.

*General locality.*—Northern shore of Choptank River on east side of entrance to La Trappe Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on grassy marsh back of gravel beach, about 1 foot above high water, 13 yards east of shore, 13 yards south of shore, 20 yards southeast of extreme end of point, and 100 yards northwest of pond.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—

	°	'	"	
"Howard" (S 1° 21' W).....	0	00	00	2 3/8 miles.
South peak of Travers Wharf house.....	45	02	..	3 miles.
"Black Beacon".....	51	56	10	1/4 mile.
Center of smaller water tower.....	86	56	..	3 miles.
"Large water tank".....	87	49	30	2 3/8 miles.
Red Beacon.....	90	47	10	1/4 mile.
South peak of shed.....	153	07	..	3/8 mile.
Near peak of barn.....	181	58	..	3/8 mile.
Nail in blaze in stump (7 inches diameter)....	194	47	40	12.17 meters.
Chimney of house.....	199	51	..	3/8 mile.
Nail in blaze in cedar tree (5 inches diameter). 225	..	34	30	12.04 meters.

BLACK BEACON.

*General locality.*—Northeastern shore of Choptank River off entrance to LaTrappe Creek, about 1 1/2 miles northeast of Horn Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a cylindrical foundation known as LaTrappe Creek outer light.

*Marks.*—Observed station is center point of lantern on LaTrappe Creek outer light.

*References.*—None necessary.

## HOWELLS.

*General locality.*—Northern shore of Choptank River on Howells Point about  $1\frac{3}{4}$  miles east of Horn Point, 2 miles north of entrance to Jenkins Creek, and 2 miles northwest of Hambrooks Bar Beacon. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a long grassy gravel point about 3 feet above high water, 50 yards south-southeast of old fish shanty and trees, 25 yards south of highest level part of land, 11 yards west of shore, 3 yards east of shore, and  $\frac{1}{4}$  mile north of extreme end of point. Cement monument marking reference station is 22.82 meters N  $17^{\circ} 53'$  E of observed station.

*Marks.*—Observed station is nail in center of cedar stub in center of 4-inch tile pipe with top of pipe 4 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	o	/	//	
"Red" (N $78^{\circ} 26'$ E) . . . . .	0	00	00	..... $1\frac{3}{4}$ miles.
South peak of Kirby Wharf house . . . . .	12	35	..	..... 2 miles.
"Hambrooks Bar Beacon" . . . . .	44	16	50	..... 2 miles.
Flagstaff on boathouse . . . . .	57	19	..	..... $1\frac{3}{4}$ miles.
"Dicks Water Tank" . . . . .	62	22	10	..... $1\frac{3}{4}$ miles.
"Cambridge Standpipe" . . . . .	69	41	10	..... $3\frac{1}{4}$ miles.
Spindle on barn cupola . . . . .	137	22	..	..... $1\frac{3}{4}$ miles.
"Large water tank" . . . . .	209	51	40	..... $3\frac{3}{4}$ miles.
"Black Beacon" . . . . .	251	22	20	..... $1\frac{1}{2}$ miles.
Nail in blaze in dead locust tree (15 inches diameter) . . . . .	285	21	50	..... 9.83 meters.
Nail in blaze in locust tree (3 inches diameter) . . . . .	294	01	40	..... 13.67 meters.
Nail in blaze in pin oak tree (11 inches diameter) . . . . .	297	59	10	..... 27.28 meters.
REFERENCE STATION . . . . .	299	26	40	..... 22.82 meters.

## RED.

*General locality.*—Northern shore of Choptank River at eastern side of Dickinsons Bay, about  $1\frac{3}{4}$  miles east-northeast of Howells Point and  $\frac{3}{4}$  mile northwest of Kirby Wharf. (See Chart No. 35.)

*Immediate locality.*—Observed station is on cultivated land on first high bluff upstream from Howells Point, about 12 feet above high water, 8 yards northeast of edge of bank, 10 yards north of edge of bank, and 10 yards east of edge of bank. Cement monument marking reference station is 23.65 meters N  $89^{\circ} 58'$  E of observed station and almost on line with east chimney of house.

*Marks.*—Observed station is nail in stub in center of 2-inch tile pipe with top of pipe 6 inches below surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	o	/	//	
"Hambrooks Bar Beacon" (S $3^{\circ} 39'$ E) . . . . .	0	00	00	..... $1\frac{3}{4}$ miles.
"Cambridge Standpipe" . . . . .	0	30	10	..... 3 miles.
"Dicks Water Tank" . . . . .	19	34	50	..... $1\frac{3}{4}$ miles.
Center of silo tower . . . . .	51	38	..	..... 3 miles.
"Large Water Tank" . . . . .	102	32	50	..... $4\frac{3}{4}$ miles.
Near peak of barn with two cupolas . . . . .	148	28	..	..... 1 mile.
REFERENCE STATION . . . . .	229	16	20	..... 23.63 meters.
East chimney of house . . . . .	229	38	..	..... $\frac{1}{4}$ mile.
Near peak of large barn . . . . .	282	07	..	..... $\frac{3}{4}$ mile.
Right peak of Kirby Wharf house . . . . .	308	26	..	..... $\frac{3}{8}$ mile.
Near peak of hospital . . . . .	348	39	..	..... $3\frac{1}{4}$ miles.
"East Cambridge Tall Stack" . . . . .	351	07	40	..... 3 miles.

## DOUBLE.

*General locality.*—Northern shore of Choptank River nearly opposite Cambridge about 1 mile north-west of entrance to Bolingbroke Creek and  $1\frac{1}{2}$  miles east of Hambrooks Bar Beacon. (See Chart No. 35.)

*Immediate locality.*—Observed station is on point of marsh separated from field by a row of locust trees about 12 yards northeast of shore, 20 yards north of shore, 14 yards east of shore, and 30 yards south of a large wild-cherry tree.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"East Cambridge tall stack" (S 32° 33' W) . . . . .	0	00	00	1¾ miles.
"Dicks Water Tank" . . . . .	51	44	20	2 miles.
"Hambrooks Bar Beacon" . . . . .	60	01	00	1½ miles.
"Large Water Tank" . . . . .	76	25	40	6¾ miles.
Chimney of house . . . . .	107	34	..	2¾ miles.
Nail in blaze in wild-cherry tree (24 inches diameter) . . . . .	142	08	30	26.69 meters.
Nail in blaze in locust tree (5 inches diameter) . . . . .	177	10	40	24.92 meters.
Chimney outside of near end of house . . . . .	177	29	..	½ mile.
Nail in blaze in wild-cherry tree (4 inches diameter) . . . . .	207	20	40	34.66 meters.
Spindle on barn cupola . . . . .	248	23	..	½ mile.
Chimney of house . . . . .	320	47	..	2¾ miles.
Spindle on cupola . . . . .	347	55	..	2 miles.
Near peak of hospital . . . . .	354	52	..	1¾ miles.

## BOLING.

*General locality.*—Northern shore of Choptank River on an island in entrance to Bolingbroke Creek about ¾ mile northwest of Chancellors Point and 2 miles east-northeast of Cambridge. (See Chart No. 35.)

*Immediate locality.*—Observed station is in rushes on a sandy marsh about 3 feet above high water, 6 yards northeast of shore, 7 yards north of shore, 8 yards east of shore, and 160 yards northwest by north of entrance to Bolingbroke Creek.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"East Cambridge Tall Stack" (S 60° 19' W) . . . . .	0	00	00	1¾ miles.
Chimney outside of left end of mansard-roof house . . . . .	33	11	..	2¾ miles.
Flagpole on boathouse . . . . .	37	05	..	2¾ miles.
"Hambrooks Bar Beacon" . . . . .	44	30	00	2¾ miles.
Nail in blaze in cedar tree (8 inches diameter) . . . . .	134	40	30	26.53 meters.
Nail in blaze in old cedar stump (13 inches diameter) . . . . .	191	39	00	5.29 meters.
Near peak of barn cupola . . . . .	249	14	..	1¾ miles.
Near peak of barn . . . . .	270	14	..	1½ miles.
Chimney of house . . . . .	294	34	..	1½ miles.
Nail in blaze in cedar tree (11 inches diameter) . . . . .	300	25	40	4.56 meters.
Chimney of house . . . . .	313	10	..	1½ miles.

## REAR.

*General locality.*—Northern shore of Choptank River about  $\frac{1}{4}$  mile northwest of Chancellors Point and  $\frac{1}{2}$  mile southeast of entrance to Bolingbroke Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is in cultivated field on bluff about 12 feet above high water, 65 yards north of edge of bank, 110 yards northeast of edge of bank and trees, 160 yards east of edge of bank, and 95 yards northwest of bottom of gully.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Barber" (N 35° 22' E).....	0	00	00	1 mile.
Near corner of square cupola.....	27	51	..	$\frac{1}{4}$ mile.
Chimney of house.....	78	16	..	1 $\frac{1}{2}$ miles.
Near peak of barn cupola.....	105	00	..	1 $\frac{1}{4}$ miles.
Near peak of large barn.....	136	08	..	1 $\frac{3}{8}$ miles.
Left peak of large barn.....	177	19	..	1 $\frac{3}{4}$ miles.
Barn cupola.....	214	22	..	2 miles.
"Cambridge Standpipe".....	221	13	50	2 $\frac{3}{4}$ miles.
"Hambrooks Bar Beacon".....	255	40	50	3 miles.
"Large Water Tank".....	257	19	00	8 $\frac{1}{4}$ miles.
Chimney of house.....	280	15	..	1 $\frac{1}{4}$ miles.
Chimney outside near end of house.....	288	83	..	1 $\frac{3}{4}$ miles.

## CHANCELLOR.

*General locality.*—Northern shore of Choptank River on Chancellors Point about  $\frac{3}{4}$  mile north of entrance to Hurst Creek and  $\frac{3}{4}$  mile southeast of entrance to Bolingbroke Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on sand and grass point about 1 foot above high water, 35 yards west of shore, 35 yards northeast of shore, 60 yards north by west of extreme end of point, 13 yards south of line of cedar stumps, 27 yards southeast of large lone pine tree, and almost on range of Cambridge Standpipe and left peak of hospital. Cement monument marking reference station is 4.70 meters N 31° 31' W of observed station and almost on line to large lone pine tree.

*Marks.*—Observed station is nail in cedar stub in center of 4-inch tile pipe with top flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 6 inches above surface of ground.

*References.*—

	°	'	"	
"Cambridge Standpipe" (S 78° 00' W).....	0	00	00	2 $\frac{1}{2}$ miles.
REFERENCE STATION.....	70	29	10	4.70 meters.
Nail in blaze in lone pine tree (16 inches diameter).....	71	00	00	24.74 meters.
Southeast corner of square cupola.....	115	45	..	350 yards.
Nail in blaze in cedar stump (16 inches diameter).....	122	32	50	12.40 meters.
Chimney of house.....	216	38	..	1 $\frac{1}{4}$ miles.
Near peak of house.....	245	53	..	1 $\frac{1}{8}$ miles.
Chimney on left end of house.....	282	44	..	1 $\frac{1}{4}$ miles.
Chimney of house.....	328	52	..	1 $\frac{5}{8}$ miles.
Nail in blaze in small pine tree.....	350	04	40	23.26 meters.
Left peak of hospital.....	359	06	..	2 $\frac{1}{4}$ miles.

BARBER.

*General locality.*—Northwestern shore of upper Choptank River about 1 mile north-northeast of Chancellors Point and about  $\frac{3}{8}$  mile west-southwest of Goose Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 2 feet above high water, 12 yards north-northwest of county road and shore, 45 yards west-southwest of a cabin on the county road, 25 yards west of two cedar trees just across road, and 65 yards south of a wire fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Duck" (N 75° 49' E).....	0	00	00	..... $\frac{7}{8}$ mile.
Nail in blaze in cedar tree (10 inches diameter).....	5	04	50	..... 19.17 meters.
Smokepipe on wharf house.....	35	48	..	..... $1\frac{1}{2}$ miles.
Near peak of house.....	57	06	..	..... $1\frac{1}{2}$ miles.
Northwest peak of house.....	92	22	..	..... $1\frac{3}{4}$ miles.
Chimney on left end of house.....	116	41	..	..... $2\frac{1}{4}$ miles.
Near peak of house with square cupola.....	133	33	..	..... $\frac{7}{8}$ mile.
Large lone tree.....	208	40	..	..... 350 yards.
Nail in blaze in cedar tree (5 inches diameter).....	209	58	40	..... 36.42 meters.
Nail in blaze in persimmon tree (5 inches diameter).....	323	12	30	..... 36.01 meters.
Near corner of barn.....	347	15	..	..... 21.96 meters.
Nail in blaze in cedar tree (10 inches diameter).....	359	16	50	..... 20.12 meters.

DUCK.

*General locality.*—Northern shore of Choptank River on Goose Point  $\frac{3}{4}$  mile north of Oyster Shell Point and  $1\frac{3}{4}$  miles northeast of Chancellors Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on edge of sand beach on lower part of point about on level with high water, 15 to 20 yards southeast of a group of cedar and persimmon trees. Cement monument marking reference station is 12.61 meters N 28° 19' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	°	'	''	
"Jam" (N 35° 54' E).....	0	00	00	..... $1\frac{3}{8}$ miles.
Left peak of large barn.....	46	01	..	..... $1\frac{3}{4}$ miles.
Center of roof of house.....	82	31	..	..... $1\frac{3}{8}$ miles.
Smoke pipe on wharf house.....	115	52	..	..... $\frac{7}{8}$ mile.
Left peak of barn cupola.....	160	21	..	..... 2 miles.
Near corner of square chimney of house.....	174	03	..	..... $2\frac{3}{4}$ miles.
Chimney of house.....	192	50	..	..... 4 miles.
Near corner of square cupola on house.....	197	16	..	..... $1\frac{5}{8}$ miles.
Nail in blaze in persimmon tree (2 inches diameter).....	238	59	40	..... 21.22 meters.
REFERENCE STATION.....	295	47	30	..... 12.61 meters.
Nail in blaze in persimmon tree (3 inches diameter).....	297	48	50	..... 15.20 meters.
Nail in blaze in cedar tree (3 inches diameter).....	332	27	20	..... 14.28 meters.

## JAM.

*General locality.*—Western shore of Choptank River on Jamaica Point opposite entrance to Warwick River. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh point about 3 feet above high water, 25 yards west-northwest of end of wharf, 7 yards north of county road, 11 yards northeast of county road, 13 yards south of shore, 8 yards west-southwest of shore, and 30 yards north by east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Spindle" (N 14° 53' W).....	0	00	00	..... 3/8 mile.
Chimney outside near end of house.....	16	33	..	..... 2 miles.
Chimney of large house.....	19	46	00	..... 2 miles.
"Wick".....	76	04	..	..... 3/4 mile.
Chimney of house.....	82	48	..	..... 1 1/8 miles.
Left chimney of large brick house.....	90	07	..	..... 1 1/2 miles.
Left corner of wharf house.....	95	57	20	..... 49.81 meters.
Right corner of wharf house.....	108	14	..	..... 46.85 meters.
Nail in first plank on level part of wharf.....	110	03	50	..... 24.94 meters.
Near peak of large barn.....	144	56	..	..... 1 1/2 miles.
Chimney of house.....	171	30	..	..... 2 miles.
Near peak of house.....	202	51	..	..... 2 1/4 miles.
Near peak of house near wharf.....	211	21	..	..... 2 miles.
Right peak of barn cupola.....	218	30	..	..... 2 1/2 miles.
Near corner of fence.....	269	38	..	..... 1/4 mile.

## SPINDLE.

*General locality.*—Western shore of upper Choptank River about 3/8 mile north of Jamaica Point Wharf. (See Chart No. 35.)

*NOTE.*—This triangulation landmark was destroyed before this publication was prepared, and therefore it is not described, although its name and location are shown on Chart No. 35.

## BANK.

*General locality.*—Western shore of upper Choptank River about 1 mile north-northwest of Jamaica Point and 1 1/4 miles southwest of entrance to Cabin Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is in a cultivated field on a tree-fringed bluff about 20 feet above high water, 10 yards northwest of edge of bluff, 10 yards west of edge of bluff, and 12 yards north of edge of bluff.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Raccoon" (N 19° 26' E).....	0	00	00	..... 5/8 mile.
Left chimney of modern house.....	5	55	..	..... 1 1/4 miles.
Nail in blaze in branch of double oak tree (12 and 18 inches diameter).....	34	56	40	..... 7.03 meters.
Chimney of house in woods.....	54	30	..	..... 1 1/2 miles.
Chimney of shanty in woods.....	86	07	..	..... 1 1/8 miles.
Chimney of house.....	103	23	..	..... 1 3/4 miles.
Nail in blaze in oak tree (8 inches diameter).....	124	13	10	..... 8.55 meters.
Nail in blaze in cedar tree (7 inches diam- eter).....	161	00	10	..... 21.11 meters.
Front peak of house.....	168	29	..	..... 1/8 mile.

RACCOON.

*General locality.*—Western shore of upper Choptank about  $\frac{3}{8}$  mile south of entrance to a small creek,  $1\frac{1}{2}$  miles north of Jamaica Point, and 1 mile west of entrance to Cabin Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is between 2 clumps of trees on sandy marsh about 2 feet above high water, 8 yards northwest of shore, 12 yards west of shore, 16 yards north of shore, and 200 yards southwest of woods beyond marsh.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Blind" (N 52° 15' E).....	o	oo	oo	..... $\frac{3}{4}$ mile.
Chimney outside near end of house.....	34	22	..	..... $1\frac{3}{4}$ miles.
Near peak of modern house.....	41	07	..	..... $1\frac{1}{8}$ miles.
Chimney of house.....	77	59	..	..... $1\frac{3}{4}$ miles.
Near peak of house.....	105	09	..	..... 2 miles.
Chimney of house.....	113	14	..	..... $3\frac{1}{8}$ miles.
Near peak of Jamaica Point Wharf house.....	120	42	..	..... $1\frac{1}{8}$ miles.
Left corner of house.....	144	31	..	..... 1 mile.
Nail in blaze in oak tree (10 inches diameter). 155'	155'	21	50	..... 12.66 meters.
Nail in blaze in large pine tree (12 inches diameter).....	204	45	40	..... 37.12 meters.
Nail in blaze in oak tree (10 inches diameter). 329	329	46	20	..... 26.50 meters.
Chimney outside near end of house.....	350	04	..	..... $\frac{3}{8}$ mile.

BLIND.

*General locality.*—Northwestern shore of Choptank River about  $\frac{1}{2}$  mile west-north west of entrance to Cabin Creek, and 2 miles north of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point between river and line of locust trees about 1 foot above high water, 11 yards north of shore, 15 yards west of shore, 16 yards northeast of shore at duck blind, and 25 yards east by north of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	/	''	
"Up" (N 61° 44' E).....	o	oo	oo	..... $\frac{3}{4}$ mile.
Chimney outside of near end of old house....	47	17	..	..... 1 mile.
Peak of side gable of modern house.....	57	24	..	..... $1\frac{1}{4}$ miles.
Right peak of Jamaica Point wharf house... 131	131	24	..	..... 2 miles.
Chimney on house.....	162	44	..	..... $1\frac{1}{4}$ miles.
Nail in blaze in locust tree (4 inches diameter).....	201	23	50	..... 10.28 meters.
Nail in blaze in locust tree (4 inches diameter).....	226	52	20	..... 7.53 meters.
Nail in blaze in locust tree (6 inches diameter).....	270	06	10	..... 5.72 meters.
Nail in blaze in locust tree (10 inches diameter).....	322	04	50	..... 14.25 meters.

UP.

*General locality.*—Northwestern shore of upper Choptank River about  $\frac{3}{4}$  mile north of entrance to Cabin Creek and  $2\frac{1}{2}$  miles north-northeast of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 55 yards northwest of extreme end of point, 25 yards west of shore, and 20 yards north of shore.

## Survey of Oyster Bars, Talbot County, Md.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 8 inches above surface of marsh. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Myrtle" (S 60° 25' E).....	0	00	00	..... 3/8 mile.
Peak of side gable of modern house.....	34	14	..	..... 1 mile.
Chimney of old house.....	36	10	..	..... 5/8 mile.
Tangent of point.....	77	45	..	..... 1 mile.
House.....	111	45	..	..... 1 7/8 miles.
Tangent of point.....	122	02	..	..... 5/8 mile.
House.....	273	00	..	..... 1 1/2 miles.
Tangent of point.....	305	15	..	..... 175 yards.

## MYRTLE.

*General locality.*—Eastern shore of upper Choptank River about 1/2 mile north of entrance to Cabin Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 17 yards east of shore, 20 yards south of extreme end of point, 15 yards southwest of small gut, and 250 yards west of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Hut" (S 7° 47' W).....	0	00	00	..... 3/8 mile.
Left peak of old barn.....	6	41	..	..... 7/8 mile.
Tangent of point.....	32	14	..	..... 7/8 mile.
Chimney of house.....	53	01	..	..... 2 miles.
Chimney outside east end of house.....	78	42	..	..... 1 1/4 miles.
Near peak of shanty.....	157	18	..	..... 3/4 mile.
Stack of cannery at Choptank.....	180	51	..	..... 2 3/4 miles.
Left peak of house.....	194	19	..	..... 2 1/4 miles.
Tangent of point.....	203	56	..	..... 3/4 mile.
Right peak of roof showing over woods.....	314	37	..	..... 3/4 mile.
Large lone pine tree.....	333	11	..	..... 300 yards.

## HUT.

*General locality.*—Eastern shore of upper Choptank River on north side of entrance to Cabin Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 15 yards east of shore, 50 yards northwest of shore, 20 yards northeast of extreme end of point, 90 yards southwest of a hut, and 80 yards south-southwest of trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"House" (S 46° 38' W).....	0	00	00	..... 3/4 mile.
Chimney of house.....	25	27	..	..... 1 3/4 miles.
Chimney outside of house.....	60	33	..	..... 1 1/4 miles.
Cupola on barn.....	132	48	..	..... 2 1/2 miles.
Right corner of hut.....	173	53	20	..... 90 yards.
Chimney outside near end of old house.....	242	13	..	..... 1/2 mile.
Peak of near gable of modern house.....	281	42	..	..... 1/2 mile.
Right peak of old barn.....	337	43	..	..... 3/8 mile.



## HOUSE.

*General locality.*—Eastern shore of Choptank River about  $\frac{1}{4}$  mile south of entrance to Cabin Creek, 1 mile north of entrance to Warwick River, and on south side of a small cove. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 14 yards south of shore, 26 yards southeast of shore, 35 yards southwest by west of shore and mouth of small creek in marsh and 175 yards north of woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 3 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Saw" (S 6° 22' W).....	0	00	00	..... $\frac{3}{8}$ mile.
Two pine trees.....	5	49		.....
Left peak of shanty.....	126	49		..... $1\frac{1}{8}$ miles.
Chimney outside near end of house.....	131	06		..... $1\frac{1}{8}$ miles.
Near peak of house.....	137	29		..... $1\frac{1}{8}$ miles.
Tangent of point.....	172	07		..... $\frac{1}{4}$ mile.
Stack of cannery at Choptank.....	189	09		..... 4 miles.
Near peak of house.....	193	59		..... $4\frac{1}{2}$ miles.
Near peak of shack.....	219	48		..... $\frac{7}{8}$ mile.
Cut in woods.....	348	16		..... $\frac{1}{2}$ mile.

## SAW.

*General locality.*—Eastern shore of Choptank River about  $\frac{1}{2}$  mile northeast of entrance to Warwick River, and 1 mile northeast by east of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 22 yards east of shore, 26 yards southeast of shore, 37 yards northeast of shore, 200 yards west-northwest of dense woods.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe, buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Wick" (S 19° 01' W).....	0	00	00	..... $\frac{1}{2}$ mile.
Right peak of Jamaica Point Wharf house....	24	57		..... 1 mile.
Left corner of very wide chimney on brick house.....	32	14		..... $1\frac{1}{4}$ miles.
Right corner of railing on roof of house.....	70	36		..... $1\frac{1}{8}$ miles.
Chimney of house.....	86	44		..... $1\frac{1}{4}$ miles.
Near peak of house.....	135	04		..... $1\frac{1}{4}$ miles.
Chimney outside left end of house.....	152	42		..... 2 miles.
Cupola or steeple.....	181	04	00	..... 5 miles.
Near corner of brick house.....	311	51		..... $\frac{1}{2}$ mile.

## WICK.

*General locality.*—Eastern shore of upper Choptank River on northern side of entrance to Warwick River, about  $\frac{3}{4}$  mile northeast of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on sandy ridge between beach and marsh, about 2 feet above high water, 8 yards northeast of shore, 10 yards north of shore, 9 yards east of shore, 100 yards southeast by east of extreme end of point, and 35 yards northwest of two pine trees. Cement monument marking reference station is 8.26 meters N 25° 00' E of observed station.

*Marks.*—Observed station is nail in cedar stub with top flush with the surface of the ground. Reference station is center point of triangle on standard cement monument projecting 4 inches above surface of ground.

References.—	°	'	''	
"War" (S 2° 08' E) . . . . .	0	00	00	5/8 mile.
Near peak of house in trees . . . . .	2	21	..	5/8 mile.
Smoke pipe on wharf house . . . . .	27	13	..	2 3/4 miles.
Tangent of Goose Point . . . . .	45	55	..	1 1/2 miles.
Right peak of Jamaica Point Wharf house . . . . .	62	29	..	5/8 mile.
Right corner of very wide chimney on brick house . . . . .	68	42	..	3/8 mile.
Left corner of cupola on roof . . . . .	115	10	..	1 1/4 miles.
Near peak of house . . . . .	167	00	..	2 3/4 miles.
REFERENCE STATION . . . . .	207	07	20	8.26 meters.
Nail in blaze in pine tree (12 inches diameter) . . . . .	296	59	10	30.06 meters.
Right pine tree . . . . .	325	53	20	400 yards.

## WAR.

*General locality.*—Eastern shore of upper Choptank River on southern side of entrance to Warwick River, about 3/4 mile east-southeast of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on northern side of point of marsh about 1 foot above high water, 45 yards south of shore, 35 yards southeast of shore, 45 yards east of shore, and 35 to 45 yards southwest to west of woods. Cement monument marking reference station is 4.95 meters S 12° 18' E of observed station.

*Marks.*—Observed station is nail in center of cedar stub with top flush with surface of ground. Reference station is center point of triangle on standard monument projecting 4 inches above surface of ground.

References.—	°	'	''	
"Gander" (S 11° 26' W) . . . . .	0	00	00	3/4 mile.
Chimney of house . . . . .	17	12	..	2 miles.
Smoke pipe on wharf house . . . . .	23	00	..	1 3/4 miles.
Left chimney of small house . . . . .	26	05	..	2 miles.
Square cupola on large house . . . . .	45	53	..	3 1/4 miles.
Left peak of house . . . . .	66	11	..	1 1/2 miles.
Right corner of very wide chimney on brick house . . . . .	96	11	..	1 mile.
Left peak of Jamaica Point Wharf house . . . . .	105	01	..	5/8 mile.
Chimney of house . . . . .	132	50	..	1 3/4 miles.
Near peak of house . . . . .	157	00	..	2 3/4 miles.
Nail in blaze in pin oak tree (10 inches diameter) . . . . .	186	09	50	42.26 meters.
Nail in blaze in pine tree (11 inches diameter) . . . . .	212	30	40	41.75 meters.
Nail in blaze in pine tree (12 inches diameter) . . . . .	245	18	30	31.45 meters.
Nail in blaze in pine tree (12 inches diameter) . . . . .	267	08	30	30.11 meters.
REFERENCE STATION . . . . .	336	16	20	4.95 meters.
Chimney of house . . . . .	353	07	..	1 mile.

## GANDER.

*General locality.*—Southeastern shore of Choptank River 3/8 mile southwest of entrance to Goose Creek about 1 3/8 miles east-northeast of Oystershell Point and about 1 1/8 miles south-southeast of Jamaica Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is in an uncultivated field on bank about 6 feet above high water, 19 yards east of edge of bank, 33 yards northeast of edge of bank, 33 yards southeast of edge of bank, and 155 yards west of two large cedar trees at a paling fence.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 6 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Chief" (S 9° 44' W) . . . . .	0	00	00	5/8 mile.
Chimney of house . . . . .	28	22	..	1 1/4 miles.
Smokepipe on wharf house . . . . .	40	14	..	1 1/8 miles.
Chimney of house . . . . .	50	00	..	4 1/2 miles.
"Cambridge Stand Pipe" . . . . .	62	46	50	5 3/4 miles.
Chimney outside of house . . . . .	113	39	..	1 1/4 miles.
Right chimney of house . . . . .	135	48	..	1 1/4 miles.
Near peak of Jamaica Point Wharf house . . . . .	147	14	..	1 1/8 miles.
Chimney of house . . . . .	148	54	..	2 3/8 miles.
Chimney of house . . . . .	164	24	..	3 1/4 miles.
Tangent of point . . . . .	172	50	..	3/4 mile.
Right end of roof of long barn . . . . .	235	04	..	5/8 mile.
Black walnut tree . . . . .	282	36	..	200 yards.
Chimney of house . . . . .	344	59	..	1/4 mile.

CHIEF.

*General locality.*—Southeast shore of Choptank River on a narrow neck of land between Choptank River and Indian Creek, about 1 mile east of Oystershell Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a grass strip between Choptank River and Indian Creek about 2 feet above high water, 15 yards south of river shore, 11 yards north of creek shore, 20 yards southeast of river shore, and 25 yards southwest of river shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	"	
"Shell" (S 85° 11' W) . . . . .	0	00	00	1 mile.
Smoke pipe on wharf house . . . . .	0	42	..	3/4 mile.
Nail in blaze in locust tree (3 inches diameter) . . . . .	13	37	10	11.76 meters.
Right corner of railing on house . . . . .	78	32	..	2 miles.
Near peak of house . . . . .	91	47	..	3 3/8 miles.
Right corner of square chimney . . . . .	114	47	..	1/2 mile.
Near corner of barn . . . . .	144	05	..	1/4 mile.
Nail in blaze in cedar tree (6 inches diameter) . . . . .	167	07	10	22.07 meters.
Stack of cannery . . . . .	208	56	20	3/8 mile.
Peak of house between two chimneys . . . . .	253	32	..	1/4 mile.
Nail in blaze in cedar tree (8 inches diameter) . . . . .	348	04	50	13.81 meters.
Near peak of cottage . . . . .	358	38	..	1 mile.

SHELL.

*General locality.*—Southeastern shore of Choptank River on Oyster Shell Point about 3/4 mile south of Goose Point and 1 1/2 miles east-northeast of Chancellors Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 100 yards north of rail fence, 55 yards southwest of shore, 75 yards south of shore, 400 yards west of a wharf, 250 yards west by north of a small house near the shore, 50 yards west by north of corner of fence. Cement monument marking reference station is 2.27 meters N 83° 07' W of observed station.

*Marks.*—Observed station is nail in cedar stub flush with surface of ground. Reference station is center point of triangle on standard cement monument projecting 5 inches above the surface of the ground.

References.—	°	'	"	
"Whitehall" (S 41° 55' W).....	0	00	00	..... 5/8 mile.
Lone tree.....	29	12	..	..... 225 yards.
"Cambridge Standpipe".....	35	39	00	..... 4 1/2 miles.
Right corner of square cupola.....	39	24	..	..... 1 1/2 miles.
REFERENCE STATION.....	54	57	50	..... 2.27 meters.
Chimney on left end of house.....	83	10	..	..... 1 1/8 miles.
Near peak of large house.....	150	53	..	..... 1 1/8 miles.
Near peak of Jamaica Point Wharf house.....	158	17	..	..... 1 1/8 miles.
Right peak of building.....	177	29	..	..... 2 3/8 miles.
Chimney on house.....	205	20	..	..... 1 1/4 miles.
Smoke pipe on wharf house.....	221	13	..	..... 1/4 mile.
Near peak of shed.....	265	40	..	..... 150 yards.
Near peak of house.....	280	06	..	..... 300 yards.

## WHITEHALL.

*General locality.*—Southeastern shore of Choptank River about 5/8 mile southwest of Oystershe Point, and 1 1/8 miles east of Chancellor Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point among water bushes about 12 yards south-southeast of shore, 13 yards south-southwest of shore, and 15 yards east-southeast of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	"	
"Ferry" (S 55° 08' W).....	0	00	00	..... 1 1/4 miles.
Chimney of house.....	10	50	..	..... 2 3/4 miles.
"Cambridge Stand Pipe".....	27	22	40	..... 4 miles.
Right of square cupola.....	46	16	..	..... 1 1/8 miles.
Left chimney on long house.....	99	58	..	..... 1 1/4 miles.
Chimney outside near end of house.....	137	20	..	..... 1 7/8 miles.
Near peak of large building.....	144	31	..	..... 2 3/8 miles.
Front peak of Jamaica Point Wharf house.....	150	00	..	..... 2 1/2 miles.

## FERRY.

*General locality.*—Southern shore of Choptank River near east side of entrance to Hurst Creek about 2 1/2 miles east of Cambridge. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a sand beach about on level with high water, 92 yards east-northeast of Hurst Creek, 1 yard southeast of shore, and 6 to 10 yards northwest to north of several low cedar trees. Cement monument marking reference station is 16.74 meters S 50° 12' E of observed station.

*Marks.*—Observed station is nail in pine stub in center of 2-inch tile pipe with top of pipe 6 inches below surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument.

References.—	°	'	"	
"E. Cambridge Tall Stack" (N 81° 21' W).....	0	00	00	..... 2 1/2 miles.
"Hambrooks Bar Beacon".....	24	05	10	..... 3 1/2 miles.
Near peak of large house with cupola.....	79	37	..	..... 1 mile.
Near peak of barn cupola.....	99	22	..	..... 2 miles.
Near peak of Jamaica Point Wharf house.....	116	23	..	..... 3 5/8 miles.
Nail in blaze in cedar tree (11 inches diameter).....	193	07	00	..... 6.82 meters.
REFERENCE STATION.....	211	09	00	..... 16.74 meters.
Nail in blaze in cedar tree (8 inches diameter).....	242	42	50	..... 8.32 meters.
Nail in blaze in cedar tree (16 inches diameter).....	279	49	00	..... 9.76 meters.
Chimney of house.....	338	10	..	..... 1 3/4 miles.

## SHOAL.

*General locality.*—Southern shore of Choptank River near entrance to a small creek about 1 mile east-southeast of Cambridge and  $1\frac{5}{8}$  miles west-southwest of Chancellors Point. (See Chart No. 35.)

*Immediate locality.*—Observed station is in woods on a point of land about 10 feet above high water, 50 yards east of edge of bank, 6 yards southwest of wire fence at edge of high land, 7 yards south of wire fence, 11 yards west of wire fence, 13 yards west-southwest of large double oak tree, and 90 yards east of a marsh point at a creek. Cement monument marking reference station is 6.08 meters S  $23^{\circ} 44'$  W of observed station.

*Marks.*—Observed station is center of tile pipe with top 6 inches below surface of ground. Reference station is center point of triangle on standard cement monument projecting 5 inches above surface of ground.

*References.*—

	o	'	"	
"Cambridge" (N $46^{\circ} 31'$ W).....	0	00	00	..... $1\frac{3}{4}$ miles.
Large chimney of house.....	25	55	..	..... $3\frac{5}{8}$ miles.
Spindle on barn cupola.....	61	31	..	..... $1\frac{3}{4}$ miles.
Left chimney of house.....	84	09	..	..... 2 miles.
Near peak of barn with cupola.....	106	11	..	..... $1\frac{3}{4}$ miles.
Nail in blaze in large double oak tree.....	120	03	20	..... 11.31 meters.
Nail in blaze in black walnut tree (8 inches diameter).....	205	53	40	..... 10.96 meters.
Nail in blaze in cedar tree (6 inches diameter).....	224	26	30	..... 8.05 meters.
REFERENCE STATION.....	250	15	40	..... 6.08 meters.
Nail in blaze in black walnut tree (17 inches diameter).....	304	19	20	..... 3.19 meters.
Flagstaff on boathouse.....	358	43	..	..... $2\frac{1}{2}$ miles.

## E. CAMBRIDGE TALL STACK.

*General locality.*—Southern shore of Choptank River in the town of Cambridge on the east side of Cambridge Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is tall square brick smokestack at plant of Cambridge Manufacturing Co.

*Marks.*—Observed station is center of stack.

*References.*—None necessary.

## E. CAMBRIDGE SPIRE.

*General locality.*—Southern shore of Choptank River in town of Cambridge on the east side of Cambridge Creek and the south side of Maryland Avenue. (See Chart No. 35.)

*NOTE.*—This triangulation landmark was torn down before this publication was prepared and therefore it is not described, although its name and location are shown on Chart No. 35.

## CAMBRIDGE STAND PIPE.

*General locality.*—Southwestern side of Choptank River in the town of Cambridge. (See Chart No. 35.)

*Immediate locality.*—Observed station is on standpipe on the north side of High Street near Pine Street.

*Marks.*—Observed station is center of cylindrical water standpipe with ornamental railing on top.

*References.*—None necessary.

## CAMBRIDGE.

*General locality.*—Southern shore of Choptank River on a point about  $\frac{3}{4}$  mile southeast of Ham-brooks Bar Beacon and  $\frac{1}{2}$  mile northwest of Cambridge steamer wharf. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a marsh point about 1 foot above high water, 30 yards west of shore, 35 yards south of shore at cut, 40 yards southwest of shore, and 3 yards southwest of barbed-wire fence running northwest and southeast.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Command" (N 50° 20' W).....	0	00	00	..... ¾ mile.
"Hambrooks Bar Beacon".....	36	12	00	..... ¾ mile.
Southwest peak of Kirby Wharf house.....	58	27	..	..... 1¾ miles.
Chimney outside of south end of house.....	107	00	..	..... 1¾ miles.
Near one of four chimneys on large square house.....	133	26	..	..... 2¼ miles.
Right chimney of large house on Chancellors Point.....	146	27	..	..... 2¾ miles.
Weather vane on hotel.....	235	36	..	..... ½ mile.
Chimney of house.....	328	03	..	..... ¾ mile.
Flagpole.....	354	09	..	..... ¾ mile.
Flagpole on boathouse.....	359	24	..	..... ¾ mile.

#### HAMBROOKS BAR BEACON.

*General locality.*—Southern side of Choptank River about ¼ mile offshore from point of land known as Hambrooks Bar, about 2 miles southeast of Howells Point, and 1½ miles northwest of Cambridge. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a cylindrical foundation known as Hambrooks Bar Beacon.

*Marks.*—Observed station is center point of lantern on Hambrooks Bar Beacon.

*References.*—None necessary.

#### COMMAND.

*General locality.*—Southern shore of Choptank River about ½ mile west-southwest of Hambrooks Bar Beacon and about 1½ miles northwest of Cambridge Wharf. (See Chart 35.)

*Immediate locality.*—Observed station is on a marsh point inside of a fence line about 2 feet above high water, 18 yards southeast of shore, 16 yards south of shore, 25 yards southwest of shore, and 150 yards northwest of a boathouse.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Choptank River Light" (N 49° 40' W)....	0	00	00	..... 6¾ miles.
Nail in blaze in fence post.....	5	33	30	..... 10.85 meters.
Near peak of large building.....	16	45	..	..... 2¼ miles.
Nail in blaze in fence post.....	65	08	20	..... 11.01 meters.
Left chimney of house with three dormer windows.....	68	28	..	..... 1¾ miles.
Near peak of Kirby Wharf house.....	86	40	..	..... 1½ miles.
"Hambrooks Bar Beacon".....	121	17	50	..... ½ mile.
Near peak of large house.....	153	10	..	..... 3 miles.
Flagstaff on boathouse.....	183	20	..	..... 150 yards.
"Dicks Water Tank".....	266	29	30	..... ½ mile.
Nail in blaze in fence post.....	328	25	40	..... 17.23 meters.
Left chimney of old house.....	331	53	..	..... 2¾ miles.
"Large Water Tank".....	347	03	10	..... 5 miles.

## DICKS WATER TANK.

*General locality.*—Southern shore of Choptank River near Hambrooks Bar about  $\frac{5}{8}$  mile southwest of Hambrooks Bar Beacon, and  $\frac{1}{4}$  mile west of extreme end of Hambrooks Bar. (See Chart No. 35.)

*Immediate locality.*—Observed station is on water tank.

*Marks.*—Observed station is spindle on top of water tank.

*References.*—None necessary.

## HOWARD.

*General locality.*—Southern shore of Choptank River, 2 miles southeast of Horn Point, and about  $\frac{1}{4}$  mile northwest of entrance to Jenkins Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on cultivated land on bluff about 12 feet above high water, 25 yards southwest of edge of bluff, 30 yards south of edge of bluff, 35 yards west of edge of bluff, 45 yards west-northwest of corner of fence dividing field from marsh, and 65 yards northeast of the south one of two small poplar trees in field.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

<i>References.</i> —	°	'	''	
"Choptank River Light" (N 36° 14' W) . . . . .	0	00	00	6 miles.
Near peak of barn . . . . .	30	20	..	3½ miles.
"Black Beacon" . . . . .	32	16	50	2¾ miles.
Red Beacon . . . . .	34	11	30	2⅞ miles.
Near peak of low house in trees . . . . .	79	52	..	3¼ miles.
Near peak of Kirby Wharf house . . . . .	90	53	..	3 miles.
"Dicks Water Tank" . . . . .	109	57	40	1½ miles.
Left chimney of house . . . . .	115	00	..	1 mile.
Nail in blaze in locust tree (8 inches diameter) . . . . .	125	51	50	37.49 meters.
Nail in blaze in locust tree . . . . .	144	34	50	45.66 meters.
Nail in blaze in locust tree . . . . .	188	22	40	63.83 meters.
Near peak of barn . . . . .	245	03	..	¼ mile.
Right peak of house . . . . .	317	02	..	¼ mile.
Right peak of old house . . . . .	351	02	..	1½ miles.

## TOOT.

*General locality.*—Southern shore of Choptank River on Horn Point about  $1\frac{5}{8}$  miles west of Howells Point, and at eastern side of entrance to Lecomptes Bay. (See Chart No. 35.)

*Immediate locality.*—Observed station is in woods about 7 feet above high water, 15 yards south of shore, 13 yards southwest of shore, and 20 yards west of shore, and near but not on highest point of ground. Cement monument marking reference station is 12.38 meters S 33° 34' W of observed station.

*Marks.*—Observed station is nail in center of stub in 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument projecting 4 inches above the surface of the ground.

<i>References.</i> —	°	'	''	
"Choptank River Light" (N 34° 15' W) . . . . .	0	00	00	4¼ miles.
East peak of large barn . . . . .	57	02	..	2¼ miles.
Large chimney of house . . . . .	68	24	..	2½ miles.
Red Beacon . . . . .	71	28	00	2 miles.
"Black Beacon" . . . . .	73	17	30	1⅝ miles.
Near peak of house . . . . .	88	38	..	2 miles.
Nail in blaze in elm tree . . . . .	147	42	40	5.48 meters.
Nail in blaze in oak tree (24 inches diameter) . . . . .	200	47	10	4.70 meters.
Nail in blaze in oak tree (20 inches diameter) . . . . .	246	58	10	16.89 meters.

## References—Continued.

	°	'	"	
REFERENCE STATION.....	247	49	00	..... 12.38 meters.
Chimney of house.....	293	21	..	..... 1½ miles.
Chimney outside of house.....	331	19	..	..... 1¾ miles.
"Large Water Tank".....	344	41	10	..... 2¾ miles.
Near corner of boathouse.....	351	52	..	..... 2¾ miles.

## LE COMPTE.

*General locality.*—Southern shore of Choptank River on southwestern side of Lecomptes Bay about 1½ miles west-southwest of Horn Point, ⅝ mile northwest of Travers Wharf, and ¼ mile southwest of mouth of Lecomptes Creek. (See Chart No. 35.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 18 yards west of point of shore, 14 yards south-southeast of shore, 5 yards east-southeast of turn in shore at beach, 7 yards northeast of a pool, 10 yards northwest of cut in shore, and 115 yards southeast of near one of two large cedar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Grubin" (W 56° 00' E).....	0	00	00	..... 3¾ miles.
"Black Beacon".....	0	12	10	..... 2¾ miles.
Barn cupola.....	9	10	..	.....
North peak of wharf house.....	69	02	..	..... ½ mile.
North peak of house.....	106	43	..	..... ¾ mile.
Left one of two large cedar trees.....	248	12	..	..... 117 yards.
Spindle on barn cupola.....	280	48	..	..... ½ mile.
Chimney outside of house.....	303	44	..	..... ¾ mile.
Red Beacon.....	358	07	20	..... 3¾ miles.

## LARGE WATER TANK.

*General locality.*—Southwestern shore of Choptank River at Castle Haven about 2¾ miles south of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is on water tank on high steel tower near barns at Castle Haven.

*Marks.*—Observed station is center point of windmill on water tank.

*References.*—None necessary.

## CASTLE.

*General locality.*—Southern shore of Choptank River on Castle Haven Point on north side of Castle Haven Creek about 2 miles south-southwest of Choptank River Light. (See Chart No. 35.)

*Immediate locality.*—Observed station is on a narrow neck of land, about 25 yards south-southwest of shore of Choptank River, 20 yards north of shore of cove, 22 yards west of bathhouse, and 100 yards east-northeast of three poplar trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

## References.—

	°	'	"	
"Choptank River Light" (N 25° 41' W)....	0	00	00	..... 2 miles.
Right corner of house near Bachelor Point...	19	27	..	..... 3 miles.
Left corner of bathhouse.....	95	31	20	..... 21.42 meters.
Near corner of bathhouse.....	109	32	20	..... 19.83 meters.
Near peak of house.....	122	56	..	..... 3 miles.
Right peak of boathouse at Castle Haven				
Wharf.....	215	04	..	..... ½ mile.
Right corner of chimney of brick house....	254	18	..	..... ½ mile.



## COOK POINT WINDMILL.

*General locality.*—Eastern shore of Chesapeake Bay on Cook Point between Tripps Bay and Cook Point Cove about  $1\frac{1}{4}$  miles southeast of end of point. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is on windmill over smaller and west one of two water tanks west of a barn on Cook Point farm.

*Marks.*—Observed station is center of windmill over smaller tank.

*References.*—None necessary.

## BRANNOCK.

*General locality.*—Eastern shore of Chesapeake Bay between Choptank River and Little Choptank River on the southern shore of Brannock Bay about 7 miles southeast of Sharps Island Light. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is on high land about 8 feet above high water, 11 yards south of shore, 7 yards south of edge of bluff, 8 yards north of rail fence on far side of county road, 50 yards east of bend where road leaves shore and runs toward farmhouse and 150 yards northeast of a farmhouse.

*Marks.*—Observed station is center point of triangle on standard cement monument with top projecting about 4 inches above surface of ground. Subsurface mark is 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
Sharps Island Light (N 54° 34' W).....	0	00	00	7 miles.
Near peak of house on Cook Point.....	38	18	..	3½ miles.
"Cook Point Windmill".....	45	33	30	2½ miles.
Right chimney of house in trees.....	83	15	..	2 miles.
Between two chimneys on large part of house.....	104	31	..	1 mile.
Outside chimney on near end of house.....	108	06	..	1 mile.
Center one of three chimneys of house.....	142	03	..	1 mile.
Tangent of right end of barn roof.....	150	49	..	1 mile.
Center one of three chimneys on house.....	163	16	..	¾ mile.
Right peak of house.....	203	34	..	2 miles.
Left chimney of 1½-story house across creek.....	210	47	..	2 miles.
Near peak of barn.....	285	11	..	¾ mile.
Tangent of Mills Point.....	343	43	..	¾ mile.
Tangent of left end of Sharps Island Hotel.....	352	12	..	5½ miles.

## ROBINS.

*General locality.*—Eastern shore of Chesapeake Bay on Hills Point at northeast side of entrance to Little Choptank River about 6 miles south-southeast of Sharps Island Light. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is in cultivated field about 8 feet above high water, 40 yards northeast by north of edge of bluff, 45 yards east by north of point of bluff, 65 yards south by east of edge of bluff in range with Sharps Island Light, and 140 yards north by west of wire fence at bluff.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 4 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	o	'	"	
"Sharps Island Light" (N 34° 11' W).....	0	00	00	6 miles.
Nail in blaze in cedar tree (8 inches diameter).....	5	43	20	37.11 meters.
Left chimney of house.....	76	25	..	½ mile.
Near peak of barn.....	87	14	..	⅙ mile.
Tallest chimney of house.....	91	22	..	¾ mile.
Near peak of barn.....	222	52	..	5¼ miles.
Tangent of end of woods on Taylor Island ..	229	14	..	5¼ miles.

References—Continued.	°	'	''	
Chimney of house on James Point.....	247	10	..	3½ miles.
Tangent of James Point.....	248	..	..	3 miles.
Nail in blaze in cedar tree (8 inches diameter).....	336	32	30	28.22 meters.
Nail in blaze in cedar tree (8 inches diameter).....	353	18	50	30.90 meters.
Tangent of right side of hotel on Sharps Island.....	356	39	..	4½ miles.

#### JAMES (LITTLE CHOPTANK RIVER).

*General locality.*—Eastern side of Chesapeake Bay on northeast end of James Island at south side of entrance to Little Choptank River. (See Charts Nos. 36 and 37.)

*Immediate locality.*—Observed station is on marsh about 1 foot above high water, 8 yards west of shore, 11 yards northwest of shore, 85 yards south of shore, and 75 yards east of pine woods. Cement monument marking reference station is 19.48 meters S 84° 17' W of observed station.

*Marks.*—Observed station is center of 2-inch tile pipe projecting 2 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of surface pipe. Reference station is center point of triangle on standard cement monument.

References.—	°	'	''	
"Robins" (N 23° 14' E).....	0	00	00	2¾ miles.
Near peak of house.....	12	37	..	3½ miles.
Chimney on near end of house.....	48	42	..	3¾ miles.
Near peak of barn.....	89	01	..	4¼ miles.
Near chimney of house on Hooper Point.....	100	36	..	3 miles.
Left peak of long barn.....	107	05	..	3½ miles.
Near peak of barn.....	146	09	..	2½ miles.
REFERENCE STATION.....	241	03	00	19.48 meters.
"Sharps Island Light".....	320	02	40	7¾ miles.
Right edge of old hotel on Sharps Island.....	321	43	..	6¾ miles.
Left tangent of woods on Cook Point.....	357	29	..	7 miles.

#### CORNER (Choptank River).

*General locality.*—Southern shore of Choptank River on east side of entrance to Chapel Creek about 2 miles southeast of Todd Point, and 3 miles south-southwest of Choptank River Light. (See Chart No. 37.)

*Immediate locality.*—Observed station is on grassy land about 3 feet above high water, 30 yards east of shore, 30 yards south of shore, 35 yards southeast of extreme end of point, and west of small clump of small pine trees.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

References.—	°	'	''	
"Dot" (N 58° 43' W).....	0	00	00	2½ miles.
Nail in blaze in holly tree (14 inches diameter).....	35	13	40	13.81 meters.
"Choptank River Light".....	75	55	20	3 miles.
Nail in blaze in pine tree (4 inches diameter).....	105	03	00	3.57 meters.
Right corner of new house.....	108	42	..	½ mile.
Nail in blaze in pine tree (5 inches diameter).....	187	20	10	8.21 meters.
Near peak of 2½-story house.....	308	25	..	¾ mile.
Chimney outside right end of house.....	340	33	..	2 miles.
Chimney outside near end of house.....	356	46	..	2¾ miles.

## DOT.

*General locality.*—Southern shore of Choptank River on Todd Point about 3 miles east of Cook Point and  $3\frac{1}{2}$  miles southwest of Choptank River Light. (See Chart No. 37.)

*Immediate locality.*—Observed station is about 4 feet above high water, 55 yards west-southwest of shore, 30 yards south-southwest of edge of bank, 40 yards south by east of point where bank meets marsh, 70 yards south by west of extreme end of point, and 200 yards northeast by north of a house.

*Marks.*—Observed station is center point of triangle on standard cement monument projecting 5 inches above surface of ground. Subsurface mark is center of 2-inch tile pipe buried with top 2 inches below base of monument.

*References.*—

	°	'	''	
"Choptank River Light" (N 56° 26' E).....	0	00	00	..... 3 $\frac{1}{4}$ miles.
"Large Water Tank".....	37	36	00	..... 3 $\frac{1}{2}$ miles.
Near peak of house.....	42	45	..	..... 2 $\frac{3}{4}$ miles.
Near peak of building.....	72	49	..	..... 2 $\frac{3}{4}$ miles.
Chimney outside right end of house.....	102	18	..	..... 1 $\frac{3}{8}$ miles.
Chimney outside near end of house.....	175	25	..	..... 200 yards.
Left chimney of house on Cook Point.....	212	24	..	..... 2 $\frac{3}{4}$ miles.
"Sharps Island Light".....	218	32	40	..... 7 $\frac{1}{2}$ miles.
Church spire.....	250	04	40	..... 7 $\frac{1}{4}$ miles.
Left peak of house.....	277	10	..	..... 7 $\frac{1}{4}$ miles.
Near peak of barn.....	290	09	..	..... 7 $\frac{1}{2}$ miles.
Cupola on house.....	333	02	..	..... 3 $\frac{3}{8}$ miles.

## BOUNDARIES OF OYSTER BARS.

### EXPLANATION.

The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the designation and employment by the Department of Commerce and Labor of such officers, experts, and other technically qualified persons "as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland." The oyster laws of Maryland provide that the Maryland Shell Fish Commissioners, with the aid of such persons as may be designated by the Government, shall proceed "to have laid out, surveyed, and designated on the said charts the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts." The oyster laws of Maryland also provide in another section that there shall "be made a true and accurate survey of the natural oyster beds, bars, and rocks \* \* \* with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey."

Under the provisions of the laws quoted above the State of Maryland, in cooperation with the Department of Commerce and Labor, must define the boundaries of the natural oyster bars "as accurately as practicable" and also "with reference to fixed and permanent objects on the shore, giving courses and distances." The requirement of "as accurately as practicable" is easily fulfilled by definition of the location of the corners of the oyster bars by latitude and longitude. In fact, this method is probably the most satisfactory and accurate one that could be used for all purposes of legal definition or for relocation of the oyster-bar boundaries by competent engineers. Therefore the additional requirement of "giving courses and distances" is superfluous and is only fulfilled in the published definitions on account of the specific provisions of the law making it compulsory. This part of the description of boundaries has involved an immense amount of extra computations in order to prevent technical discrepancies between the latitude and longitude of a corner of an oyster bar and its distance and bearing from objects on shore of known latitude and longitude without adding anything to the accuracy and very little to the convenience of practical use of the descriptions of the oyster-bar boundaries.

As provided by law the boundaries of the oyster bars are all straight lines, but in the work already completed they have inclosed areas of all shapes from triangles to complicated 14-sided figures, and of all sizes from 4 acres to 7,548 acres. The sides have varied in length from 93 to 7,529 yards, and in some cases the corners of the boundaries have been practically at the triangulation stations from which they are located, while in other instances they were over 13,600 yards from the landmarks most available for the purpose of fixing their position.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made, and the magnitude of the work with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and great importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the Commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and the future.

#### METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in each county.

*Title.*—At the top of each tabular form is given the legal name of the oyster bar to be described, and the one by which it is known and designated in the published oyster records and on the oyster charts. The adopted name of the oyster bar is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission; and when there was no local name in common use a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the oyster bar was located.

Underneath the name, in parentheses, is given the general locality of the oyster bar and the serial number of the "Maryland Oyster Chart" on which its legal boundaries are shown.<sup>1</sup>

*First column.*—This column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar. Where a corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars, only the number of the corner of the oyster bar being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the Commission as the primary technical definition of the location of

<sup>1</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations of the survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>1</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>2</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing" and "Distance" of the "Corner of bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars: one, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

<sup>1</sup> The mean magnetic variation for Talbot County was 6° 10' west of north in 1911 and increasing at the rate of 5' yearly.

<sup>2</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D. C.

(1) *Triangulation*.—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the Commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant, the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "Poplar Island" oyster bar, which is the first one described in this publication, and assume that "Corner No. 3," is to be examined as to its position. The angle between the two landmarks "Valliant" and "Haddaway," as determined from right to left from the forward bearings from this corner, is  $58^{\circ} 17'$ , and the angle between "Haddaway" and "Bloody Point Bar Light" is  $120^{\circ} 05'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree, the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor (position finder), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation.

This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant, then the other, until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic location of a point is attained. In fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the Commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State Fishery Force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer can take compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>1</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks for which the bearings are published have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used. This can be done by getting their bearings directly from the chart by parallel rulers or a protractor and then applying these new bearings in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fifth column of the tables opposite the "corner" in question. The direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a

<sup>1</sup> The mean magnetic variation for Talbot County is 6° 20' west of north in 1911 and increasing at the rate of 5' yearly.



second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

## BOUNDARIES OF NATURAL OYSTER BARS.

## POPLAR ISLAND.

(Chesapeake Bay—Off Poplar Island—Charts Nos. 31 and 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 45 43.52	76 23 47.66	S 62 30 E	N 62 29 W	1,902	Poplar South.
			N 47 03 E	S 47 03 W	1,510	Valliant.
			N 2 53 E	S 2 53 W	8,697	Bloody Point Bar Light.
2	38 45 53.47	76 24 19.45	S 64 20 E	N 64 19 W	2,801	Poplar South.
			N 70 22 E	S 70 23 W	2,065	Valliant.
			N 8 41 E	S 8 42 W	8,448	Bloody Point Bar Light.
3	38 47 45.44	76 23 17.97	S 5 57 E	N 5 57 W	3,099	Valliant.
			S 64 14 E	N 64 12 W	5,587	Haddaway.
			N 4 19 W	S 4 19 E	4,589	Bloody Point Bar Light.
4	38 47 32.65	76 22 13.67	S 26 26 E	N 26 26 W	5,807	Great.
			S 59 04 E	N 59 04 W	3,888	Haddaway.
			N 22 11 W	S 22 12 E	5,408	Bloody Point Bar Light.

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## LOWS POINT.

(Eastern Bay—Charts Nos. 31 and 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 47 09.33	76 21 17.76	S 14 20 E	N 14 20 W	Yards.	Great. Haddaway. Kemp Tower.
			S 56 52 E	N 56 52 W	4,639	
			N 46 41 E	S 46 43 W	2,219	
2	38 47 41.86	76 21 16.85	S 38 27 E	N 38 27 W	2,949	Haddaway. Kemp. Bloody Point Bar Light.
			N 53 15 E	S 53 16 W	6,332	
			N 37 00 W	S 37 02 E	5,882	
3	38 48 26.00	76 19 35.90	N 46 20 E	S 46 21 W	3,331	Kemp. Bloody Point Bar Light. Haddaway.
			N 62 38 W	S 62 41 E	6,984	
			S 12 20 W	N 12 20 E	3,888	
4	38 48 07.05	76 18 50.23	N 19 02 W	S 19 03 E	6,979	Straight. Bloody Point Bar Light. Haddaway
			N 62 32 W	S 62 35 E	8,349	
			S 32 48 W	N 32 47 E	3,759	
5	38 47 16.80	76 20 36.40	S 27 37 E	N 27 37 W	1,654	Haddaway. Kemp Tower. Bloody Point Bar Light.
			N 41 42 E	S 41 44 W	6,497	
			N 39 44 W	S 39 46 E	7,802	

## MARYS DELIGHT.

(Eastern Bay—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 48 54.24	76 19 00.67	N 47 42 E	S 47 43 W	Yards.	Kemp. Bloody Point Bar Light. Haddaway.
			N 72 26 W	S 72 29 E	2,001	
			S 20 20 W	N 20 19 E	7,481	
2	38 49 01.93	76 19 31.72	N 64 42 E	S 64 42 W	2,544	Kemp. Bloody Point Bar Light. Haddaway.
			N 72 26 W	S 72 28 E	6,622	
			S 10 38 W	N 10 38 E	5,097	
3	38 49 32.84	76 19 33.63	N 81 19 W	S 81 22 E	6,335	Bloody Point Bar Light. Haddaway. Kemp.
			S 8 22 W	N 8 22 E	6,118	
			N 88 54 E	S 88 54 W	2,351	
4	38 49 05.28	76 18 55.67	N 54 08 E	S 54 09 W	1,664	Kemp. Bloody Point Bar Light. Haddaway.
			N 75 27 W	S 75 29 E	7,505	
			S 20 17 W	N 20 16 E	5,461	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

WADES POINT.

(Eastern Bay—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38° 50' 03.28"	76° 18' 29.62"	S 52 41 E	N 52 41 W	Yards. 1,242 3,836 3,890	Kemp Tower. Rich Neck Water Tank. Straight.
			N 70 04 E	S 70 06 W		
			N 46 27 W	S 46 26 E		
2	38° 50' 15.25"	76° 18' 55.22"	S 55 11 E	N 55 10 W	2,026 4,375 3,127	Kemp Tower. Rich Neck Water Tank. Straight.
			N 78 06 E	S 78 06 W		
			N 43 18 W	S 43 19 E		
3	38° 50' 53.78"	76° 18' 28.07"	N 71 10 W	S 71 11 E	3,023 2,632 3,587	Straight. Kemp Tower. Rich Neck Water Tank.
			S 21 06 E	N 21 05 W		
			S 83 39 E	N 83 38 W		
4	38° 50' 23.54"	76° 17' 59.43"	N 61 05 W	S 61 07 E	4,129 1,440 2,878	Straight. Kemp Tower. Rich Neck Water Tank.
			N 7 37 E	N 7 37 W		
			N 77 29 E	S 77 31 W		
5	38° 50' 06.52"	76° 18' 12.44"	S 31 49 E	N 31 49 W	1,015 3,373 4,161	Kemp Tower. Rich Neck Water Tank. Straight.
			N 69 13 E	S 69 13 W		
			N 51 51 W	S 51 52 E		

SEDGE MARSH.

(Eastern Bay—Chart No. 31.)

1	38° 50' 45.88"	76° 17' 35.05"	N 73 43 W	S 73 45 E	Yards. 4,436 2,235 2,166	Straight. Kemp Tower. Rich Neck Water Tank.
			S 11 38 W	N 11 38 E		
			S 86 34 E	N 86 33 W		
2	38° 50' 50.10"	76° 17' 51.70"	N 73 55 W	S 73 57 E	3,975 2,332 2,015	Straight. Kemp Tower. Rich Neck Water Tank.
			S 0 18 W	N 0 18 E		
			S 84 02 E	N 84 01 W		
3	38° 51' 09.90"	76° 17' 29.38"	N 84 23 W	S 84 25 E	4,429 3,059 2,225	Straight. Kemp Tower. Rich Neck Water Tank.
			S 11 19 W	N 11 19 E		
			S 65 01 E	N 65 01 W		
4	38° 51' 04.26"	76° 17' 20.17"	N 82 22 W	S 82 23 E	4,693 2,934 1,927	Straight. Kemp Tower. Rich Neck Water Tank.
			S 16 43 W	N 16 42 E		
			S 67 06 E	N 67 04 W		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## RICH NECK.

(Eastern Bay—Chart No. 31.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 51 32.93	76 17 03.04	N 71 12 W	S 71 14 E	Yards.	Mouth. Kemp Tower. Rich Neck Water Tank.
			S 18 56 W	N 18 55 E	4,844	
			S 37 38 E	N 37 38 W	3,993 2,166	
2	38 51 59.14	76 17 42.52	N 79 11 W	S 79 12 E	3,609	Mouth. Kemp Tower. Dixon.
			S 3 07 W	N 3 07 E	4,667	
			S 67 31 E	N 67 30 W	3,445	
3	38 52 11.20	76 17 26.07	Thence along county boundary as delineated on Chart No. 31 to corner No. 3.			Mouth. Kemp Tower. Dixon.
			N 86 08 W	S 86 10 E	3,987	
			S 7 44 W	N 7 44 E	5,114 3,246	
4	38 51 46.33	76 16 48.83	N 77 24 W	S 77 26 E	5,083	Mouth. Kemp Tower. Rich Neck Water Tank.
			S 21 33 W	N 21 32 E	4,546	
			S 23 38 E	N 23 38 W	2,367	

## TILGHMANS POINT.

(Eastern Bay—Charts Nos. 31 and 32.)

1	38 51 30.20	76 16 15.27	S 34 45 W	N 34 44 E	Yards.	Kemp Tower. Rich Neck Water Tank. Dixon.
			S 2 14 E	N 2 14 W	4,484	
			S 68 50 E	N 68 49 W	1,625 947	
2	38 51 45.94	76 16 26.10	S 28 18 W	N 28 17 E	4,788	Kemp Tower. Rich Neck Water Tank. Dixon.
			S 9 12 E	N 9 12 W	2,183	
			S 53 15 E	N 53 14 W	1,459	
3	38 52 12.40	76 15 41.00	N 14 45 E	S 14 46 W	4,898	Parsons Island Water Tank. Needle. Rich Neck Water Tank.
			N 30 40 W	S 30 41 E	3,653	
			S 15 25 W	N 15 25 E	3,161	
4	38 52 39.22	76 15 25.84	N 11 52 E	S 11 52 W	3,693	Parsons. Needle. Dixon.
			N 45 19 W	S 45 20 E	3,181	
			S 8 57 W	N 8 57 E	2,702	
5	38 52 31.74	76 15 11.38	N 5 35 E	S 5 35 W	3,884	Parsons. Needle. Dixon.
			N 46 43 W	S 46 44 E	3,631	
			S 18 21 W	N 18 21 E	2,547	
6	38 52 11.48	76 15 10.40	N 7 23 E	S 7 23 W	4,588	Parsons. Needle. Dixon.
			N 37 28 W	S 37 29 E	3,997	
			S 18 48 W	N 18 48 E	1,832	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

UPPER HARRIS CREEK.

(Harris Creek—Charts Nos. 31, 32, and 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 46 20.52	76 16 36.33	N 6 14 W	S 6 14 E	622	Mink. Grace. Koot.
			N 49 45 W	S 49 46 E	478	
			S 81 33 W	N 81 34 E	478	
2	38 46 21.22	76 16 56.08	N 28 49 E	S 28 50 W	326	Grace. Rabbit. Fox.
			N 59 05 W	S 59 05 E	419	
			S 60 13 W	N 60 13 E	536	
3	38 46 25.20	76 16 56.02	S 49 22 W	N 49 22 E	615	Fox. Koot. Bozman.
			S 11 43 E	N 11 43 W	233	
			N 89 03 E	S 89 03 W	773	
4	38 46 40.40	76 16 34.90	S 34 34 W	N 34 34 E	900	Koot. Bozman. Pink.
			S 23 21 E	N 23 21 W	545	
			N 64 51 E	S 64 52 W	568	
5	38 46 45.96	76 16 34.38	S 16 26 E	N 16 26 W	716	Bozman. Pink. Clump.
			N 83 53 E	S 83 53 W	593	
			N 25 52 E	S 25 52 W	711	
6	38 47 08.22	76 16 17.43	S 4 19 E	N 4 19 W	699	Pink. Miller. Otto.
			S 71 55 E	N 71 55 W	414	
			N 46 04 E	S 46 05 W	423	
7	38 47 35.76	76 16 22.00	N 83 08 W	S 83 08 E	245	End. Lawn. Rod.
			S 1 51 W	N 1 51 E	692	
			S 78 00 E	N 78 00 W	441	
8	38 47 34.78	76 16 09.12	N 83 54 W	S 83 54 E	586	End. Lawn. Otto.
			S 28 49 W	N 28 49 E	752	
			S 8 03 E	N 8 03 W	668	
9	38 47 03.04	76 16 08.03	N 43 32 W	S 43 32 E	568	Lawn. Clump. Pink.
			N 80 40 W	S 80 40 E	392	
			S 20 32 W	N 20 32 E	558	

UPPER HILL.

(Eastern Bay—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 51 52.53	76 15 12.90	N 4 36 E	S 4 37 W	5,206	Parsons. Needle. Dixon.
			N 34 20 W	S 34 21 E	4,616	
			S 34 50 W	N 34 49 E	1,334	
2	38 52 03.54	76 15 17.66	N 6 26 E	S 6 27 W	4,848	Parsons. Needle. Dixon.
			N 35 46 W	S 35 47 E	4,240	
			S 23 28 W	N 23 27 E	1,599	
3	38 52 05.52	76 15 10.08	N 4 08 E	S 4 09 W	4,763	Parsons. Needle. Dixon.
			N 38 26 W	S 38 26 E	4,308	
			S 28 37 W	N 28 36 E	1,747	
4	38 51 54.60	76 15 05.40	N 2 28 E	S 2 28 W	5,124	Parsons. Needle. Dixon.
			N 36 49 W	S 36 50 E	4,674	
			S 39 29 W	N 39 29 E	1,509	

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## ALDRIDGES DISCOVERY.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 51 31.38	76 14 49.48	S 74 32 W	N 74 31 E	1,432	Dixon. Seth. Sara.
			S 4 16 W	N 4 16 E	3,503	
			S 22 19 E	N 22 18 W	5,019	
2	38 51 43.26	76 14 40.48	S 64 11 W	N 64 10 E	1,796	Dixon. Seth. Sara.
			S 7 17 W	N 7 17 E	3,925	
			S 18 18 E	N 18 18 W	5,313	
3	38 51 33.94	76 14 32.18	S 75 42 W	N 75 42 E	1,894	Dixon. Seth. Sara.
			S 11 20 W	N 11 19 E	3,650	
			S 17 02 E	N 17 02 W	4,946	

## HORSESHOE.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 51 30.28	76 14 25.02	S 87 39 W	N 87 39 E	1,019	Pearson. Seth. Sara.
			S 14 41 W	N 14 41 E	3,573	
			S 15 18 E	N 15 18 W	4,776	
2	38 51 38.50	76 14 25.80	S 72 16 W	N 72 16 E	1,048	Pearson. Seth. Sara.
			S 13 21 W	N 13 20 E	3,836	
			S 14 42 E	N 14 42 W	5,049	
3	38 51 39.40	76 14 08.86	S 76 24 W	N 76 24 E	1,486	Pearson. Seth. Sara.
			S 19 30 W	N 19 29 E	3,992	
			S 9 38 E	N 9 38 W	4,985	
4	38 51 31.18	76 14 08.08	S 87 11 W	N 87 10 E	1,467	Pearson. Seth. Sara.
			S 21 13 W	N 21 12 E	3,739	
			S 9 57 E	N 9 57 W	4,707	

## TURTLE BACK.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 50 55.28	76 14 15.54	N 48 05 W	S 48 06 E	1,705	Pearson. Seth. Sara.
			S 26 56 W	N 26 55 E	2,552	
			S 16 26 E	N 16 26 W	3,572	
2	38 50 56.28	76 14 22.26	N 44 39 W	S 44 39 E	1,553	Pearson. Seth. Sara.
			S 22 58 W	N 22 58 E	2,508	
			S 18 57 E	N 18 57 W	3,657	
3	38 51 16.84	76 14 13.96	N 72 34 W	S 72 34 E	1,374	Pearson. Seth. Sara.
			S 21 45 W	N 21 44 E	3,233	
			S 13 08 E	N 13 08 W	4,265	
4	38 51 11.18	76 13 58.00	N 70 49 W	S 70 49 E	1,833	Pearson. Seth. Sara.
			S 29 56 W	N 29 55 E	3,244	
			S 7 52 E	N 7 52 W	3,999	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SEA TURTLE.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 51 02.58	76 15 23.66	N 30 37 E	S 30 37 W	Yards. 1,037 759 1,471	Pearson. Dixon. Rich Neck Water Tank.
			N 39 03 W	S 39 03 E		
			S 61 55 W	N 61 54 E		
2	38 51 07.98	76 15 26.28	N 40 03 W	S 40 03 E	927 577 1,508	Pearson. Dixon. Rich Neck Water Tank.
			N 45 07 W	S 45 07 E		
			S 54 33 W	N 54 33 E		
3	38 51 13.84	76 15 06.67	N 8 52 E	S 8 52 W	519 949 2,048	Pearson. Dixon. Rich Neck Water Tank.
			N 77 14 W	S 77 15 E		
			S 58 27 W	N 58 26 E		
4	38 51 08.58	76 15 03.15	N 1 04 W	S 1 04 E	690 1,089 2,045	Pearson. Dixon. Rich Neck Water Tank.
			N 69 12 W	S 69 12 E		
			S 64 03 W	N 64 03 E		

BOZMAN NECK.

(Miles River—Chart No. 32.)

1	38 50 31.80	76 15 13.30	N 7 31 E	S 7 31 W	Yards. 1,947 1,792 1,609	Pearson. Dixon. Rich Neck Water Tank.
			N 24 47 W	S 24 47 E		
			N 77 36 W	S 77 37 E		
2	38 50 47.10	76 15 33.18	N 28 51 E	S 28 51 W	1,615 1,135 1,061	Pearson. Dixon. Rich Neck Water Tank.
			N 11 33 W	S 11 33 E		
			S 80 44 W	N 80 44 E		
3	38 50 53.96	76 15 23.76	N 24 09 E	S 24 09 W	1,296 1,001 1,356	Pearson. Dixon. Rich Neck Water Tank.
			N 28 23 W	S 28 23 E		
			S 72 45 W	N 72 45 E		
4	38 50 44.02	76 15 10.12	N 6 25 E	S 6 25 W	1,528 1,474 1,656	Pearson. Dixon. Rich Neck Water Tank.
			N 34 30 W	S 34 30 E		
			S 87 41 W	N 87 41 E		
5	38 50 35.58	76 15 06.92	N 2 45 E	S 2 45 W	1,804 1,760 1,753	Pearson. Dixon. Rich Neck Water Tank.
			N 31 31 W	S 31 31 E		
			N 82 51 W	S 82 52 E		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## HAMBLETON HILL.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 49 54.92	76 14 28.06	N 16 28 W	S 16 28 E	Yards. 3,399 860 2,579	Pearson. Seth. Herr.
			S 73 50 W	N 73 49 E		
			N 80 53 E	S 80 54 W		
2	38 50 10.40	76 14 47.90	N 8 54 W	S 8 54 E	2,685 819 3,071	Pearson. Seth. Herr.
			S 21 39 W	N 21 39 E		
			S 87 53 E	N 87 52 W		
3	38 50 40.48	76 14 09.46	N 41 06 W	S 41 07 E	2,173 2,210 2,345	Pearson. Seth. Herr.
			S 36 33 W	N 36 32 E		
			S 61 14 E	N 61 14 W		
4	38 50 44.92	76 13 48.08	N 53 15 W	S 53 15 E	2,487 2,691 1,904	Pearson. Seth. Herr.
			S 44 19 W	N 44 18 E		
			S 49 24 E	N 49 24 W		
5	38 50 31.34	76 13 45.54	N 46 37 W	S 46 38 E	2,834 2,439 1,644	Pearson. Seth. Herr.
			S 53 00 W	N 52 59 E		
			S 60 04 E	N 60 03 W		
6	38 50 15.46	76 14 13.72	N 27 57 W	S 27 57 E	2,808 1,522 2,186	Pearson. Seth. Herr.
			S 52 15 W	N 52 14 E		
			S 82 32 E	N 82 31 W		

## WEST END.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 49 43.94	76 12 45.04	N 51 08 E	S 51 08 W	Yards. 1,903 797 1,714	Wood. Herr. Sara.
			N 12 25 W	S 12 25 E		
			S 53 28 W	N 53 27 E		
2	38 49 57.00	76 13 59.42	S 78 55 W	N 78 54 E	1,611 1,574 1,822	Seth. Sara. Herr.
			S 21 51 E	N 21 50 W		
			N 79 18 E	S 79 19 W		
3	38 50 36.08	76 13 06.98	S 61 14 W	N 61 13 E	3,381 1,061 1,949	Seth. Herr. Frank.
			S 22 34 E	N 22 34 W		
			S 87 50 E	N 87 50 W		
4	38 50 07.02	76 12 51.54	N 59 31 E	S 59 32 W	1,787 2,270 3,433	Frank. Benn. Seth.
			N 20 33 E	S 20 33 W		
			S 79 08 W	N 79 07 E		



BOUNDARIES OF NATURAL OYSTER BARS—continued.

HAMBLETON.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 49 23.80	76 14 15.36	S 71 17 E	N 71 16 W	Yards. 1,062 2,649 1,415	Sara. Herr. Seth.
			N 56 36 E	S 56 37 W		
			N 55 06 W	S 55 06 E		
2	38 49 28.52	76 14 39.72	S 73 07 E	N 73 07 W	1,722 3,135 832	Sara. Herr. Seth.
			N 65 32 E	S 65 33 W		
			N 38 32 W	S 38 32 E		
3	38 49 38.20	76 14 40.12	S 63 31 E	N 63 31 W	1,854 3,024 601	Sara. Herr. Seth.
			N 71 16 E	S 71 17 W		
			N 57 26 W	S 57 27 E		
4	38 49 37.82	76 13 13.44	N 30 24 E	S 30 24 W	1,142 2,815 1,028	Herr. Seth. Sara.
			N 83 08 W	S 83 09 E		
			S 37 39 W	N 37 38 E		
5	38 49 32.02	76 13 09.72	N 49 35 W	N 49 34 E	954 1,965 1,274	Sara. Spar. Herr.
			N 10 19 E	N 10 19 W		
			N 22 07 E	S 22 07 W		

TIDEMILL.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 48 37.48	76 13 02.90	S 61 09 E	N 61 09 W	Yards. 197 3,035 1,520	Spar. Herr. Sara.
			N 5 40 E	S 5 40 W		
			N 36 34 W	S 36 34 E		
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 49 14.48	76 13 35.54	N 63 03 W	S 63 04 E	2,480 51 1,694	Seth. Sara. Spar.
			S 59 08 W	N 59 08 E		
			S 37 35 E	N 37 35 W		
3	38 49 18.46	76 13 41.28	S 33 36 E	N 33 36 W	194 2,099 2,286	Sara. Herr. Seth.
			N 38 42 E	S 38 43 W		
			N 64 20 W	S 64 20 E		
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 49 14.74	76 14 14.88	S 87 57 E	N 87 57 W	994 2,818 1,619	Sara. Herr. Seth.
			N 51 16 E	S 51 17 W		
			N 46 27 W	S 46 28 E		
5	38 49 19.10	76 14 15.08	S 79 39 E	N 79 38 W	1,015 2,733 1,518	Sara. Herr. Seth.
			N 53 44 E	S 53 45 W		
			N 50 17 W	S 50 17 E		
6	38 49 25.66	76 13 36.92	N 71 02 W	S 71 03 E	2,300 402 2,025	Seth. Sara. Spar.
			S 0 57 W	N 0 57 E		
			S 31 53 E	N 31 54 W		
7	38 48 48.26	76 12 49.34	N 55 50 W	S 55 50 E	1,528 494 1,065	Sara. Spar. Deewat.
			S 22 04 W	N 22 04 E		
			S 13 48 E	N 13 48 W		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## SCOTLAND.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 48 27.86	76 12 50.08	S 38 19 E N 68 47 E N 0 40 W	N 38 19 W S 68 48 W S 0 40 E	441 1,447 3,344	Deewat. Ollie. Herr.
Thence from corner No. 1 along the mean low-water line of the shore to corner No. 2, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
2	38 48 37.48	76 13 02.90	S 61 09 E N 5 40 E N 36 34 W	N 61 09 W S 5 40 W S 36 34 E	197 3,035 1,520	Spar. Herr. Sara.
3	38 48 48.26	76 12 49.34	N 55 50 W S 22 04 W S 13 48 E	S 55 50 E N 22 04 E N 13 48 W	1,528 494 1,065	Sara. Spar. Deewat.
4	38 48 41.30	76 12 31.26	N 57 53 W S 71 22 W S 15 35 W	S 57 54 E N 71 21 E N 15 35 E	2,055 700 830	Sara. Spar. Deewat.

## DEEP WATER POINT.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 48 00.00	76 12 40.70	N 82 19 E N 2 31 E S 22 13 W	S 82 20 W S 2 31 W N 22 13 E	1,079 594 650	Swing. Deewat. Millwind.
2	38 48 10.35	76 12 49.92	S 0 08 W S 81 09 E N 47 49 E	N 0 08 E N 81 08 W S 47 50 W	951 1,330 363	Millwind. Swing. Deewat.
3	38 48 13.76	76 12 45.06	S 6 59 W S 74 54 E N 47 32 E	N 6 59 E N 74 54 W S 47 32 W	1,074 1,228 191	Millwind. Swing. Deewat.
4	38 48 03.59	76 12 32.86	S 32 04 W N 88 28 E N 20 57 W	N 32 03 E S 88 28 W S 20 57 E	853 864 505	Millwind. Swing. Deewat.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

ASH CRAFT.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 47 29.22	76 12 37.86	N 36 19 W	S 36 19 E	541	Millwind.
			S 69 19 W	N 69 19 E	1,579	St. Michaels Water Tank.
			S 30 02 E	N 30 02 W	2,198	Stony.
2	38 47 36.30	76 12 50.26	N 1 55 E	S 1 55 W	198	Millwind.
			S 55 18 W	N 55 18 E	1,400	St. Michaels Water Tank.
			S 33 41 E	N 33 41 W	2,573	Stony.
3	38 47 51.46	76 12 34.16	N 64 17 E	S 64 18 W	996	Swing.
			N 9 26 W	S 9 26 E	893	Deewat.
			S 53 08 W	N 53 09 E	523	Millwind.
4	38 47 44.54	76 12 22.04	N 72 06 E	S 72 06 W	897	Fair.
			N 22 42 W	S 22 42 E	1,208	Deewat.
			S 83 48 W	N 83 47 E	743	Millwind.

SECOND POINT.

(Miles River—Charts Nos. 32 and 34.)

1	38 47 13.02	76 12 07.27	N 48 56 W	S 48 57 E	1,496	Millwind.
			S 89 43 W	N 89 42 E	2,286	St. Michaels Water Tank.
			S 12 11 E	N 12 11 W	1,388	Stony.
2	38 47 25.08	76 12 21.26	N 54 17 W	S 54 17 E	935	Millwind.
			S 76 50 W	N 76 49 E	1,907	St. Michaels Water Tank.
			S 20 16 E	N 20 16 W	1,912	Stony.
3	38 47 52.66	76 12 09.96	N 89 49 E	S 89 49 W	534	Fair.
			N 43 02 W	S 43 03 E	1,150	Deewat.
			S 71 29 W	N 71 28 E	1,114	Millwind.
4	38 47 19.28	76 11 54.46	N 32 37 E	S 32 37 W	1,005	Leeds.
			N 62 15 W	S 62 15 E	1,657	Millwind.
			S 1 40 W	N 1 40 E	1,568	Stony.

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## WILD GROUND.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 48 47.60	76 12 39.90	N 6 29 W	S 6 29 E	2,696	Herr.
			N 59 49 W	S 59 49 E	1,750	Sara.
			S 44 55 W	N 44 55 E	616	Spar.
2	38 49 15.62	76 12 56.20	N 4 03 E	S 4 03 W	1,738	Herr.
			S 86 34 W	N 86 33 E	1,085	Sara.
			S 0 12 W	N 0 12 E	1,381	Spar.
3	38 49 49.44	76 12 22.26	N 27 08 E	S 27 08 W	1,684	Frank.
			N 52 29 W	S 52 30 E	973	Herr.
			S 58 39 W	N 58 38 E	2,316	Sara.
4	38 49 41.90	76 12 09.46	N 23 16 E	S 23 16 W	1,375	Wood.
			N 52 39 W	S 52 39 E	1,397	Herr.
			S 67 40 W	N 67 39 E	2,503	Sara.

## SYCAMORE.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 49 41.90	76 12 09.46	N 23 16 E	S 23 16 W	1,375	Wood.
			N 52 39 W	S 52 39 E	1,397	Herr.
			S 67 40 W	N 67 39 E	2,503	Sara.
2	38 49 49.44	76 12 22.26	N 27 08 E	S 27 08 W	1,684	Frank.
			N 52 29 W	S 52 30 E	973	Herr.
			S 58 39 W	N 58 38 E	2,316	Sara.
3	38 50 20.14	76 12 06.56	S 69 33 W	N 69 32 E	1,266	Herr.
			S 86 44 W	N 86 44 E	467	Wood.
			N 37 21 E	S 37 21 W	583	Frank.
4	38 50 19.38	76 11 48.90	N 12 52 W	S 12 52 E	502	Frank.
			S 75 50 W	N 75 50 E	1,704	Herr.
			S 4 42 W	N 4 41 E	3,249	Ollie.
Thence from corner No. 4 along the mean low water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 49 46.54	76 11 32.30	N 21 34 W	S 21 34 E	1,190	Wood.
			N 71 43 W	S 71 44 E	2,201	Herr.
			S 18 17 W	N 18 17 E	2,243	Ollie.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

EAST END.

(Miles River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 49 43.94	76 12 45.04	N 51 08 E	S 51 08 W	Yards. 1,993 797 1,714	Wood. Herr. Sara.
			N 12 25 W	S 12 25 E		
			S 53 28 W	N 53 27 E		
2	38 50 07.02	76 12 51.54	N 59 31 E	S 59 32 W	1,787 2,270 3,433	Frank. Benn. Seth.
			N 20 33 E	S 20 33 W		
			S 79 08 W	N 79 07 E		
3	38 50 13.58	76 12 35.30	N 10 57 E	S 10 57 W	1,940 482 3,189	Benn. Herr. Ollie.
			S 62 41 W	N 62 41 E		
			S 17 29 E	N 17 29 W		
4	38 49 57.08	76 12 30.18	S 13 49 W	N 13 49 E	2,894 1,306 2,442	Spar. Wood. Benn.
			N 50 31 E	S 50 31 W		
			N 5 29 E	S 5 29 W		

HERRING ISLAND.

(Miles River—Chart No. 32.)

1	38 50 07.02	76 12 51.54	N 59 31 E	S 59 32 W	Yards. 1,787 2,270 3,433	Frank. Benn. Seth.	
			N 20 33 E	S 20 33 W			
			S 79 08 W	N 79 07 E			
2	38 50 36.08	76 13 06.98	S 61 14 W	N 61 13 E	3,381 1,061 1,949	Seth. Herr. Frank.	
			S 22 34 E	N 22 34 W			
			S 87 50 E	N 87 50 W			
3	38 50 48.30	76 13 17.28	S 9 22 W	N 9 22 E	3,234 2,271 1,048	Sara. Frank. Benn.	
			S 77 40 E	N 77 39 W			
			N 63 33 E	S 63 34 W			
4	38 50 39.24	76 12 20.10	Thence along county boundary as delineated on Chart No. 32 to corner No. 4.			3,530 734 778	Sara. Frank. James.
			S 35 12 W	N 35 11 E			
			S 75 46 E	N 75 45 W			
5	38 50 13.58	76 12 35.30	N 10 57 E	S 10 57 W	1,940 482 3,189	Benn. Herr. Ollie.	
			S 62 41 W	N 62 41 E			
			S 17 29 E	N 17 29 W			

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## WYE TOWN.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 50 19.38	76 11 48.90	N 12 52 W	S 12 52 E	502	Frank. Herr. Ollie.
			S 75 50 W	N 75 50 E	1,704	
			S 4 42 W	N 4 41 E	3,249	
2	38 50 20.14	76 12 06.56	S 69 33 W	N 69 32 E	1,266	Herr. Wood. Frank.
			S 86 44 W	N 86 44 E	467	
			N 37 21 E	S 37 21 W	583	
3	38 50 42.68	76 12 10.64	S 57 17 E	N 57 18 W	549	Frank. James. Benn.
			N 74 25 E	S 74 26 W	505	
			N 16 59 W	S 16 59 E	966	
4	38 51 07.40	76 11 52.90	S 80 02 E	N 80 02 W	483	Law. Bruffs. Benn.
			N 31 36 E	S 31 36 W	973	
			N 83 11 W	S 83 11 E	755	
5	38 51 02.72	76 11 45.58	N 75 19 E	S 75 19 W	293	Law. Bruffs. Benn.
			N 17 48 E	S 17 49 W	1,037	
			N 75 17 W	S 75 18 E	975	
6	38 50 46.70	76 11 52.20	N 36 41 E	S 36 41 W	767	Law. Benn. Herr.
			N 44 17 W	S 44 17 E	1,100	
			S 49 29 W	N 49 28 E	2,059	

Thence from corner No. 6 along the mean low water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide:

## BRUFFS ISLAND.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 51 02.72	76 11 45.58	N 75 19 E	S 75 19 W	293	Law. Bruffs. Benn.
			N 17 48 E	S 17 49 W	1,037	
			N 75 17 W	S 75 18 E	975	
2	38 51 07.40	76 11 52.90	S 80 02 E	N 80 02 W	483	Law. Bruffs. Benn.
			N 31 36 E	S 31 36 W	973	
			N 83 11 W	S 83 11 E	755	
3	38 51 41.96	76 11 39.82	N 2 29 E	S 2 29 W	888	Nose. Won. Hough.
			N 89 01 W	S 89 01 E	431	
			S 37 04 W	N 37 04 E	921	
4	38 51 43.96	76 11 25.88	S 85 42 W	N 85 42 E	801	Won. Shaw. South.
			S 1 15 W	N 1 15 E	352	
			N 62 46 E	S 62 46 W	482	
5	38 51 35.46	76 11 13.80	N 74 55 E	S 74 55 W	1,001	Edward. South. Shaw.
			N 12 14 E	S 12 14 W	519	
			S 78 40 W	N 78 39 E	332	
6	38 51 30.00	76 11 20.90	S 70 58 E	N 70 57 W	1,217	Colonel. Edward. Shaw.
			N 68 55 E	S 68 55 W	1,236	
			N 49 30 W	S 49 30 E	183	
7	38 51 20.02	76 11 32.06	N 5 36 W	S 5 36 E	406	Bruffs. Hough. Law.
			N 89 36 W	S 89 36 E	759	
			S 8 12 W	N 8 12 E	514	

Thence from corner No. 6 along the mean low water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide:

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SHAW BAY HILL.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 51 08.66	76 11 18.45	N 73 27 E	S 73 27 W	Yards. 1 133 1,430 1,659	Colonel. South. Benn.
			N 9 22 E	S 9 22 W		
			N 88 22 W	S 88 23 E		
2	38 51 14.64	76 11 18.42	N 83 38 E	S 83 38 W	1,091 2,037 1,231	Colonel. Flat. South.
			N 30 21 E	S 30 21 W		
			N 10 51 E	S 10 51 W		
3	38 51 14.62	76 11 11.94	N 82 25 E	S 82 25 W	922 1,958 1,212	Colonel. Flat. South.
			N 26 01 E	S 26 01 W		
			N 2 53 E	S 2 53 W		
4	38 51 08.78	76 11 12.28	N 70 57 E	S 70 57 W	977 1,409 1,821	Colonel. South. Benn.
			N 2 51 E	S 2 51 W		
			N 88 39 W	S 88 40 E		

RACE HORSE (Talbot County).

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 51 21.58	76 10 55.52	S 76 47 E	N 76 47 W	Yards. 493 875 1,039	Colonel. Edward. South.
			N 33 35 E	S 33 35 W		
			N 20 53 W	S 20 53 E		
2	38 51 41.04	76 10 59.44	N 82 59 E	S 83 00 W	592 417 749	Edward. South. Shaw.
			N 40 06 W	S 40 06 E		
			S 70 13 W	N 70 12 E		
Thence along county boundary as delineated on Chart No. 32 to corner No. 3.						
3	38 51 56.76	76 10 34.74	S 8 00 W	N 8 00 E	463 753 360	Edward. Albert. Flat.
			N 57 01 E	S 57 02 W		
			N 19 54 W	S 19 54 E		
4	38 51 53.40	76 10 16.98	S 57 06 W	N 57 05 E	634 440 549	Edward. Lloyd. Albert.
			S 19 07 E	N 19 07 W		
			N 17 25 E	S 17 25 W		
5	38 51 44.00	76 10 18.00	N 47 24 E	S 47 25 W	1,001 862 953	Cousin. Albert. Flat.
			N 12 49 E	S 12 49 W		
			N 36 16 W	S 36 16 E		
Thence from corner No. 5 along the mean low water line of the shore to corner No. 6, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide						
6	38 51 43.18	76 10 37.18	N 38 44 E	S 38 44 W	1,113 798 890	Albert. Flat. South.
			N 4 09 W	S 4 09 E		
			N 73 53 W	S 73 54 E		
7	38 51 29.42	76 10 39.24	N 6 41 E	S 6 41 W	467 1,072 381	Edward. South. Colonel.
			N 48 25 W	S 48 26 E		
			S 7 48 E	N 7 48 W		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## WINDERS BANK.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 51 49.42	76 10 01.20	N 30 43 E	S 30 43 W	Yards. 575 704 392	Cousin. Albert. Lloyd.
			N 20 56 W	S 20 57 E		
			S 44 03 W	N 44 03 E		
2	38 51 55.86	76 10 09.00	S 7 36 W	N 7 36 E	503 572 443	Lloyd. Cousin. Albert.
			N 60 57 E	S 60 57 W		
			N 5 59 W	S 5 59 E		
3	38 52 10.38	76 10 01.42	Thence along county boundary as delineated on Chart No. 32 to Corner No. 3.		367 226 329	Cousin. Baldwins. Le Seur.
			S 54 43 E	N 54 43 W		
			N 28 00 E	S 28 00 W		
4	38 52 10.62	76 09 57.20	S 40 34 E	N 40 34 W	290 191 362	Cousin. Baldwins. Albert.
			N 1 35 W	S 1 35 E		
			S 80 56 W	N 80 56 E		
5	38 51 59.68	76 09 48.34	N 16 52 W	S 16 52 E	155 668 876	Cousin. Albert. Lloyd.
			N 62 10 W	S 62 10 E		
			S 44 15 W	N 44 15 E		

## POPLAR POINT.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 52 18.68	76 09 56.06	N 28 19 E	S 28 19 W	Yards. 287 344 87	Sylvia. Attila. Baldwins.
			N 29 06 W	S 29 06 E		
			S 23 40 W	N 23 40 E		
2	38 52 20.62	76 10 01.72	N 4 25 W	S 4 25 E	236 262 185	Attila. Le Seur. Baldwins.
			S 62 33 W	N 62 33 E		
			S 37 57 E	N 37 57 W		
3	38 52 26.50	76 09 57.10	Thence along county boundary as delineated on Chart No. 32 to corner No. 3.		344 163 490	Baldwins. Sylvia. Gusta.
			S 1 19 W	N 1 19 E		
			S 85 52 E	N 85 52 W		
4	38 52 52.64	76 09 45.28	Thence along county boundary as delineated on Chart No. 32 to corner No. 4.		396 265 280	Sang. Nodim. Go.
			S 89 31 W	N 89 31 E		
			S 26 53 E	N 26 53 W		
5	38 52 52.48	76 09 30.12	Thence along county boundary as delineated on Chart No. 32 to corner No. 5.		523 294 362	Divide. Go. Nodim.
			N 65 37 E	S 65 37 W		
			N 44 54 W	S 44 54 E		
6	38 52 47.54	76 09 30.62	S 80 45 E	N 80 45 W	611 621 422	Quarter. Divide. Go.
			N 51 59 E	S 51 59 W		
			N 27 25 W	S 27 25 E		
7	38 52 48.08	76 09 41.54	S 14 04 E	N 14 04 W	86 369 451	Nodim. Go. Turn.
			N 14 39 E	S 14 39 W		
			N 31 06 W	S 31 06 E		
8	38 52 32.68	76 09 47.50	N 23 59 E	S 23 59 W	174 359 237	Gusta. Tobins. Sylvia.
			N 53 18 W	S 53 18 E		
			S 22 12 W	N 22 12 E		



BOUNDARIES OF NATURAL OYSTER BARS—continued.

JUNIPER.

(Wye River—Chart No. 32.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 52 46.56	76 09 09.86	N 61 11 W	S 61 11 E	Yards. 846 85 387	Go. Quarter. Deck.
			S 40 31 E	N 40 31 W		
			N 50 45 E	S 50 45 W		
2	38 52 49.82	76 09 12.98	N 65 41 W	S 65 41 E	724 223 405	Go. Quarter. Deck.
			S 38 14 E	N 38 14 W		
			N 70 33 E	S 70 33 W		
3	38 52 57.10	76 09 01.18	N 9 49 W	S 9 49 E	247 293 131	Princess. Divide. Deck.
			N 78 11 W	S 78 11 E		
			S 32 40 E	N 32 40 W		
4	38 52 54.80	76 08 58.88	N 17 45 W	S 17 45 E	338 374 34	Princess. Divide. Deck.
			N 68 24 W	S 68 24 E		
			S 17 17 E	N 17 17 W		

POPLAR ISLAND NARROWS.

(Chesapeake Bay—Vicinity Poplar Island—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 44 39.07	76 20 37.00	N 7 13 E	S 7 13 W	Yards. 577 5,069 1,280	Great. Valliant. Front.
			N 50 49 W	N 50 51 E		
			S 0 30 E	N 0 30 W		
2	38 44 43.23	76 20 53.90	S 17 51 E	N 17 51 W	1,492 676 3,912	Front. Great. Haddaway.
			N 50 12 E	S 50 12 W		
			N 18 18 E	S 18 18 W		
3	38 44 50.35	76 21 22.52	S 36 10 E	N 36 10 W	2,056 1,289 4,000	Front. Great. Haddaway.
			N 81 25 E	S 81 26 W		
			N 29 44 E	S 29 44 W		
4	38 45 32.22	76 22 03.07	S 65 03 W	N 65 03 E	1,179 2,643 3,685	Poplar South. Great. Haddaway.
			S 62 32 E	N 62 31 W		
			N 55 58 E	S 56 00 W		
5	38 47 09.33	76 21 17.76	S 14 20 E	N 14 20 W	4,639 2,210 7,455	Great. Haddaway. Kemp Tower.
			S 56 52 E	N 56 52 W		
			N 46 41 E	S 46 43 W		
6	38 47 16.80	76 20 36.40	S 27 37 E	N 27 37 W	1,654 6,497 7,208	Haddaway. Kemp Tower. Bloody Point Bar Light.
			N 41 42 E	S 41 44 W		
			N 39 44 W	S 39 46 E		
7	38 46 06.70	76 20 50.90	S 60 48 W	N 60 47 E	3,402 2,422 1,459	Poplar South. Great. Haddaway.
			S 10 28 E	N 10 28 W		
			N 51 58 E	S 51 58 W		
8	38 46 03.46	76 20 20.90	N 19 31 E	S 19 31 W	1,070 4,068 2,300	Haddaway. Poplar South. Great.
			S 67 36 W	N 67 34 E		
			S 8 49 W	N 8 49 E		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## POPLAR ISLAND NARROWS—Continued.

(Chesapeake Bay—Vicinity Poplar Island—Chart No. 33)—Continued.

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
9	38 45 45.58	76 20 17.42	N 9 21 E	S 9 21 W	Yards.	Haddaway. Poplar South. Great.
			S 76 11 W	N 76 13 E	1,633	
			S 14 54 W	N 14 54 E	3,968	
10	38 45 04.40	76 20 39.70	N 15 53 E	S 15 53 W	3,119	Haddaway. Valliant. Front.
			N 58 40 W	S 58 41 E	4,515	
			S 2 12 E	N 2 12 W	2,135	

## BAY HUNDRED.

(Chesapeake Bay—Vicinity Poplar Island—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 42 49.30	76 21 17.92	S 36 04 E	N 36 04 W	1,124	Wap. Front. Poplar South.
			N 24 16 E	S 24 16 W	2,657	
			N 24 19 W	S 24 20 E	5,483	
2	38 43 14.68	76 22 06.60	S 47 50 E	N 47 50 W	2,628	Wap. Front. Poplar South.
			N 56 37 E	S 56 38 W	2,848	
			N 13 16 W	S 13 16 E	4,254	
3	38 44 20.44	76 21 22.35	S 61 41 E	N 61 41 W	1,374	Front. Great. Poplar South.
			N 46 37 E	S 46 37 W	1,748	
			N 48 09 W	S 48 09 E	2,882	
4	38 44 50.35	76 21 22.52	S 36 10 E	N 36 10 W	2,056	Front. Great. Haddaway.
			N 81 25 E	S 81 26 W	1,289	
			N 29 44 E	S 29 44 W	4,000	
5	38 44 43.23	76 20 53.90	S 17 51 E	N 17 51 W	1,492	Front. Great. Haddaway.
			N 50 12 E	S 50 12 W	676	
			N 18 18 E	S 18 18 W	3,912	
6	38 43 28.42	76 20 41.93	N 7 17 E	S 7 17 W	1,112	Front. Poplar South. Wap.
			N 41 05 W	S 41 06 E	4,880	
			S 7 24 W	N 7 24 E	2,246	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

PONE.

(Chesapeake Bay—Off Tilghman Island—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 40 32.40	76 21 36.58	S 18 42 W	N 18 41 E	Yards. 4,602 2,090 3,883	Sharps Island Light. Black. Wap.
			S 65 21 E	N 65 20 W		
			N 17 18 E	S 17 18 W		
2	38 41 18.60	76 22 39.92	S 1 38 E	N 1 38 W	6,004 4,321 3,553	Sharps Island Light. Black. Wap.
			S 55 48 E	N 55 47 W		
			N 52 46 E	S 52 47 W		
3	38 43 14.68	76 22 06.60	S 47 50 E	N 47 50 W	2,628 2,848 4,254	Wap. Front. Poplar South.
			N 56 37 E	S 56 38 W		
			N 13 16 W	S 13 16 E		
4	38 42 49.30	76 21 17.92	S 36 04 E	N 36 04 W	1,124 2,657 5,483	Wap. Front. Poplar South.
			N 24 16 E	S 24 16 W		
			N 24 19 W	S 24 20 E		

STONE.

(Chesapeake Bay—Vicinity Sharps Island—Charts Nos. 33 and 36.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 37 35.72	76 24 17.16	S 75 41 E	N 75 40 W	Yards. 3,986 10,825 11,070	Jere. Chef. Wap.
			N 86 28 E	S 86 32 W		
			N 29 11 E	S 29 13 W		
2	38 38 33.84	76 24 01.16	S 49 25 E	N 49 24 W	4,529 2,363 9,172	Jere. Sharps Island Light. Wap.
			S 79 07 E	N 79 06 W		
			N 32 51 E	S 32 53 W		
3	38 40 14.30	76 22 52.76	S 7 36 E	N 7 36 W	3,867 3,922 5,355	Sharps Island Light. Black. Wap.
			S 86 11 E	N 86 09 W		
			N 36 16 E	S 36 17 W		
4	38 40 04.04	76 21 54.70	S 16 22 W	N 16 22 E	3,635 2,382 4,942	Sharps Island Light. Black. Wap.
			N 87 57 E	S 87 58 W		
			N 19 18 E	S 19 19 W		
5	38 38 44.36	76 22 11.12	S 36 24 W	N 36 23 E	994 3,342 3,949	Sharps Island Light. Jere. Black.
			S 9 05 E	N 9 05 W		
			N 45 25 E	S 45 26 W		
6	38 38 54.12	76 21 13.58	S 15 19 W	N 15 19 E	3,763 6,266 2,758	Jere. Chef. Black.
			S 71 39 E	N 71 36 W		
			N 27 54 E	S 27 55 W		
7	38 38 34.48	76 21 08.08	N 20 15 E	S 20 15 W	3,399 2,305 3,178	Black. Sharps Island Light. Jere.
			S 78 18 W	N 78 17 E		
			S 21 01 W	N 21 01 E		
8	38 37 41.36	76 21 56.68	N 86 07 E	S 86 10 W	7,104 5,467 1,646	Chef. Black. Sharps Island Light.
			N 26 24 E	S 26 25 W		
			N 36 17 W	S 36 18 E		
9	38 37 39.48	76 22 45.64	S 52 21 E	N 52 20 W	1,816 8,400 9,993	Jere. Chef. Wap.
			N 86 18 E	S 86 21 W		
			N 17 21 E	S 17 22 W		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## CLAY BANK.

(Chesapeake Bay—Vicinity Sharps Island—Charts Nos. 33 and 36.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 35 41.40	76 23 14.60	N 75 15 E	S 75 19 W	10,593	Cook Point Windmill. Jere. Sharps Island Light.
			N 37 44 E	S 37 44 W	3,606	
			N 11 28 E	S 11 28 W	5,479	
2	38 36 37.96	76 24 10.30	N 86 10 E	S 86 14 W	11,743	Cook Point Windmill. Jere. Sharps Island Light.
			N 75 22 E	S 75 23 W	3,805	
			N 36 31 E	S 36 32 W	4,307	
3	38 37 35.72	76 24 17.16	S 75 41 E	N 75 40 W	3,986	Jere. Chef. Wap.
			N 86 28 E	S 86 32 W	10,825	
			N 29 11 E	S 29 13 W	11,070	
4	38 37 39.48	76 22 45.64	S 52 21 E	N 52 20 W	1,816	Jere. Chef. Wap.
			N 86 18 E	S 86 21 W	8,400	
			N 17 21 E	S 17 22 W	9,093	
5	38 36 51.72	76 22 33.70	N 87 58 E	S 88 02 W	9,168	Cook Point Windmill. Jere. Sharps Island Light.
			N 66 07 E	S 66 07 W	1,231	
			N 00 08 E	S 00 08 W	3,000	

## SHARPS.

(Outer Choptank River—Charts Nos. 33, 36, and 37.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 36 39.40	76 20 43.16	S 62 38 E	N 62 36 W	7,797	Brannock. Chef. Sharps Island Light.
			N 63 26 E	S 63 28 W	5,750	
			N 40 31 W	S 40 32 E	4,489	
2	38 36 58.92	76 21 10.24	N 71 57 E	S 72 00 W	6,162	Chef. Sharps Island Light. Jere.
			N 38 37 W	S 38 38 E	3,526	
			N 76 43 W	S 76 44 E	1,112	
3	38 36 58.72	76 20 27.22	S 56 56 E	N 56 53 W	7,761	Brannock. Chef. Sharps Island Light.
			N 67 52 E	S 67 54 W	5,096	
			N 50 24 W	S 50 26 E	4,332	
Thence along county boundary as delineated on charts Nos. 33, 36, and 37 to corner No. 1.						

BOUNDARIES OF NATURAL OYSTER BARS—continued.

BLACK WALNUT.

(Outer Choptank River—Charts Nos. 33, 36, and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 39 19.32	76 18 25.64	N 18 55 W	S 18 55 E	Yards. 4,354 3,529 6,847	Bar. Black. Sharps Island Light.
			N 63 10 W	S 63 12 E		
			S 73 11 W	N 73 13 E		
2	38 39 32.44	76 19 53.16	N 13 47 E	S 13 47 W	3,786 1,422 4,882	Bar. Black. Sharps Island Light.
			N 35 58 W	S 35 58 E		
			S 60 15 W	N 60 13 E		
3	38 40 30.48	76 20 13.35	N 13 01 W	S 13 01 E	2,224 861 6,798	Southern M. E. Church. Black. Chef.
			S 20 30 W	N 20 30 E		
			S 39 50 E	N 39 48 W		
4	38 40 30.20	76 18 36.52	N 33 01 W	S 33 02 E	2,061 2,970 7,640	Bar. Black. Sharps Island Light.
			S 74 26 W	N 74 25 E		
			S 55 06 W	N 55 03 E		
5	38 40 05.28	76 17 58.64	N 39 36 W	S 39 37 E	3,333 3,864 8,081	Bar. Black. Sharps Island Light.
			N 89 22 W	S 89 23 E		
			S 64 05 W	N 64 02 E		
6	38 39 29.24	76 17 58.36	N 29 27 W	S 29 28 E	4,336 4,069 7,636	Bar. Black. Sharps Island Light.
			N 71 59 W	S 72 01 E		
			S 72 20 W	N 72 17 E		

SANDS.

(Outer Choptank River—Chart No. 33.)

1	38 40 05.28	76 17 58.64	N 39 36 W	S 39 37 E	Yards. 3,333 3,864 8,081	Bar. Black. Sharps Island Light.
			N 89 22 W	S 89 23 E		
			S 64 05 W	N 64 02 E		
2	38 40 30.20	76 18 36.52	N 33 01 W	S 33 02 E	2,061 2,970 7,640	Bar. Black. Sharps Island Light.
			S 74 26 W	N 74 25 E		
			S 55 06 W	N 55 03 E		
3	38 41 30.48	76 18 56.80	N 28 10 E	S 28 11 W	3,509 2,709 662	Change 1910. Avalon. Bar.
			N 37 16 W	S 37 17 E		
			S 62 38 W	N 62 38 E		
4	38 41 48.84	76 17 59.20	N 78 54 E	S 78 56 W	2,791 2,478 2,304	Nelson 3. Change 1910. Bar.
			N 3 07 E	S 3 07 W		
			S 66 20 W	N 66 20 E		
5	38 40 56.92	76 17 58.88	N 1 43 E	S 1 43 W	4,227 2,274 4,214	Change 1910. Bar. Black.
			N 68 40 W	S 68 41 E		
			S 66 14 W	N 66 12 E		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## PLEASANT HILL.

(Outer Choptank River—Charts Nos. 33, 34, and 36.)

Corner of bar	Latitude	Longitude	True bearing		Distance *	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / '	° / '		
1	38 40 04.20	76 17 01.08	N 16 28 E	S 16 29 W	Yards. 4,240	Nelson 3. Bar. Black.
			N 54 28 W	S 54 29 E	4,480	
			N 89 10 W	S 89 11 E	5,385	
2	38 40 05.28	76 17 58.64	N 39 36 W	S 39 37 E	3,333	Bar. Black. Sharps Island Light.
			N 89 22 W	S 89 23 E	3,864	
			S 64 05 W	N 64 02 E	8,081	
3	38 40 56.92	76 17 58.88	N 1 43 E	S 1 43 W	4,227	Change 1910. Bar. Black.
			N 68 40 W	S 68 41 E	2,274	
			S 66 14 W	N 66 12 E	4,214	
4	38 40 57.06	76 17 00.88	N 27 40 E	S 27 41 W	2,578	Nelson 3. Bar. Black.
			N 77 19 W	S 77 20 E	3,743	
			S 72 27 W	N 72 25 E	5,653	
5	38 40 14.76	76 17 01.00	N 17 56 E	S 17 56 W	3,899	Nelson 3. Bar. Black.
			N 58 21 W	S 58 23 E	4,286	
			S 87 03 W	N 87 01 E	5,394	

## CHURCH HILL.

(Outer Choptank River—Charts Nos. 33 and 34.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / '	° / '		
1	38 40 56.92	76 17 58.88	N 1 43 E	S 1 43 W	4,227	Change 1910. Bar. Black.
			N 68 40 W	S 68 41 E	2,274	
			S 66 14 W	N 66 12 E	4,214	
2	38 41 48.84	76 17 59.20	N 78 54 E	S 78 56 W	2,791	Nelson 3. Change 1910. Bar.
			N 3 07 E	S 3 07 W	2,478	
			S 66 20 W	N 66 20 E	2,304	
3	38 41 54.74	76 17 00.72	N 74 10 E	S 74 11 W	1,240	Nelson 3. Change 1910. Bar.
			N 31 48 W	S 31 48 E	2,677	
			S 72 55 W	N 72 54 E	3,824	
4	38 40 57.06	76 17 00.88	N 27 40 E	S 27 41 W	2,578	Nelson 3. Bar. Black.
			N 77 19 W	S 77 20 E	3,743	
			S 72 27 W	N 72 25 E	5,653	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

WILD CHERRY TREE.

(Entrance Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ''	° / ''	° /	° /	Yards.	
1	38 41 30.48	76 18 56.80	N 28 10 E N 37 16 W S 62 38 W	S 28 11 W S 37 17 E N 62 38 E	3,599 2,799 662	Change 1910. Avalon. Bar.
2	38 42 38.54	76 18 45.48	N 59 33 E N 47 25 W S 85 52 W	S 59 33 W S 47 25 E N 85 52 E	1,575 1,534 1,944	Change 1910. Narrows. Avalon.
3	38 42 49.28	76 18 17.26	S 64 58 E N 54 32 E N 20 47 W	N 64 57 W S 54 32 W S 20 47 E	3,549 751 2,232	Nelson 3. Change 1910. Eagle.
4	38 42 16.70	76 18 07.44	S 82 15 E N 12 56 E N 50 16 W	N 82 13 W S 12 56 W S 50 16 E	2,990 1,575 2,776	Nelson 3. Change 1910. Narrows.
5	38 41 48.84	76 17 59.20	N 78 54 E N 3 07 E S 66 20 W	S 78 56 W S 3 07 W N 66 20 E	2,791 2,478 2,304	Nelson 3. Change 1910. Bar.

TURNROW.

(Entrance Harris Creek—Charts Nos. 33 and 34.)

	° / ''	° / ''	° /	° /	Yards.	
1	38 42 16.70	76 18 07.44	S 82 15 E N 12 56 E N 50 16 W	N 82 13 W S 12 56 W S 50 16 E	2,990 1,575 2,776	Nelson 3. Change 1910. Narrows.
2	38 42 49.28	76 18 17.26	S 64 58 E N 54 32 E N 20 47 W	N 64 57 W S 54 32 W S 20 47 E	3,549 751 2,232	Nelson 3. Change 1910. Eagle.
3	38 42 44.24	76 17 39.02	N 33 19 W N 73 40 W S 43 26 W	S 33 20 E S 73 41 E N 43 25 E	725 3,007 3,845	Change 1910. Narrows. Bar.
4	38 42 23.58	76 17 32.14	S 72 35 E N 24 00 W N 63 18 W	N 72 34 W S 24 01 E S 63 19 E	2,120 1,426 3,433	Nelson 3. Change 1910. Narrows.

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## TILGHMAN WHARF.

(Entrance Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 41 30.48	76 18 56.80	N 28 10 E	S 28 11 W	Yards. 3,509 2,709 662	Change 1910. Avalon. Bar.
			N 37 16 W	S 37 17 E		
			S 62 38 W	N 62 38 E		
2	38 41 55.62	76 19 44.20	S 30 00 E	N 30 00 W	1,330 3,074 1,364	Bar. Change 1910. Avalon.
			N 52 20 E	S 52 21 W		
			N 16 32 W	S 16 32 E		
3	38 42 15.82	76 19 50.27	S 24 15 E	N 24 15 W	2,010 3,445 666	Bar. Change 1910. Avalon.
			N 63 00 E	S 63 01 W		
			N 19 59 W	S 19 59 E		
4	38 42 45.90	76 19 41.50	S 49 46 W	N 49 46 E	601 2,909 2,890	Avalon. Bar. Change 1910.
			S 11 47 E	N 11 47 W		
			S 79 02 E	N 79 03 W		
5	38 43 09.63	76 19 11.75	S 46 20 W	N 46 20 E	1,721 2,067 1,543	Avalon. Change 1910. Eagle.
			S 83 02 E	N 83 01 W		
			N 24 48 E	S 24 48 W		
6	38 42 38.54	76 18 45.48	N 59 33 E	S 59 33 W	1,575 1,534 1,944	Change 1910. Narrows. Avalon.
			N 47 25 W	S 47 25 E		
			S 85 52 W	N 85 52 E		

## CHANGE.

(Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 42 38.54	76 18 45.48	N 59 33 E	S 59 33 W	Yards. 1,575 1,534 1,944	Change 1910. Narrows. Avalon.
			N 47 25 W	S 47 25 E		
			S 85 52 W	N 85 52 E		
2	38 43 31.82	76 18 32.34	S 45 20 E	N 45 20 W	1,421 903 2,442	Change 1910. Hen. Ball.
			N 77 36 E	S 77 36 W		
			N 27 57 E	S 27 58 W		
3	38 43 39.24	76 18 18.86	S 27 39 E	N 27 39 W	1,410 528 2,064	Change 1910. Hen. Ball.
			S 83 53 E	N 83 53 W		
			N 22 28 E	S 22 29 W		
4	38 43 22.44	76 18 02.20	N 8 02 E	S 8 02 W	2,498 1,534 2,315	Ball. Eagle. Narrows.
			N 50 50 W	S 50 51 E		
			S 78 59 W	N 78 58 E		
5	38 42 49.28	76 18 17.26	S 64 58 E	N 64 57 W	3,549 751 2,232	Nelson 3. Change 1910. Eagle.
			N 54 32 E	S 54 32 W		
			N 20 47 W	S 20 47 E		



BOUNDARIES OF NATURAL OYSTER BARS—continued.

EAGLE POINT.

(Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 43 31.82	76 18 32.34	S 45 20 E	N 45 20 W	Yards.	Change 1910. Hen. Ball.
			N 77 36 E	S 77 36 W	1,421	
			N 27 57 E	S 27 58 W	903	
2	38 43 32.42	76 19 00.68	S 59 55 E	N 59 54 W	2,033	Change 1910. Hen. Ball.
			N 83 55 E	S 83 56 W	1,639	
			N 41 33 E	S 41 33 W	2,854	
3	38 43 42.98	76 18 58.40	S 51 01 E	N 51 00 W	2,185	Change 1910. Hen. Ball.
			S 83 22 E	N 83 22 W	1,580	
			N 45 50 E	S 45 51 W	2,556	
4	38 43 47.54	76 18 33.20	S 34 03 E	N 34 03 W	1,845	Change 1910. Hen. Ball.
			S 69 37 E	N 69 36 W	905	
			N 35 40 E	S 35 40 W	2,002	
5	38 44 11.83	76 18 36.80	S 40 52 E	N 40 52 W	1,528	Hen. Ball. Warrior.
			N 57 23 E	S 57 24 W	1,499	
			N 16 32 E	S 16 32 W	2,001	
6	38 44 09.12	76 18 21.80	S 29 33 E	N 29 33 W	1,224	Hen. Ball. Dunk.
			N 43 56 E	S 43 56 W	1,249	
			N 28 46 W	S 28 46 E	1,351	
7	38 43 39.24	76 18 18.86	S 27 39 E	N 27 39 W	1,410	Change 1910. Hen. Ball.
			S 83 53 E	N 83 53 W	528	
			N 22 28 E	S 22 29 W	2,064	

TURKEY NECK.

(Harris Creek—Chart No. 33.)

1	38 43 39.24	76 18 18.86	S 27 39 E	N 27 39 W	Yards.	Change 1910. Hen. Ball.
			S 83 53 E	N 83 53 W	1,410	
			N 22 28 E	S 22 29 W	528	
2	38 44 09.12	76 18 21.80	S 29 33 E	N 29 33 W	1,224	Hen. Ball. Dunk.
			N 43 56 E	S 43 56 W	1,249	
			N 28 46 W	S 28 46 E	1,351	
3	38 44 04.26	76 17 55.44	N 44 57 W	S 44 58 E	1,906	Dunk. Eagle. Hen.
			S 72 08 W	N 72 08 E	1,438	
			S 5 54 W	N 5 54 E	904	
4	38 43 45.80	76 18 06.96	N 27 52 W	S 27 52 E	2,230	Dunk. Eagle. Change 1910.
			N 80 18 W	S 80 19 E	1,079	
			S 13 01 E	N 13 01 W	1,509	

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MILL POINT.

(Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 44 04.26	76 17 55.44	N 44 57 W	S 44 58 E	Yards. 1,906 1,438 904	Dunk. Eagle. Hen.
			S 72 08 W	N 72 08 E		
			S 5 54 W	N 5 54 E		
2	38 44 09.12	76 18 21.80	S 29 33 E	N 29 33 W	1,224 1,249 1,351	Hen. Ball. Dunk.
			N 43 56 E	S 43 56 W		
			N 28 46 W	S 28 46 E		
3	38 44 47.38	76 18 25.46	S 67 55 E	N 67 55 W	1,039 769 1,041	Ball. Warrior. Hawk.
			N 20 34 E	S 20 34 W		
			N 35 13 W	S 35 13 E		
4	38 44 51.00	76 18 00.90	N 59 44 W	S 59 45 E	1,446 1,224 2,360	Hawk. Dunk. Eagle.
			S 79 17 W	N 79 16 E		
			S 31 15 W	N 31 15 E		
5	38 44 36.98	76 17 55.72	N 49 04 W	S 49 05 E	1,834 1,362 2,059	Hawk. Dunk. Eagle.
			N 79 37 W	S 79 38 E		
			S 41 23 W	N 41 23 E		

## HUNTS.

(Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 44 09.12	76 18 21.80	S 29 33 E	N 29 33 W	Yards. 1,224 1,249 1,351	Hen. Ball. Dunk.
			N 43 56 E	S 43 56 W		
			N 28 46 W	S 28 46 E		
2	38 44 11.83	76 18 36.80	S 40 52 E	N 40 52 W	1,528 1,499 2,001	Hen. Ball. Warrior.
			N 57 23 E	S 57 24 W		
			N 16 32 E	S 16 32 W		
3	38 44 19.42	76 18 54.98	S 46 22 E	N 46 21 W	2,045 1,828 1,966	Hen. Ball. Warrior.
			N 72 26 E	S 72 27 W		
			N 32 16 E	S 32 16 W		
4	38 44 25.50	76 18 42.80	S 35 37 E	N 35 37 W	1,988 1,463 1,629	Hen. Ball. Warrior.
			N 76 17 E	S 76 17 W		
			N 26 32 E	S 26 32 W		
5	38 44 33.24	76 18 44.02	S 32 23 E	N 32 22 W	2,223 1,456 1,417	Hen. Ball. Warrior.
			N 86 37 E	S 86 37 W		
			N 32 26 E	S 32 26 W		
6	38 44 38.50	76 18 55.12	S 35 50 E	N 35 49 W	2,534 1,749 1,465	Hen. Ball. Warrior.
			S 87 00 E	N 86 59 W		
			N 45 57 E	S 45 57 W		
Thence from corner No. 6 along the mean low-water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 44 44.25	76 18 46.42	S 79 21 E	N 79 20 W	1,543 1,166 958	Ball. Warrior. Hawk.
			N 44 57 E	S 44 57 W		
			N 2 48 W	S 2 48 E		
8	38 44 47.38	76 18 25.46	S 67 55 E	N 67 55 W	1,039 769 1,041	Ball. Warrior. Hawk.
			N 20 34 E	S 20 34 W		
			N 35 13 W	S 35 13 E		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SETHS POINT.

(Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 44 44.25	76 18 46.42	S 79 21 E N 44 57 E N 2 48 W	N 79 20 W S 44 57 W S 2 48 E	1,543 1,166 958	Ball. Warrior. Hawk.
2	38 45 06.30	76 18 44.22	S 54 48 E N 83 55 E N 7 06 E	N 54 48 W S 83 55 W S 7 06 W	1,785 770 1,575	Ball. Warrior. Smith.
3	38 45 01.47	76 18 27.00	S 49 13 E N 51 47 E N 8 34 W	N 49 13 W S 51 47 W S 8 34 E	1,325 396 1,744	Ball. Warrior. Smith.
4	38 44 51.00	76 18 00.90	N 59 44 W S 79 17 W S 31 15 W	S 59 45 E N 79 16 E N 31 15 E	1,446 1,224 2,360	Hawk. Dunk. Eagle.
5	38 44 47.38	76 18 25.46	S 67 55 E N 20 34 E N 35 13 W	N 67 55 W S 20 34 W S 35 13 E	1,939 769 1,041	Ball. Warrior. Hawk.

LODGES.

(Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 45 01.47	76 18 27.00	S 49 13 E N 51 47 E N 8 34 W	N 49 13 W S 51 47 W S 8 34 E	1,325 396 1,744	Ball. Warrior. Smith.
2	38 45 06.30	76 18 44.22	S 54 48 E N 83 55 E N 7 06 E	N 54 48 W S 83 55 W S 7 06 W	1,785 770 1,575	Ball. Warrior. Smith.
3	38 45 39.46	76 18 54.80	S 45 13 E S 82 54 E N 67 38 E	N 45 13 W N 82 54 W S 67 39 W	1,472 1,531 2,054	Warrior. Edmond. Dan.
4	38 45 20.25	76 18 10.74	N 32 12 W S 75 22 W S 37 49 W	S 32 12 E N 75 22 E N 37 49 E	1,292 1,020 1,537	Smith. Hawk. Dunk.

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## WALNUT.

(Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 45 20.25	76 18 10.74	N 32 12 W	S 32 12 E	Yards. 1,292 1,020 1,537	Smith. Hawk. Dunk.
			S 75 22 W	N 75 22 E		
			S 37 49 W	N 37 49 E		
2	38 45 39.46	76 18 54.80	S 45 13 E	N 45 13 W	1,472 1,531 2,054	Warrior. Edmond. Dan.
			S 82 54 E	N 82 54 W		
			N 67 38 E	S 67 39 W		
3	38 45 52.64	76 18 36.85	S 12 31 W	N 12 31 E	1,382 1,223 1,465	Hawk. Edmond. Dan.
			S 58 47 E	N 58 47 W		
			N 76 41 E	S 76 41 W		
4	38 45 53.40	76 17 53.60	N 11 49 E	S 11 49 W	775 1,142 1,612	Vine. Smith. Warrior.
			S 88 43 W	N 88 42 E		
			S 20 46 W	N 20 46 E		

## SMITH POINT.

(Harris Creek—Chart No. 33.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 45 52.64	76 18 36.85	S 12 31 W	N 12 31 E	Yards. 1,382 1,223 1,465	Hawk. Edmond. Dan.
			S 58 47 E	N 58 47 W		
			N 76 41 E	S 76 41 W		
2	38 46 14.47	76 18 17.00	S 21 33 W	N 21 33 E	2,243 1,465 986	Hawk. Edmond. Dan.
			N 20 50 E	S 20 50 W		
			S 66 10 E	N 66 09 W		
3	38 46 00.00	76 17 59.00	S 2 59 E	N 2 59 W	884 436 1,215	Edmond. Dan. Cummings.
			N 78 11 E	S 78 11 W		
			N 34 33 E	S 34 33 W		
4	38 45 53.40	76 17 53.60	N 11 49 E	S 11 49 W	775 1,142 1,612	Vine. Smith. Warrior.
			S 88 43 W	N 88 42 E		
			S 20 46 W	N 20 46 E		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

LITTLE NECK.

(Harris Creek—Charts Nos. 33 and 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 45 53.40	76 17 53.60	N 11 49 E	S 11 49 W	Yards. 775 1,142 1,612	Vine. Smith. Warrior.
			S 88 43 W	N 88 42 E		
			S 20 46 W	N 20 46 E		
2	38 46 00.00	76 17 50.00	S 2 59 E	N 2 59 W	884 436 1,215	Edmond. Dan. Cummings.
			N 78 11 E	S 78 11 W		
			N 34 33 E	S 34 33 W		
3	38 46 15.00	76 17 47.59	S 58 54 W	N 58 54 E	1,519 464 899	Smith. Dan. Fox.
			S 15 43 E	N 15 43 W		
			S 84 29 E	N 84 28 W		
4	38 46 13.74	76 17 35.30	N 6 45 E	S 6 45 W	541 332 423	Cummings. Vine. Dan.
			N 77 21 W	S 77 21 E		
			S 28 00 W	N 28 00 E		

RABBIT ISLAND.

(Harris Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 46 13.74	76 17 35.30	N 6 45 E	S 6 45 W	Yards. 541 332 423	Cummings. Vine. Dan.
			N 77 21 W	S 77 21 E		
			S 28 00 W	N 28 00 E		
2	38 46 25.28	76 17 24.06	S 31 44 W	N 31 43 E	898 501 843	Dan. Fox. Koot.
			S 36 26 E	N 36 26 W		
			S 74 08 E	N 74 07 W		
3	38 46 23.38	76 17 00.15	S 46 32 W	N 46 31 E	492 229 886	Fox. Koot. Bozman.
			S 43 10 E	N 43 10 W		
			N 85 12 E	S 85 12 W		
4	38 46 16.70	76 17 00.10	N 31 01 E	S 31 01 W	510 447 1,254	Grace. Rabbit. Vine.
			N 34 32 W	S 34 32 E		
			S 88 46 W	N 88 46 E		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## DAWSON.

(Outer Choptank River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station	
			Forward	Back			
1	38 39 58.32	76 15 41.88	N 41 38 E	S 41 39 W	Yards. 4,344	Roys. Nelson 3.	
			N 11 48 W	S 11 48 E			4,356
			N 63 59 W	S 64 01 E			6,387
2	38 40 14.76	76 17 01.00	N 17 56 E	S 17 56 W	3,899	Nelson 3.	
			N 58 21 W	S 58 23 E	4,286	Bar.	
			S 87 03 W	N 87 01 E	5,394	Black.	
3	38 40 57.06	76 17 00.88	N 27 40 E	S 27 41 W	2,578	Nelson 3.	
			N 77 19 W	S 77 20 E	3,743	Bar.	
			S 72 27 W	N 72 25 E	5,653	Black.	
4	38 40 57.08	76 16 09.60	N 70 50 E	S 70 52 W	3,831	Roys.	
			N 03 58 W	S 03 58 E	2,289	Nelson 3.	
			N 80 41 W	S 80 43 E	5,073	Bar.	

## FRANCE.

(Outer Choptank River—Chart No. 34.)

1	38 40 57.06	76 17 00.88	N 27 40 E	S 27 41 W	Yards. 2,578	Nelson 3.	
			N 77 19 W	S 77 20 E			3,743
			S 72 27 W	N 72 25 E			5,653
2	38 41 54.74	76 17 00.72	N 74 10 E	S 74 11 W	1,240	Nelson 3.	
			N 31 48 W	S 31 48 E	2,677	Change 1910.	
			S 72 55 W	N 72 54 E	3,824	Bar.	
3	38 41 55.12	76 16 10.76	S 79 09 E	N 79 08 W	3,716	Roys.	
			N 21 22 W	S 21 23 E	349	Nelson 3.	
			S 77 08 W	N 77 06 E	5,104	Bar.	
4	38 40 57.08	76 16 09.60	N 70 50 E	S 70 52 W	3,831	Roys.	
			N 03 58 W	S 03 58 E	2,289	Nelson 3.	
			N 80 41 W	S 80 43 E	5,073	Bar.	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

GREAT MARSH.

(Outer Choptank River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / '	° / '		
1	38 41 54.74	76 17 00.72	N 74 10 E	S 74 11 W	Yards.	Nelson 3. Change 1010. Bar.
			N 31 48 W	S 31 48 E	1,240	
			S 72 55 W	N 72 54 E	2,677	
2	38 42 07.41	76 17 16.12	S 86 49 E	N 86 48 W	1,602	Nelson 3. Change 1010. Bar.
			N 28 30 W	S 28 31 E	2,103	
			S 64 30 W	N 64 28 E	3,599	
3	38 42 44.00	76 17 04.80	N 65 52 W	S 65 52 E	1,427	Change 1010. Bar. Nelson 3.
			S 51 35 W	N 51 33 E	4,529	
			S 43 52 E	N 43 51 W	1,877	
4	38 42 27.90	76 16 37.15	N 60 22 W	S 60 23 E	2,339	Change 1010. Bar. Nelson 3.
			S 62 21 W	N 62 19 E	4,830	
			S 36 10 E	N 36 09 W	967	
5	38 41 55.12	76 16 10.76	S 79 09 E	N 79 08 W	3,716	Roys. Nelson 3. Bar.
			N 21 22 W	S 21 23 E	349	
			S 77 08 W	N 77 06 E	5,104	

LONG POINT WOODS.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 41 44.94	76 15 29.76	S 82 06 E	N 82 05 W	Yards.	Roys. Peary. Nelson 3.
			N 41 17 E	S 41 17 W	2,591	
			N 61 05 W	S 61 06 E	2,732	
2	38 42 29.78	76 16 05.00	S 61 53 E	N 61 52 W	3,965	Roys. Peary. Annette.
			N 78 48 E	S 78 49 W	2,786	
			N 16 07 W	S 16 07 E	1,130	
3	38 42 57.80	76 16 04.68	S 9 09 W	N 9 09 E	1,811	Nelson 3. Cook. Myrtle.
			N 81 55 E	S 81 56 W	2,633	
			N 2 20 W	S 2 20 E	1,140	
4	38 42 38.10	76 15 41.50	N 62 35 E	S 62 35 W	2,247	Cook. Annette. Nelson 3.
			N 49 15 W	S 49 16 E	1,234	
			S 38 42 W	N 38 42 E	1,440	
5	38 41 54.64	76 15 07.08	S 70 51 E	N 70 50 W	2,082	Roys. Peary. Nelson 3.
			N 34 52 E	S 34 53 W	2,104	
			N 79 19 W	S 79 20 E	1,843	

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## GREAT BAR.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38° 42' 16.56"	76° 14' 46.24"	S 44 53 E N 33 28 E N 57 24 W	N 44 52 W S 33 28 W S 57 25 E	Yards. 2,007 1,183 2,842	Roys. Peary. Annette.
2	38° 42' 38.10"	76° 15' 41.50"	N 62 35 E N 49 15 W S 38 42 W	S 62 35 W S 49 16 E N 38 42 E	2,247 1,234 1,440	Cook. Annette. Nelson 3.
3	38° 43' 23.66"	76° 14' 58.42"	N 27 22 W N 81 35 W S 70 34 W	S 27 23 E S 81 36 E N 70 33 E	1,547 1,816 2,198	Coal. Myrtle. Annette.
4	38° 43' 26.45"	76° 14' 27.40"	N 50 06 W N 86 15 W S 46 04 W	S 50 06 E S 86 16 E N 46 03 E	1,096 2,621 3,970	Coal. Myrtle. Nelson 3.
5	38° 42' 40.56"	76° 14' 45.00"	S 31 48 E N 74 00 E N 27 48 E	N 31 47 W S 74 00 W S 27 48 W	2,625 645 1,076	Roys. Peary. Cook.
6	38° 42' 25.02"	76° 14' 37.76"	S 54 40 E N 31 24 E N 64 33 W	N 54 39 W S 31 24 W S 64 34 E	1,908 822 2,900	Irish. Peary. Annette.

## BROWN.

(Broad Creek—Chart No. 34.)

1	38° 43' 06.34"	76° 15' 50.75"	N 25 59 W S 77 59 W S 17 32 W	S 25 59 E N 77 58 E N 17 32 E	Yards. 945 705 2,177	Myrtle. Annette. Nelson 3.
2	38° 43' 21.80"	76° 16' 15.06"	S 46 06 E S 81 21 E N 61 28 E	N 46 04 W N 81 20 W S 61 30 W	5,223 2,914 3,449	Roys. Cook. Ross.
3	38° 43' 57.80"	76° 15' 12.66"	S 36 43 E N 72 35 E N 23 04 E	N 36 43 W S 72 36 W S 23 04 W	2,061 1,448 2,122	Cook. Ross. Bald.
4	38° 43' 37.40"	76° 15' 17.94"	N 12 08 W S 81 15 W S 52 31 W	S 12 08 E N 81 14 E N 52 30 E	932 1,296 1,962	Coal. Myrtle. Annette.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

DEEP NECK.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 43 23.66	76 14 58.42	N 27 22 W	S 27 23 E	1,547	Coal. Myrtle. Annette.
			N 81 35 W	S 81 36 E	1,816	
			S 70 34 W	N 70 33 E	2,198	
2	38 43 37.40	76 15 17.94	N 12 08 W	S 12 08 E	932	Coal. Myrtle. Annette.
			S 81 15 W	N 81 14 E	1,296	
			S 52 31 W	N 52 30 E	1,962	
3	38 43 57.80	76 15 12.66	S 36 43 E	N 36 43 W	2,061	Cook. Ross. Bald.
			N 72 35 E	S 72 36 W	1,448	
			N 23 04 E	S 23 04 W	2,122	
4	38 44 31.00	76 14 56.40	S 54 14 E	N 54 13 W	1,173	Ross. Bald. Skinner.
			N 25 46 E	S 25 46 W	925	
			N 35 55 W	S 35 55 E	1,063	
5	38 44 40.66	76 14 31.02	N 62 05 E	S 62 06 W	1,190	Willey. Bald. Tobe.
			N 27 54 W	S 27 54 E	573	
			S 78 55 W	N 78 54 E	1,540	
6	38 44 11.72	76 14 28.66	N 32 51 E	S 32 51 W	1,825	Willey. Bald. Tobe.
			N 12 34 W	S 12 34 E	1,519	
			N 66 38 W	S 66 39 E	1,715	
7	38 43 26.45	76 14 27.40	N 50 06 W	S 50 06 E	1,996	Coal. Myrtle. Nelson 3.
			N 86 15 W	S 86 16 E	2,621	
			S 46 04 W	N 46 03 E	3,970	

MULBERRY POINT.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / '	° / '	Yards.	
1	38 44 31.00	76 14 56.40	S 54 14 E	N 54 13 W	1,173	Ross. Bald. Skinner.
			N 25 46 E	S 25 46 W	925	
			N 35 55 W	S 35 55 E	1,063	
2	38 44 45.90	76 15 25.00	S 76 30 W	N 76 30 E	911	Fairbanks. Tobe. Ross.
			S 10 16 W	N 10 16 E	480	
			S 55 10 E	N 55 09 W	2,081	
3	38 44 54.54	76 15 23.72	S 61 16 W	N 61 16 E	1,048	Fairbanks. Tobe. Ross.
			S 8 53 W	N 8 53 E	773	
			S 48 30 E	N 48 30 W	2,235	
4	38 44 47.98	76 14 38.43	S 67 34 W	N 67 34 E	1,424	Tobe. Ross. Cedar.
			S 20 47 E	N 20 47 W	1,346	
			S 57 13 E	N 57 12 W	1,591	
5	38 44 40.66	76 14 31.02	N 62 05 E	S 62 06 W	1,190	Willey. Bald. Tobe.
			N 27 54 W	S 27 54 E	573	
			S 78 55 W	N 78 54 E	1,540	

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BROAD CREEK MIDDLEGROUND.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 44 11.72	76 14 28.66	N 32 51 E	S 32 51 W	Yards. 1,825	Willey. Bald. Tobe.
			N 12 34 W	S 12 34 E	1,519	
			N 66 38 W	S 66 39 E	1,715	
2	38 44 40.66	76 14 31.02	N 62 05 E	S 62 06 W	1,190	Willey. Bald. Tobe.
			N 27 54 W	S 27 54 E	573	
			S 78 55 W	N 78 54 E	1,540	
3	38 44 46.36	76 13 55.44	S 28 39 W	N 28 38 E	1,372	Ross. Cedar. Spencer.
			S 14 05 E	N 14 05 W	832	
			S 74 22 E	N 74 21 W	1,822	
4	38 44 22.42	76 13 47.77	N 4 24 W	S 4 23 E	1,177	Willey. Bald. Ross.
			N 51 30 W	S 51 30 E	1,802	
			S 65 14 W	N 65 14 E	947	

## WELL POINT.

(Broad Creek—Chart No. 34.)

1	38 44 31.88	76 15 28.24	S 68 15 E	N 68 14 W	Yards. 1,931	Ross. Skinner. Pine.
			N 14 39 E	S 14 39 W	860	
			N 26 21 W	S 26 21 E	734	
2	38 44 43.80	76 15 36.14	S 12 05 W	N 12 05 E	571	Wire. Tobe. Skinner.
			S 27 26 E	N 27 26 W	453	
			N 44 47 E	S 44 47 W	605	
3	38 44 47.90	76 15 38.16	S 5 25 W	N 5 25 E	699	Wire. Tobe. Skinner.
			S 25 52 E	N 25 51 W	600	
			N 58 44 E	S 58 44 W	560	
4	38 45 02.62	76 15 35.10	S 9 55 E	N 9 55 W	1,052	Tobe. Skinner. Cabin.
			S 62 44 E	N 62 44 W	448	
			N 38 00 E	S 38 00 W	713	
5	38 44 35.80	76 15 24.82	N 59 48 E	S 59 40 W	1,334	Bald. Skinner. Pine.
			N 10 18 E	S 10 18 W	711	
			N 38 22 W	S 38 22 E	670	

BOUNDARIES OF NATURAL OYSTER BARS—continued.

POMPES.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station	
			Forward	Back			
1	38 44 37.46	76 15 57.38	° / ' "	° / ' "	Yards.		
			S 37 56 W	N 37 56 E			518
			S 52 05 E	N 52 05 W			560
2	38 44 44.24	76 15 53.42	S 76 16 E	N 76 15 W	793	Blanco. Wire. Tobe.	
			S 33 35 W	N 33 34 E	764	Blanco.	
			S 30 29 E	N 30 29 W	665	Wire.	
3	38 44 47.90	76 15 38.16	S 57 55 E	N 57 55 W	785	Tobe.	
			S 5 25 W	N 5 25 E	699	Wire.	
			S 25 52 E	N 25 51 W	600	Tobe.	
4	38 44 43.80	76 15 36.14	N 58 44 E	S 58 44 W	560	Skinner.	
			S 12 05 W	N 12 05 E	571	Wire.	
			S 27 26 E	N 27 26 W	453	Tobe.	
			N 44 47 E	S 44 47 W	605	Skinner.	

COOPERS POINT.

(Broad Creek—Chart No. 34.)

1	38 44 24.64	76 16 06.39	° / ' "	° / ' "	Yards.		
			N 82 36 E	S 82 36 W			686
			N 22 24 E	S 22 24 W			546
2	38 44 36.58	76 16 24.00	N 49 46 W	S 49 46 E	673	Wire. Fairbanks. Caulk.	
			S 59 27 W	N 59 27 E	552	Ned.	
			S 45 28 E	N 45 27 W	540	Blanco.	
3	38 44 42.40	76 16 12.09	N 81 24 E	S 81 24 W	681	Fairbanks.	
			S 58 53 W	N 58 53 E	923	Ned.	
			S 6 58 E	N 6 58 W	580	Blanco.	
4	38 44 39.60	76 16 04.04	S 58 24 E	N 58 24 W	974	Wire.	
			S 69 07 W	N 69 07 E	1,073	Ned.	
			S 16 30 W	N 16 30 E	501	Blanco.	
			S 56 01 E	N 56 01 W	745	Wire.	

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## JUDYS POINT.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 44 28.26	76 16 38.26	S 82 39 E	N 82 39 W	Yards. 768 1,521 453	Blanco. Wire. Caulk.
			S 88 44 E	N 88 43 W		
			N 46 23 E	S 46 23 W		
2	38 44 29.01	76 16 48.78	S 81 58 E	N 81 58 W	185 1,047 670	Ned. Blanco. Caulk.
			S 83 14 E	N 83 13 W		
			N 64 38 E	S 64 38 W		
3	38 44 37.06	76 16 46.79	S 23 05 E	N 23 05 W	323 1,063 553	Ned. Blanco. Caulk.
			S 68 11 E	N 68 11 W		
			N 88 22 E	S 88 22 W		
4	38 44 35.92	76 16 36.46	S 29 32 W	N 29 32 E	297 798 285	Ned. Blanco. Caulk.
			S 63 28 E	N 63 28 W		
			N 79 03 E	S 79 03 W		

## BRUSHY POINT.

(Broad Creek—Chart No. 34.)

1	38 45 02.62	76 15 35.10	S 9 55 E	N 9 55 W	Yards. 1,052 448 713	Tobe. Skinner. Cabin.
			S 62 44 E	N 62 44 W		
			N 38 00 E	S 38 00 W		
2	38 45 03.90	76 15 42.63	S 19 23 E	N 19 23 W	1,145 647 822	Tobe. Skinner. Cabin.
			S 67 25 E	N 67 24 W		
			N 50 53 E	S 50 53 W		
3	38 45 12.80	76 15 36.64	S 9 08 E	N 9 08 W	1,398 702 527	Tobe. Skinner. Cabin.
			S 38 41 E	N 38 40 W		
			N 65 32 E	S 65 32 W		
4	38 45 14.68	76 15 28.24	S 22 32 W	N 22 32 E	851 650 301	Pine. Skinner. Cabin.
			S 19 33 E	N 19 33 W		
			N 58 57 E	S 58 58 W		

## WILLEYS ISLAND FLATS.

(Broad Creek—Chart No. 34.)

1	38 44 46.36	76 13 55.44	S 28 39 W	N 28 38 E	Yards. 1,372 832 1,822	Ross. Cedar Spencer.
			S 14 05 E	N 14 05 W		
			S 74 22 E	N 74 21 W		
2	38 45 04.60	76 14 27.20	S 75 17 E	N 75 17 W	983 1,005 1,445	Willey. Ray. Grave.
			N 57 53 E	S 57 53 W		
			N 17 20 E	S 17 20 W		
3	38 45 18.92	76 14 25.74	S 51 14 E	N 51 14 W	1,170 814 978	Willey. Ray. Grave.
			N 88 38 E	S 88 39 W		
			N 23 37 E	S 23 37 W		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

WILLEYS ISLAND FLATS—Continued.

(Broad Creek—Chart No. 34)—Continued.

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
4	38 45 19.58	76 14 38.14	S 58 40 E	N 58 39 W	Yards.	Willey. Ray. Grave.
			N 88 32 E	S 88 32 W	1,452	
			N 39 27 E	S 39 27 W	1,141	
5	38 45 34.03	76 14 32.14	S 5 29 E	N 5 29 W	798	Rose. Ray. Grave.
			S 64 59 E	N 64 59 W	1,084	
			N 55 26 E	S 55 26 W	681	
6	38 45 40.86	76 14 39.10	N 78 08 E	S 78 08 W	761	Grave. Royal. Mars.
			N 30 24 E	S 30 24 W	589	
			N 33 48 W	S 33 48 E	1,001	
7	38 45 54.63	76 14 37.10	N 58 55 W	S 58 55 E	712	Mars. Bengal. Gram.
			S 65 37 W	N 65 37 E	524	
			S 10 41 E	N 10 41 W	706	
8	38 45 45.50	76 14 10.90	N 51 44 W	S 51 44 E	569	Royal. Gram. Ray.
			S 55 26 W	N 55 26 E	681	
			S 26 29 E	N 26 29 W	944	
9	38 45 14.38	76 13 58.24	N 53 29 W	S 53 30 E	1,113	Gram. Rose. Ross.
			S 80 51 W	N 80 51 E	827	
			S 15 10 W	N 15 09 E	2,227	

HOLLAND POINT.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 45 49.42	76 14 52.34	N 71 15 E	S 71 16 W	Yards.	Royal. Mars. Woodill.
			N 20 53 W	S 20 53 E	684	
			N 51 23 W	S 51 24 E	582	
2	38 45 54.52	76 15 12.46	N 87 40 E	S 87 41 W	1,180	Royal. Mars. Woodill.
			N 41 06 E	S 41 06 W	492	
			N 33 01 W	S 33 02 E	626	
3	38 46 10.07	76 15 25.37	S 23 46 E	N 23 46 W	575	Eastman. Mars. Venus.
			S 77 03 E	N 77 03 W	682	
			N 22 52 E	S 22 53 W	616	
4	38 46 24.96	76 15 24.56	S 44 29 E	N 44 29 W	919	Mars. Venus. Willis.
			N 73 27 E	S 73 27 W	227	
			N 2 06 W	S 2 06 E	949	
5	38 46 28.39	76 15 33.69	S 19 35 E	N 19 35 W	656	Woodill. Venus. Neptune.
			S 83 42 E	N 83 41 W	461	
			N 66 00 E	S 66 00 W	428	
6	38 46 32.30	76 15 24.60	N 44 40 W	S 44 40 E	605	Marion. Delta. Woodill.
			S 61 13 W	N 61 13 E	273	
			S 1 33 W	N 1 33 E	750	
7	38 46 05.53	76 15 00.19	S 49 14 W	N 49 14 E	572	Eastman. Bengal. Royal.
			S 12 43 E	N 12 43 W	599	
			S 69 17 E	N 69 16 W	914	

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## HARRISON.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 46 41.52	76 15 34.40	S 2 25 E S 56 39 E N 29 58 E	N 2 25 W N 56 39 W S 29 58 W	443 489 451	Delta. Neptune. Willis.
2	38 46 47.08	76 15 30.33	S 75 58 W S 33 26 E N 30 06 E	N 75 57 E N 33 26 W S 30 06 W	282 548 234	Marion. Neptune. Willis.
3	38 46 41.62	76 15 25.40	N 74 01 W S 26 08 W S 32 10 E	S 74 01 E N 26 08 E N 32 10 W	420 496 322	Marion. Delta. Neptune.

## CEDAR POINT.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 44 15.78	76 13 22.37	S 69 00 E N 58 29 E N 01 46 W	N 69 00 W S 58 29 W S 01 46 E	1,417 1,035 1,524	Marsh. Spencer. Hopkins.
2	38 44 22.42	76 13 47.77	N 4 24 W N 51 30 W S 65 14 W	S 4 23 E S 51 30 E N 65 14 E	1,177 1,802 947	Willey. Bald. Ross.
3	38 44 46.36	76 13 55.44	S 28 39 W S 14 05 E S 74 22 E	N 28 38 E N 14 05 W N 74 21 W	1,372 852 1,822	Ross. Cedar. Spencer.
4	38 44 19.25	76 12 54.44	S 43 09 E N 18 44 E N 29 09 W	N 43 08 W S 18 44 W S 29 10 E	856 447 1,611	Marsh. Spencer. Hopkins.

## DRUM POINT.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 44 19.25	76 12 54.44	S 43 09 E N 18 44 E N 29 09 W	N 43 08 W S 18 44 W S 29 10 E	856 447 1,611	Marsh. Spencer. Hopkins.
2	38 44 46.36	76 13 55.44	S 28 39 W S 14 05 E S 74 22 E	N 28 38 E N 14 05 W N 74 21 W	1,372 832 1,822	Ross. Cedar. Spencer.
3	38 44 53.66	76 13 09.80	N 83 47 W S 43 35 W S 29 03 E	S 83 47 E N 43 35 E N 29 02 W	1,099 1,454 2,042	Willey. Cedar. Marsh.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 44 31.81	76 12 49.00	N 43 22 W S 78 28 W S 22 51 E	S 43 22 E N 78 28 E N 22 51 W	1,352 1,585 1,137	Hopkins. Cedar. Marsh.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

JOE HARRIS FLATS.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	38 43 50.78	76 12 49.30	N 53 18 E	S 53 19 W	561	Marsh. Spencer. Hopkins.
			N 0 20 E	S 0 20 W	1,386	
			N 21 15 W	S 21 15 E	2,539	
2	38 44 00.20	76 13 02.34	N 88 44 E	S 88 44 W	795	Marsh. Spencer. Hopkins.
			N 18 17 E	S 18 18 W	1,123	
			N 15 42 W	S 15 42 E	2,128	
3	38 44 19.25	76 12 54.44	S 43 09 E	N 43 08 W	856	Marsh. Spencer. Hopkins.
			N 18 44 E	S 18 44 W	447	
			N 29 09 W	S 29 10 E	1,611	
4	38 44 00.72	76 12 32.27	N 66 24 E	S 66 24 W	932	Clark. Marshall. Spencer.
			N 24 13 E	S 24 13 W	749	
			S 22 51 E	N 22 51 W	1,137	
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

PIN CUSHION.

(Broad Creek—Chart No. 34.)

	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	38 43 58.18	76 12 14.41	N 39 45 E	S 39 45 W	596	Clark. Marshall. Spencer.
			N 12 04 W	S 12 05 E	786	
			N 38 51 W	S 38 52 E	1,457	
2	38 44 17.84	76 12 30.00	N 46 48 W	S 46 49 E	688	Spencer. Marsh. Holly.
			S 5 56 W	N 5 56 E	580	
			S 29 12 E	N 29 12 W	974	
3	38 44 20.18	76 12 28.20	N 54 29 W	S 54 29 E	675	Spencer. Marsh. Holly.
			S 9 18 W	N 9 18 E	605	
			S 24 43 E	N 24 43 W	1,024	
4	38 44 08.74	76 12 04.52	N 56 29 W	S 56 30 E	1,409	Spencer. Marsh. Holly.
			S 69 45 W	N 69 45 E	781	
			S 19 58 W	N 19 58 E	579	

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## WILLEYS ISLAND.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 44 56.38	76 13 44.48	S 60 31 E	N 60 30 W	Yards. 1,684 559 864	Spencer. Hopkins. Judge.
			N 73 57 E	S 73 57 W		
			N 2 54 E	S 2 54 W		
2	38 45 11.68	76 13 45.60	S 57 27 E	N 57 27 W	671 534 1,129	Hopkins. Taft. Harper.
			N 61 30 E	S 61 30 W		
			N 1 35 E	S 1 35 W		
3	38 45 21.40	76 13 37.45	S 27 00 E	N 27 00 W	773 264 821	Hopkins. Taft. Harper.
			S 73 55 E	N 73 55 W		
			N 12 57 W	S 12 57 E		
4	38 45 26.42	76 13 46.56	S 34 35 E	N 34 34 W	1,043 550 634	Hopkins. Taft. Harper.
			S 63 52 E	N 63 52 W		
			N 5 07 E	S 5 07 W		
5	38 45 36.14	76 13 34.96	N 69 17 W	S 69 18 E	621 521 600	Thelma. Judge. Taft.
			S 23 29 W	N 23 29 E		
			S 18 15 E	N 18 15 W		
6	38 45 33.40	76 13 29.96	N 66 22 W	S 66 22 E	778. 514 481	Thelma. Judge. Taft.
			S 41 19 W	N 41 19 E		
			S 6 41 E	N 6 41 W		
7	38 44 56.96	76 13 33.60	N 16 06 W	S 16 06 E	878 464 1,224	Judge. Willey. Cedar.
			N 89 03 W	S 89 03 E		
			S 17 49 W	N 17 49 E		

## FOX.

(Broad Creek—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 45 57.50	76 13 42.78	S 5 56 W	N 5 56 E	Yards. 419 226 553	Harper. Ansley. Beverly.
			N 66 25 E	S 66 25 W		
			N 14 13 E	S 14 13 W		
2	38 46 04.16	76 13 42.68	S 4 06 W	N 4 06 E	643 245 504	Harper. Ansley. Samuel.
			S 56 52 E	N 56 52 W		
			N 48 23 E	S 48 23 W		
3	38 46 08.04	76 13 36.80	S 46 30 W	N 46 30 E	381 269 302	Elmore. Ansley. Samuel.
			S 10 40 E	N 10 40 W		
			N 47 23 E	S 47 23 W		
4	38 46 05.96	76 13 31.08	N 14 28 E	S 14 28 W	283 305 468	Samuel. Beverly. Elmore.
			N 34 30 W	S 34 30 E		
			S 65 49 W	N 65 49 E		



BOUNDARIES OF NATURAL OYSTER BARS—continued.

ROYSTON.

(Outer Choptank River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 40 08.08	76 14 26.04	N 87 14 E	S 87 15 W	Yards.	Benoni 2. Roys. Nelson 3.
			N 16 51 E	S 16 52 W	3,832	
			N 36 21 W	S 36 22 E	3,041	
2	38 41 12.32	76 15 33.00	N 74 19 E	S 74 20 W	2,754	Roys. Nelson 3. Bar.
			N 32 28 W	S 32 28 E	2,096	
			N 87 04 W	S 87 06 E	5,982	
3	38 42 06.98	76 14 28.92	S 69 29 E	N 69 28 W	1,413	Irish. Peary. Nelson 3.
			N 8 27 E	S 8 27 W	1,324	
			S 88 29 W	N 88 28 E	2,819	
4	38 42 05.74	76 14 09.20	S 89 26 W	N 89 24 E	3,340	Nelson 3. Roys. Irish.
			S 22 28 E	N 22 27 W	1,144	
			S 60 30 E	N 60 30 W	921	
5	38 41 48.26	76 13 52.96	N 81 36 W	S 81 38 E	3,810	Nelson 3. Roys. Irish.
			S 00 56 E	N 00 56 W	467	
			N 69 53 E	S 69 54 W	397	
6	38 41 39.16	76 13 56.66	N 46 41 E	S 46 41 W	646	Irish. Peary. Nelson 3.
			N 16 18 W	S 16 19 E	2,342	
			N 76 46 W	S 76 48 E	3,771	
7	38 40 44.14	76 13 52.40	S 70 41 E	N 70 39 W	3,113	Benoni 2. Roys. Nelson 3.
			N 00 14 W	S 00 14 E	1,694	
			N 54 18 W	S 54 20 E	4,659	

IRISH CREEK.

(Outer Choptank River—Chart No. 34.)

1	38 39 44.96	76 13 11.10	S 76 23 E	N 76 23 W	Yards.	Choptank River Light. Benoni 2. Roys.
			N 62 23 E	S 62 23 W	3,412	
			N 16 35 W	S 16 35 E	2,083	
2	38 40 26.10	76 13 50.38	S 81 41 E	N 81 40 W	2,916	Benoni 2. Roys. Nelson 3.
			N 1 30 W	S 1 30 E	2,304	
			N 49 05 W	S 49 06 E	5,079	
3	38 40 44.14	76 13 52.40	S 70 41 E	N 70 39 W	3,113	Benoni 2. Roys. Nelson 3.
			N 00 14 W	S 00 14 E	1,694	
			N 54 18 W	S 54 20 E	4,659	
4	38 41 16.80	76 13 21.94	N 11 24 E	S 11 24 W	1,142	Creek. Roys. Nelson 3.
			N 53 51 W	S 53 51 E	1,006	
			N 70 36 W	S 70 37 E	4,865	
5	38 41 52.04	76 13 16.44	N 24 04 E	S 24 05 W	772	Ila. Irish. Roys.
			N 89 09 W	S 89 09 E	593	
			S 58 09 W	N 58 09 E	1,128	

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## IRISH CREEK—Continued.

(Outer Choptank River—Chart No. 34)—Continued.

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
6	38 41 19.58	76 13 04.64	N 12 43 W	S 12 43 E	Yards. 1,051 2,003 1,365	Creek. Pont. Roys.
			N 21 18 W	S 21 18 E		
			N 68 31 W	S 68 31 E		
7	38 41 00.00	76 13 03.46	N 8 51 W	S 8 52 E	1,706 2,638 1,743	Creek. Pont. Roys.
			N 16 43 W	S 16 43 E		
			N 48 16 W	S 48 17 E		
8	38 40 41.02	76 12 44.32	S 50 55 E	N 50 54 W	1,467 2,450 2,550	Benoni 2. Creek. Roys.
			N 18 17 W	S 18 17 E		
			N 45 06 W	S 45 07 E		
9	38 40 18.30	76 12 52.02	S 55 48 E	N 55 47 W	3,403 1,352 3,026	Choptank River Light. Benoni 2. Roys.
			S 83 16 E	N 83 15 W		
			N 31 59 W	S 32 00 E		

## CHOPTANK LUMPS.

(Outer Choptank River—Charts Nos. 34 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 39 08.00	76 13 46.22	N 83 52 E	S 83 54 W	4,273 3,549 4,940	Choptank River Light. Benoni 2. Roys.
			N 51 26 E	S 51 27 W		
			N 1 59 W	S 1 59 E		
Thence along county boundary as delineated on Charts Nos. 34 and 37 to corner No. 2.						
2	38 39 58.32	76 15 41.88	N 41 38 E	S 41 39 W	4,344 4,356 6,387	Roys. Nelson 3. Bar.
			N 11 48 W	S 11 48 E		
			N 63 59 W	S 64 01 E		
3	38 39 43.30	76 13 45.60	S 80 10 E	N 80 08 W	4,295 2,941 3,751	Choptank River Light. Benoni 2. Roys.
			N 69 41 E	S 69 42 W		
			N 2 51 W	S 2 51 E		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

BENONI.

(Outer Choptank River—Charts Nos. 34 and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 38 48.40	76 11 45.22	S 49 58 E N 43 09 E N 8 24 W	N 49 57 W S 43 10 W S 8 24 E	3,479 1,533 2,905	Castle. Choptank River Light. Benoni 2.
Thence along county boundary as delineated on chart No. 37 to corner No. 2.						
2	38 39 05.04	76 13 38.98	S 68 56 W S 16 26 W N 82 11 E	N 68 54 E N 16 25 E S 82 13 W	6,512 2,764 4,094	Chof. Dot. Choptank River Light.
3	38 39 44.96	76 13 11.10	S 76 23 E N 62 23 E N 16 35 W	N 76 23 W S 62 23 W S 16 35 E	3,412 2,083 3,851	Choptank River Light. Benoni 2. Roys.
4	38 40 18.30	76 12 52.02	S 55 48 E S 83 16 E N 31 59 W	N 55 47 W N 83 15 W S 32 00 E	3,493 1,352 3,026	Choptank River Light. Benoni 2. Roys.
5	38 39 45.15	76 12 00.66	S 61 23 E N 17 40 E N 00 57 W	N 61 22 W S 17 40 W S 00 57 E	1,660 3,275 959	Choptank River Light. Mutton. Benoni 2.

LIGHTHOUSE.

(Outer Choptank River—Charts Nos. 34, 35, and 37.)

1	38 38 48.40	76 11 45.22	S 49 58 E N 43 09 E N 8 24 W	N 49 57 W S 43 10 W S 8 24 E	3,479 1,533 2,905	Castle. Choptank River Light. Benoni 2.
2	38 39 45.15	76 12 00.66	S 61 23 E N 17 40 E N 0 57 W	N 61 22 W S 17 40 W S 0 57 E	1,660 3,275 959	Choptank River Light. Mutton. Benoni 2.
3	38 39 42.88	76 10 50.00	S 80 11 E N 36 36 E N 61 12 W	N 80 11 W S 36 36 W S 61 12 E	2,403 1,261 2,150	Landeye. Boone. Benoni 2.
4	38 39 16.14	76 10 19.78	S 47 34 E N 72 34 E N 1 24 W	N 47 33 W S 72 35 W S 1 24 E	3,057 1,645 1,915	Chlora. Landeye. Boone.
5	38 38 48.64	76 11 18.98	S 73 27 E N 17 43 E N 21 19 W	N 73 25 W S 17 43 W S 21 19 E	3,986 1 166 3,075	Chlora. Choptank River Light. Benoni 2.
Thence along county boundary as delineated on chart No. 37 to corner No. 1.						

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BACK SHORE.

(Outer Choptank River—Charts Nos. 34, 35, and 37.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / '	° / '	Yards.	
1	38 37 52.86	76 09 25.36	N 47 35 E N 2 15 E S 64 59 W	S 47 36 W S 2 15 W N 64 58 E	1,106 3,304 1,538	Chlora. Landeye. Large Water Tank.
Thence along county boundary as delineated on charts Nos. 34 and 35 to corner No. 2.						
2	38 38 27.80	76 10 07.48	S 2 53 E S 77 23 E N 30 22 E	N 2 53 W N 77 22 W S 30 22 W	1,544 1,978 2,461	Castle. Chlora. Landeye.
3	38 39 16.14	76 10 19.78	S 47 34 E N 72 34 E N 1 24 W	N 47 33 W S 72 35 W S 1 24 E	3,057 1,645 1,915	Chlora. Landeye. Boone.
4	38 39 42.88	76 10 50.00	S 80 11 E N 36 36 E N 61 12 W	N 80 11 W S 36 36 W S 61 12 E	2,403 1,261 2,150	Landeye. Boone. Benoni 2.
5	38 40 04.36	76 10 09.62	N 47 36 W N 83 59 W S 45 43 W	S 47 36 E S 84 00 E N 45 42 E	428 2,968 2,067	Boone. Benoni 2. Choptank River Light.
Thence from corner No. 5 along the mean low-water line of the shore to corner No. 6, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
6	38 39 39.52	76 09 43.38	N 41 52 W S 74 26 W S 8 03 W	S 41 53 E N 74 25 E N 8 02 E	1,512 2,256 4,000	Boone. Choptank River Light. Castle.
7	38 39 25.86	76 09 21.68	N 34 54 W S 86 59 W S 17 57 W	S 34 54 E N 86 58 E N 17 56 E	744 2,750 3,680	Enter. Choptank River Light. Castle.
Thence from corner No. 7 along the mean low-water line of the shore to corner No. 8, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
8	38 38 14.98	76 08 54.49	N 57 03 W S 59 05 W S 10 18 E	S 57 04 E N 59 04 E N 10 18 W	4,131 2,160 3,944	Choptank River Light. Castle. Toot.

## BACHELOR POINT.

(Entrance Tred Avon River—Charts Nos. 34 and 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / '	° / '	Yards.	
1	38 39 42.88	76 10 50.00	S 80 11 E N 36 36 E N 61 12 W	N 80 11 W S 36 36 W S 61 12 E	2,403 1,261 2,150	Landeye. Boone. Benoni 2.
2	38 40 31.52	76 11 46.04	S 74 18 E N 89 07 E N 21 18 E	N 74 17 W S 89 07 W S 21 19 W	2,321 1,799 1,672	Boone. Bach. Mutton.
3	38 40 41.52	76 10 47.16	N 37 52 W S 64 19 W S 10 14 W	S 37 53 E N 64 19 E N 10 14 E	1,545 2,174 2,739	Mutton. Benoni 2. Choptank River Light.
4	38 40 11.94	76 10 33.64	S 26 25 W N 84 09 E N 9 29 W	N 26 25 E S 84 09 W S 9 29 E	1,897 320 699	Choptank River Light. Boone. Bach.
5	38 40 04.36	76 10 09.62	N 47 36 W N 83 59 W S 45 43 W	S 47 36 E S 84 00 E N 45 42 E	428 2,968 2,067	Boone. Benoni 2. Choptank River Light.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

FOX HOLE.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 40 31.52	76 11 46.04	S 74 18 E	N 74 17 W	Yards. 2,321 1,799 1,072	Boone. Bach. Mutton.
			N 89 07 E	S 89 07 W		
			N 21 18 E	S 21 19 W		
2	38 40 34.55	76 11 49.50	S 25 16 E	N 25 16 W	2,721 1,892 1,614	Choptank River Light. Bach. Mutton.
			S 87 46 E	N 87 45 W		
			N 25 39 E	S 25 40 W		
3	38 41 34.84	76 11 00.60	S 43 53 E	N 43 52 W	1,375 646 1,208	First. Riverview. Bellevue.
			S 87 38 E	N 87 38 W		
			N 13 43 E	S 13 43 W		
4	38 41 30.20	76 10 39.72	N 11 16 W	S 11 16 E	1,357 793 1,220	Bellevue. Tred. Mutton.
			N 64 02 W	S 64 02 E		
			S 69 48 W	N 69 47 E		
5	38 41 05.50	76 10 54.52	N 15 15 W	S 15 15 E	1,224 860 2,485	Tred. Mutton. Bedoni 2.
			N 61 24 W	S 61 24 E		
			S 45 14 W	N 45 13 E		

STONE CHURCH.

(Tred Avon River—Charts Nos. 34 and 35.)

1	38 40 51.43	76 10 40.10	N 23 01 W	S 23 01 E	Yards. 1,795 1,440 2,497	Tred. Mutton. Benoni 2.
			N 52 02 W	S 52 03 E		
			S 59 16 W	N 59 15 E		
2	38 41 30.20	76 10 39.72	N 11 16 W	S 11 16 E	1,357 793 1,220	Bellevue. Tred. Mutton.
			N 64 02 W	S 64 02 E		
			S 69 48 W	N 69 47 E		
3	38 41 14.64	76 10 30.56	N 15 17 W	S 15 17 E	1,924 1,391 1,439	Bellevue. Mutton. Bach.
			N 85 45 W	S 85 45 E		
			S 7 51 W	N 7 51 E		
4	38 40 52.62	76 10 27.52	N 32 40 W	S 32 41 E	1,918 1,604 2,860	Tred. Mutton. Benoni 2.
			N 60 03 W	S 60 04 E		
			S 62 01 W	N 62 00 E		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## TOWN POINT.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 41 30.20	76 10 39.72	N 11 16 W	S 11 16 E	1,357	Bellevue. Tred. Mutton.
			N 64 02 W	S 64 02 E	793	
			S 69 48 W	N 69 47 E	1,220	
2	38 41 34.84	76 11 00.60	S 43 53 E	N 43 52 E	1,375	First. Riverview. Bellevue.
			S 87 38 E	N 87 38 W	646	
			N 13 43 E	S 13 43 W	1,208	
3	38 41 57.86	76 10 56.40	S 24 56 W	N 24 56 E	646	Tred. Riverview. Bellevue.
			S 33 40 E	N 33 39 W	965	
			N 23 50 E	S 23 50 W	435	
4	38 41 59.18	76 10 41.36	N 27 16 E	S 27 16 W	1,437	Tar. Bellevue. Tred.
			N 32 06 W	S 32 06 E	417	
			S 46 45 W	N 46 45 E	920	
5	38 41 40.68	76 10 37.32	N 16 11 E	S 16 11 W	1,979	Tar. Bellevue. Tred.
			N 18 35 W	S 18 35 E	1,031	
			S 89 33 W	N 89 33 E	776	

## STEWART ISLAND.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 41 39.80	76 10 14.42	N 1 35 W	S 1 34 E	1,931	Tar. Bellevue. Tred.
			N 42 50 W	S 42 51 E	1,374	
			N 89 01 W	S 89 02 E	1,382	
2	38 41 53.54	76 10 27.80	N 11 33 E	S 11 33 W	1,498	Tar. Bellevue. Tred.
			N 46 51 W	S 46 52 E	795	
			S 66 51 W	N 66 50 E	1,118	
3	38 42 11.24	76 10 15.34	N 1 56 W	S 1 56 E	872	Tar. Bellevue. Tred.
			S 86 39 W	N 86 38 E	911	
			S 52 38 W	N 52 37 E	1,708	
4	38 41 50.16	76 09 56.96	N 18 02 W	S 18 02 E	1,663	Tar. Bellevue. Weather Bureau Staff.
			N 64 46 W	S 64 46 E	1,542	
			S 36 04 W	N 36 04 E	1,269	
5	38 41 47.34	76 10 03.06	N 11 55 W	S 11 55 E	1,714	Tar. Bellevue. Weather Bureau Staff.
			N 58 37 W	S 58 37 E	1,446	
			S 32 11 W	N 32 11 E	1,099	

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

GOOSE NECK.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 41 53.54	76 10 27.80	N 11 33 E N 46 51 W S 66 51 W	S 11 33 W S 46 52 E N 66 50 E	1,498 795 1,118	Tar. Bellevue. Tred.
2	38 42 09.66	76 10 43.56	S 09 14 E S 76 37 E N 37 47 E	N 09 14 W N 76 36 W S 37 47 W	1,216 1,517 1,169	Riverview. Town. Tar.
3	38 42 22.78	76 10 25.04	S 10 09 W S 51 11 E N 25 14 E	N 10 09 E N 51 10 W S 25 14 W	1,669 1,266 533	Riverview. Town. Tar.
4	38 42 27.00	76 10 35.42	S 00 38 W S 53 24 E N 55 55 E	N 00 38 E N 53 24 W S 55 55 W	1,786 1,570 606	Riverview. Town. Tar.
5	38 42 38.44	76 10 27.60	S 5 57 W S 38 34 E S 81 01 W	N 5 57 E N 38 34 W N 81 01 W	2,184 1,691 297	Riverview. Town. Tar.
6	38 42 32.28	76 10 00.40	S 59 41 W S 16 45 E S 36 23 E	N 59 40 E N 16 45 W N 36 23 W	1,511 1,164 1,428	Bellevue. Town. Mud.
7	38 42 11.24	76 10 15.34	N 1 56 W S 86 39 W S 52 38 W	S 1 56 E N 86 38 E N 52 37 E	872 911 1,708	Tar. Bellevue. Tred.

PECKS POINT.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 41 50.16	76 09 56.96	N 18 02 W N 64 46 W S 36 04 W	S 18 02 E S 64 46 E N 36 04 E	1,663 1,542 1,269	Tar. Bellevue. Weather Bureau Staff.
2	38 42 11.24	76 10 15.34	N 1 56 W S 86 39 W S 52 38 W	S 1 56 E N 86 38 E N 52 37 E	872 911 1,708	Tar. Bellevue. Tred.
3	38 42 32.28	76 10 00.40	S 59 41 W S 16 45 E S 36 23 E	N 59 40 E N 16 45 W N 36 23 W	1,511 1,164 1,428	Bellevue. Town. Mud.
4	38 42 18.38	76 09 47.40	S 79 52 W S 00 37 W S 36 33 E	N 79 52 E N 00 37 E N 36 33 W	1,672 645 848	Bellevue. Town. Mud.
5	38 42 19.34	76 09 34.80	S 26 43 W S 13 27 E S 53 53 E	N 26 43 E N 13 27 W N 53 52 W	759 734 1,575	Town. Mud. Golds.
6	38 41 59.24	76 09 47.71	N 0 07 W N 77 54 W S 56 27 W	S 0 07 E S 77 55 E N 56 26 E	749 1,676 1,537	Peck. Bellevue. Riverview.
Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MARES POINT.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "	Yards.	
1	38 41 59.38	76 09 33.54	S 78 21 E N 43 29 E N 26 48 W	N 78 21 W S 43 29 W S 26 48 E	1,265 852 834	Golds. Tall. Peck.
2	38 42 06.20	76 09 34.06	S 68 49 E N 57 01 E N 35 09 W	N 68 49 W S 57 02 W S 35 09 E	1,343 715 630	Golds. Tall. Peck.
3	38 42 15.28	76 09 12.56	S 35 52 W S 40 51 E S 76 41 E	N 35 52 E N 40 51 W N 76 40 W	712 1,047 1,132	Mud. Golds. Borough.
4	38 42 30.20	76 08 54.60	S 09 12 E S 39 21 E N 86 10 W	N 09 12 W N 39 21 W S 86 10 W	1,311 988 1,321	Golds. Borough. Layor.
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 42 39.38	76 09 00.22	S 35 49 E N 80 12 E N 45 05 E	N 35 49 W S 80 12 W S 45 05 W	1,323 825 1,039	Borough. Twin. Weave.
6	38 42 42.98	76 08 44.00	S 16 10 E N 87 11 E N 26 38 E	N 16 09 W S 87 11 W S 26 38 W	1,243 384 685	Borough. Twin. Weave.
7	38 42 29.82	76 08 32.40	N 28 30 W N 68 01 W S 16 23 W	S 28 30 E S 68 01 E N 16 23 E	1,518 756 1,335	Spin. Plain. Golds.
8	38 41 59.60	76 09 18.92	N 78 04 E N 18 08 E N 45 58 W	S 78 05 W S 18 08 W S 45 58 E	1,297 643 1,061	Borough. Tall. Peck.

## LOUIS COVE.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "	Yards.	
1	38 41 44.84	76 08 57.82	N 42 53 E N 17 53 W N 46 54 W	S 42 54 W S 17 53 E S 46 55 E	1,045 1,165 1,808	Borough. Tall. Peck.
2	38 41 52.00	76 09 21.56	N 68 37 E N 17 15 E N 34 53 W	S 68 37 W S 17 15 W S 34 53 E	1,438 908 1,212	Borough. Tall. Peck.
3	38 41 59.60	76 09 18.92	N 78 04 E N 18 08 E N 45 58 W	S 78 05 W S 18 08 W S 45 58 E	1,297 643 1,061	Borough. Tall. Peck.
4	38 42 29.82	76 08 32.40	N 28 30 W N 68 01 W S 16 23 W	S 28 30 E S 68 01 E N 16 23 E	1,518 756 1,335	Spin. Plain. Golds.
5	38 42 17.79	76 08 21.60	N 29 12 E N 13 30 W N 55 04 W	S 29 13 W S 13 30 E S 55 05 E	1,369 893 1,203	Toe. Twin. Plain.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

BAMINGS COVE.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 42 29.10	76 08 12.06	N 27 05 E	S 27 05 W	Yards. 914 670 1,275	Toe. Twin. Plain.
			N 43 24 W	S 43 24 E		
			N 76 04 W	S 76 04 E		
2	38 42 38.25	76 08 26.32	S 6 40 W	N 6 40 E	1,042 599 940	Borough. Layor. Toe.
			S 72 13 E	N 72 13 W		
			N 57 30 E	S 57 31 W		
3	38 42 54.24	76 08 13.62	S 16 10 W	N 16 10 E	1,639 760 863	Borough. Layor. Mistle.
			S 18 02 E	N 18 02 W		
			S 74 14 E	N 74 14 W		
4	38 42 48.86	76 08 00.52	S 76 49 W	N 76 48 E	786 552 487	Twin. Layor. Mistle.
			S 11 36 W	N 11 36 E		
			S 83 45 E	N 83 45 W		
5	38 42 33.25	76 08 06.42	N 21 37 E	S 21 37 W	725 702 1,082	Toe. Twin. Borough.
			N 60 21 W	S 60 21 E		
			S 36 44 W	N 36 44 E		

OLD HOUSE POINT.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 42 34.73	76 07 48.46	N 12 20 E	S 12 20 W	Yards. 827 657 1,124	Trippe. Toe. Twin.
			N 18 25 W	S 18 25 E		
			N 74 40 W	S 74 41 E		
2	38 42 48.86	76 08 00.52	S 76 49 W	N 76 48 E	786 552 487	Twin. Layor. Mistle.
			S 11 36 W	N 11 36 E		
			S 83 45 E	N 83 45 W		
3	38 42 58.40	76 07 47.76	S 27 27 W	N 27 27 E	972 402 795	Layor. Mistle. Venture.
			S 21 25 E	N 21 25 W		
			S 76 59 E	N 76 58 W		
4	38 42 56.28	76 07 38.36	S 77 44 W	N 77 44 E	486 319 536	Toe. Mistle. Venture.
			S 18 50 W	N 18 30 E		
			S 78 26 E	N 78 26 W		
5	38 42 39.14	76 07 35.50	S 67 38 E	N 67 37 W	846 651 681	Deux. Venture. Trippe.
			N 43 45 E	S 43 45 W		
			N 14 04 W	S 14 04 E		
6	38 42 38.80	76 07 38.40	S 70 07 E	N 70 07 W	913 714 677	Deux. Venture. Trippe.
			N 47 33 E	S 47 33 W		
			N 7 33 W	S 7 34 E		
Thence from corner No. 6 along the mean low water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 42 47.29	76 07 42.20	N 1 43 E	S 1 43 W	385 423 770	Trippe. Toe. Layor.
			N 61 50 W	S 61 50 E		
			S 50 38 W	N 50 38 E		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## OLD HOUSE POINT—Continued.

(Tred Avon River—Chart No. 34)—Continued.

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
8	38 42 45.40	76 07 45.94	N 13 48 E	S 13 48 W	Yards. 461 381 653	Trippe. Toe. Layor.
			N 46 07 W	S 46 07 E		
			S 49 28 W	N 49 28 E		
9	38 42 36.80	76 07 46.46	N 9 32 E	S 9 32 W	749 611 501	Trippe. Toe. Layor.
			N 25 12 W	S 25 12 E		
			S 74 27 W	N 74 27 E		

## TRIPPE.

(Tred Avon River—Chart No. 34.)

	° / "	° / "	° /	° /	Yards.	
1	38 42 46.45	76 07 25.56	S 2 20 E	N 2 20 W	723 775 988	Crack. Deux. Cam.
			S 42 52 E	N 42 52 W		
			S 72 58 E	N 72 58 W		
2	38 42 52.98	76 07 25.60	S 1 22 E	N 1 22 W	943 945 1,067	Crack. Deux. Cam.
			S 33 26 E	N 33 26 W		
			S 61 29 E	N 61 28 W		
3	38 42 52.92	76 07 15.85	S 14 03 W	N 14 03 E	969 830 849	Crack. Deux. Cam.
			S 18 30 E	N 18 30 W		
			S 53 16 E	N 53 15 W		
4	38 42 46.78	76 07 15.85	S 17 47 W	N 17 47 E	770 636 744	Crack. Deux. Cam.
			S 24 25 E	N 24 25 W		
			S 66 09 E	N 66 09 W		

## BAKERS COVE.

(Tred Avon River—Chart No. 34.)

	° / "	° / "	° /	° /	Yards.	
1	38 42 24.60	76 07 30.20	N 67 03 E	S 67 03 W	1,147 1,009 1,190	Cam. Venture. Trippe.
			N 17 54 E	S 17 54 W		
			N 14 53 W	S 14 53 E		
2	38 42 27.52	76 07 31.92	N 72 28 E	S 72 28 W	1,158 933 1,083	Cam. Venture. Trippe.
			N 22 25 E	S 22 25 W		
			N 13 54 W	S 13 54 E		
3	38 42 .00	76 07 09 12	N 28 12 E	S 28 12 W	640 596 940	Plow. Venture. Mistle.
			N 24 27 W	S 24 28 E		
			N 68 21 W	S 68 21 E		
4	38 42 30.34	76 07 06.10	N 15 45 E	S 15 46 W	819 834 1,112	Plow. Venture. Mistle.
			N 23 03 W	S 23 04 E		
			N 59 01 W	S 59 01 E		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

MARSHY.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 42. 42. 98	76 08 44. 00	S 16 10 E	N 16 09 W	Yards. 1, 243 384 685	Borough. Twin. Weave.
			N 87 11 E	S 87 11 W		
			N 26 38 E	S 26 38 W		
2	38 43 00. 78	76 08 46. 58	S 37 50 E	N 37 50 W	736 375 911	Twin. Weave. Martin.
			N 88 15 E	S 88 15 W		
			N 2 25 E	S 2 25 W		
3	38 43 03. 12	76 08 58. 00	S 48 46 E	N 48 46 W	1, 002 680 899	Twin. Weave. Martin.
			S 84 18 E	N 84 17 W		
			N 22 14 E	S 22 14 W		
4	38 43 11. 90	76 08 57. 40	S 37 38 E	N 37 38 W	1, 207 752 626	Twin. Weave. Martin.
			S 61 08 E	N 61 07 W		
			N 31 10 E	S 31 10 W		
5	38 43 09. 80	76 08 37. 38	N 18 39 W	S 18 39 E	641 594 1, 208	Martin. Spin. Plain.
			S 88 38 W	N 88 38 E		
			S 28 07 W	N 28 07 E		
6	38 42 52. 44	76 08 32. 56	N 15 34 W	S 15 34 E	1, 238 920 845	Martin. Spin. Plain.
			N 51 35 W	S 51 35 E		
			S 55 26 W	N 55 26 E		
7	38 42 44. 64	76 08 36. 46	N 36 30 W	S 36 30 E	1, 038 632 1, 259	Spin. Plain. Borough.
			S 69 56 W	N 69 56 E		
			S 6 42 E	N 6 42 W		

FLATTY.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 43 18. 50	76 08 20. 96	N 16 59 W	S 16 59 E	Yards. 1, 070 712 1, 072	Neva. Martin. Spin.
			N 63 49 W	S 63 49 E		
			S 73 19 W	N 73 19 E		
2	38 43 18. 96	76 08 26. 54	N 9 18 W	S 9 18 E	1, 023 574 937	Neva. Martin. Spin.
			N 58 46 W	S 58 46 E		
			S 69 50 W	N 69 49 E		
3	38 43 37. 76	76 08 23. 26	N 7 59 W	S 7 59 E	949 451 668	Robertson. Neva. Martin.
			N 33 58 W	S 33 58 E		
			S 59 48 W	N 59 48 E		
4	38 43 37. 22	76 08 17. 94	N 15 53 W	S 15 53 E	996 554 786	Robertson. Neva. Martin.
			N 45 02 W	S 45 02 E		
			S 66 07 W	N 66 07 E		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## OREM.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 43 20.38	76 08 39.86	S 16 54 E	N 16 54 W	679	Weave.
			N 75 34 E	S 75 34 W	640	Hunter.
			N 11 01 E	S 11 01 W	978	Neva.
2	38 43 35.52	76 08 45.46	S 16 35 E	N 16 34 W	1,211	Weave.
			S 65 26 E	N 65 25 W	844	Hunter.
			N 71 40 E	S 71 41 W	1,119	Aye.
3	38 43 37.06	76 08 41.60	S 11 21 E	N 11 21 W	1,237	Weave.
			S 58 49 E	N 58 48 W	779	Hunter.
			N 72 39 E	S 72 39 W	1,008	Aye.
4	38 43 22.64	76 08 33.48	N 1 11 E	S 1 11 W	884	Neva.
			N 60 34 W	S 60 34 E	353	Martin.
			S 57 17 W	N 57 16 E	827	Spin.

## DOUBLE MILLS.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude ° / ' "	Longitude ° / ' "	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 43 40.22	76 08 20.35	N 19 57 E	S 19 58 W	901	Stretch.
			N 48 30 W	S 48 30 E	439	Neva.
			S 57 22 W	N 57 22 E	778	Martin.
2	38 43 43.28	76 08 40.15	S 45 41 E	N 45 41 W	877	Hunter.
			N 84 23 E	S 84 23 W	930	Aye.
			N 48 09 E	S 48 09 W	1,115	Stretch.
3	38 43 48.27	76 08 29.34	S 23 38 E	N 23 38 W	852	Hunter.
			S 83 07 E	N 83 06 W	643	Aye.
			N 43 26 E	S 43 26 W	793	Stretch.
4	38 44 04.00	76 08 23.56	S 8 12 E	N 8 12 W	1,325	Hunter.
			S 38 40 E	N 38 40 W	779	Aye.
			N 83 23 E	S 83 23 W	395	Stretch.
5	38 44 02.62	76 08 10.48	S 51 45 W	N 51 44 E	750	Neva.
			S 14 05 E	N 14 05 W	579	Aye.
			S 87 46 E	N 87 45 W	1,078	Wall.
6	38 44 05.04	76 08 06.64	S 51 40 W	N 51 39 E	880	Neva.
			S 3 30 E	N 3 30 W	643	Aye.
			S 82 46 E	N 82 46 W	983	Wall.
7	38 43 49.83	76 07 54.60	N 59 23 E	S 59 24 W	764	Wall.
			N 35 26 W	S 35 26 E	642	Stretch.
			N 59 04 W	S 59 04 E	1,037	Robertson.
8	38 43 51.61	76 08 07.14	N 71 36 E	S 71 36 W	1,042	Wall.
			N 5 05 W	S 5 05 E	465	Stretch.
			N 49 43 W	S 49 43 E	732	Robertson.
9	38 43 50.98	76 08 15.40	N 73 49 E	S 73 49 W	1,257	Wall.
			N 20 04 E	S 20 04 W	516	Stretch.
			N 34 31 W	S 34 31 E	599	Robertson.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

JOHNSTON.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / '	° / '		
1	38 43 53.00	76 07 41.02	N 35 11 E	S 35 12 W	Yards. 1,551 648 842	Camden. May. Stretch.
			N 3 37 W	S 3 37 E		
			N 60 20 W	S 60 20 E		
2	38 44 05.14	76 07 43.44	N 67 46 E	S 67 46 W	1,089 239 667	Blossom. May. Stretch.
			N 5 31 E	S 5 31 W		
			N 89 24 W	S 89 24 E		
3	38 44 13.09	76 07 32.32	S 43 29 W	N 43 29 E	1,260 401 729	Aye. Wall. Blossom
			S 9 58 E	N 9 58 W		
			N 78 35 E	S 78 36 W		
4	38 44 06.96	76 07 27.20	N 58 48 E	S 58 49 W	678 575 1,098	Blossom. Peebec. Stretch.
			N 3 51 E	S 3 51 W		
			S 87 10 W	N 87 09 E		

CAMDEN POINT.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	° / '	° / '	Yards.	Station
			Forward	Back		
1	38 44 16.20	76 07 14.46	N 21 37 E	S 21 37 W	522 397 753	Camden. Peebec. May.
			N 48 40 W	S 48 40 E		
			S 79 55 W	N 79 54 E		
2	38 44 17.27	76 07 20.14	N 37 19 E	S 37 19 W	564 270 617	Camden. Peebec. May.
			N 33 13 W	S 33 13 E		
			S 73 52 W	N 73 52 E		
3	38 44 36.25	76 07 13.58	N 24 00 W	S 24 00 E	652 143 674	Stab. Neck. Blossom.
			S 63 17 W	N 63 17 E		
			S 19 04 E	N 19 04 W		
4	38 44 35.32	76 07 08.40	N 32 40 W	S 32 40 E	745 267 611	Stab. Neck. Blossom.
			S 82 56 W	N 82 56 E		
			S 07 50 E	N 07 50 W		

WATERMELON POINT.

(Tred Avon River—Chart No. 34.)

Corner of bar	Latitude	Longitude	° / '	° / '	Yards.	Station
			Forward	Back		
1	38 44 53.40	76 07 12.58	S 10 30 E	N 10 30 W	782 297 705	Camden. Gash. Melon.
			S 85 08 E	N 85 08 W		
			N 29 47 E	S 29 47 W		
2	38 44 53.76	76 07 17.54	S 19 18 E	N 19 18 W	828 430 770	Camden. Gash. Melon.
			S 85 00 E	N 85 00 W		
			N 38 44 E	S 38 44 W		
3	38 45 22.30	76 07 04.92	S 34 22 W	N 34 22 E	496 392 666	Water. Melon. Bateman.
			S 22 15 E	N 22 15 W		
			N 73 00 E	S 73 00 W		
4	38 45 19.90	76 07 01.18	S 49 03 W	N 49 02 E	502 285 604	Water. Melon. Bateman.
			S 09 58 E	N 09 57 W		
			N 62 52 E	S 62 52 W		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## HOPKINS.

(Island Creek—Charts Nos. 34 and 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 39 25.86	76 09 21.68	N 34 54 W S 86 59 W S 17 57 W	S 34 54 E N 86 58 E N 17 56 E	744 2,750 3,680	Enter. Choptank River Light. Castle.
2	38 39 39.52	76 09 43.38	N 41 52 W S 74 26 W S 8 03 W	S 41 53 E N 74 25 E N 8 02 E	1,512 2,256 4,000	Boone. Choptank River Light. Castle.
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 39 43.22	76 09 32.62	S 37 26 E S 85 18 E N 86 39 E	N 37 25 W N 85 17 W S 86 40 W	530 945 1,729	Landeye. Berry. Jay.
4	38 39 35.08	76 09 09.60	N 59 26 E N 46 58 E N 68 07 W	S 59 26 W S 46 58 W S 68 08 E	387 1,147 803	Berry. Delahay. Enter.
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

## WILLIS.

(Island Creek—Charts No. 34 and 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 39 47.13	76 09 04.78	S 36 53 W S 44 32 E N 53 55 E	N 36 52 E N 44 31 W S 53 55 W	691 294 270	Landeye. Berry. Straw.
2	38 39 48.80	76 09 19.60	S 2 07 W S 66 02 E N 80 26 E	N 2 07 E N 66 02 W S 80 26 W	609 654 619	Landeye. Berry. Straw.
3	38 39 52.46	76 09 18.72	S 3 35 W S 55 53 E S 88 00 E	N 3 35 E N 55 53 W N 87 59 W	734 604 587	Landeye. Berry. Straw.
Thence from corner No. 3 along the mean low-water line of the shore to corner No. 4, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
4	38 39 51.36	76 09 03.92	S 32 10 W S 27 30 E N 79 49 E	N 32 10 E N 27 30 W S 79 49 W	821 397 982	Landeye. Berry. Jay.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

ISLAND CREEK.

(Island Creek—Charts Nos. 34 and 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 39 34.20	76 08 45.72	N 38 41 E	S 38.41 W	Yards. 1,219 839 659	Kent. Delahay. Straw.
			N 14 19 E	S 14 19 W		
			N 25 38 W	S 25 38 E		
2	38 39 51.85	76 08 56.52	S 76 17 W	N 76 17 E	1,123 369 794	Enter. Berry. Jay.
			S 1 56 W	N 1 56 E		
			S 76 08 E	N 76 08 W		
Thence from corner No. 2 along the mean low water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 40 01.02	76 08 45.80	S 23 35 W	N 23 35 E	739 698 1,051	Berry. Jay. Mean.
			S 44 19 E	N 44 18 W		
			S 76 15 E	N 76 14 W		
4	38 40 00.84	76 08 39.00	S 35 18 W	N 35 18 E	823 582 876	Berry. Jay. Mean.
			S 31 57 E	N 31 57 W		
			S 73 50 E	N 73 49 W		
Thence from corner No. 4 along the mean low water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 40 00.68	76 08 28.02	S 48 59 W	N 48 58 E	1,051 488 600	Berry. Jay. Mean.
			S 02 03 E	N 02 03 W		
			S 66 35 E	N 66 35 W		
6	38 40 02.45	76 08 21.56	S 52 13 W	N 52 13 E	1,184 570 482	Berry. Jay. Mean.
			S 15 39 W	N 15 39 E		
			S 51 52 E	N 51 52 W		
Thence from corner No. 6 along the mean low water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 40 06.18	76 08 12.61	S 18 39 E	N 18 39 W	447 471 424	Mean. Maslin. Harry.
			N 89 13 E	S 89 13 W		
			N 34 18 E	S 34 18 W		
8	38 40 01.04	76 08 02.30	N 03 40 W	S 03 40 E	525 388 830	Harry. Kent. Jay.
			N 83 08 W	S 83 08 E		
			S 52 57 W	N 52 57 E		
Thence from corner No. 8 along the mean low water line of the shore to corner No. 9, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
9	38 39 53.70	76 08 02.25	N 24 46 E	S 24 46 W	470 487 711	Maslin. Kent. Jay.
			N 52 48 W	S 52 48 E		
			S 69 10 W	N 69 10 E		
10	38 39 46.72	76 08 04.80	N 15 17 W	S 15 17 E	241 619 597	Mean. Kent. Jay.
			N 31 09 W	S 31 09 E		
			S 88 21 W	N 88 21 E		
Thence from corner No. 10 along the mean low water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MATTHEWS.

(Island Creek—Charts Nos. 34 and 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / "	° / "	° / "	° / "	Yards.	
1	38 40 10.06	76 07 57.76	N 33 03 E N 34 59 W S 63 01 W	S 33 04 W S 34 59 E N 63 01 E	690 268 568	Charles. Harry. Kent.
2	38 40 11.20	76 07 59.18	N 37 25 E N 32 39 W S 57 42 W	S 27 25 W S 32 39 E N 57 42 E	689 214 554	Charles. Harry. Kent.
3	38 40 22.80	76 07 47.98	S 18 01 W S 53 52 E N 66 43 E	N 18 01 E N 53 52 W S 66 43 W	583 358 650	Maslin. Healey. Potato.
4	38 40 19.60	76 07 41.18	N 48 49 E N 12 12 W S 80 12 W	S 48 49 W S 12 12 E N 80 12 E	553 270 600	Potato. Charles. Harry.

Thence from corner No. 4 along the mean low water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

## OLD ORCHARD.

(Miles River—Chart No. 34.)

Corner of bar	Latitude	Longitude	Forward	Back	Yards.	U. S. C. & G. S. triangulation station
1	38 46 44.98	76 12 09.46	S 40 29 E S 78 19 E N 29 02 W	N 40 29 W N 78 18 W S 29 02 E	540 2,200 2,206	Stony. Gibbs. Millwind.
2	38 47 09.58	76 12 34.28	N 20 42 W N 86 12 W S 39 02 E	S 20 42 E S 86 12 E N 39 02 W	1,175 1,576 1,597	Millwind. St. Michaels Water Tank. Stony.
3	38 47 13.60	76 12 26.40	N 32 54 W S 88 59 W S 30 06 E	S 32 54 E N 88 59 E N 30 06 W	1,147 1,780 1,590	Millwind. St. Michaels Water Tank. Stony.
4	38 46 50.94	76 11 53.28	S 7 08 W S 69 31 E N 2 35 E	N 7 08 E N 69 31 W S 2 35 W	617 1,855 2,085	Stony. Gibbs. Fair.



BOUNDARIES OF NATURAL OYSTER BARS—continued.

GIBSONS FLATS.

(Miles River—Chart No. 34).

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward.	Back		
1	38 46 21.94	76 11.00.00	S 33 18 W	N 33 18 E	Yards. 705 1,015 467	Maiden. Long. Gibbs.
			S 71 49 E	N 71 49 W		
			N 45 12 E	S 45 12 W		
2	38 46 53.50	76 11 46.12	S 20 50 W	N 20 50 E	747 1,715 1,746	Stony. Gibbs. Leeds.
			S 64 36 E	N 64 35 W		
			N 10 37 E	S 10 37 W		
3	38 47 02.96	76 12 00.00	N 26 13 E	S 26 13 W	1,557 1,868 1,023	Leeds. Millwind. Stony.
			N 44 57 W	S 44 58 E		
			S 5 40 E	N 5 40 W		
4	38 47 11.24	76 11 37.88	N 61 18 W	S 61 19 E	2,171 1,383 1,884	Millwind. Stony. Gibbs.
			S 20 26 W	N 20 26 E		
			S 44 56 E	N 44 56 W		
5	38 47 01.30	76 11 27.66	N 57 37 W	S 57 38 E	2,573 1,220 1,457	Millwind. Stony. Gibbs.
			S 38 04 W	N 38 04 E		
			S 46 45 E	N 46 44 W		
6	38 46 50.92	76 11 00.00	N 59 15 W	S 59 16 E	3,380 1,604 728	Millwind. Stony. Gibbs.
			S 67 36 W	N 67 36 E		
			S 27 03 E	N 27 03 W		

BAZZLES HILL.

(Miles River—Chart No. 34.)

1	38 46 21.94	76 11 00.00	S 33 18 W	N 33 18 E	Yards. 705 1,015 467	Maiden. Long. Gibbs.
			S 71 49 E	N 71 49 W		
			N 45 12 E	S 45 12 W		
2	38 46 44.98	76 12 09.46	S 40 29 E	N 40 29 W	540 2,200 2,206	Stony. Gibbs. Millwind.
			S 78 19 E	N 78 18 W		
			N 29 02 W	S 29 02 E		
3	38 46 50.94	76 11 53.28	S 7 08 W	N 7 08 E	617 1,855 2,085	Stony. Gibbs. Fair.
			S 60 31 E	N 60 31 W		
			N 2 35 E	S 2 35 W		
4	38 46 53.50	76 11 46.12	S 20 50 W	N 20 50 E	747 1,715 1,746	Stony. Gibbs. Leeds.
			S 64 36 E	N 64 35 W		
			N 10 37 E	S 10 37 W		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## LONG POINT.

(Miles River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' / "	° / ' / "		
1	38 45 44.84	76 10 37.48	N 56 02 W	S 56 03 E	Yards. 1,184 629 1,087	Maiden. Barnett. Comb.
			S 85 09 W	N 85 08 E		
			S 85 05 E	N 85 05 W		
2	38 45 50.45	76 10 47.28	N 56 52 W	S 56 52 E	864 441 1,370	Maiden. Barnett. Comb.
			S 56 38 W	N 56 37 E		
			S 78 07 E	N 78 06 W		
3	38 45 57.80	76 11 00.00	N 59 56 W	S 59 56 E	447 491 1,760	Maiden. Barnett. Comb.
			S 3 46 W	N 3 46 E		
			S 72 28 E	N 72 28 W		
4	38 46 21.94	76 11 00.00	S 33 18 W	N 33 18 E	705 1,015 467	Maiden. Long. Gibbs.
			S 71 49 E	N 71 49 W		
			N 45 12 E	S 45 12 W		
5	38 46 01.44	76 10 23.04	S 47 03 E	N 47 03 W	958 374 1,370	Comb. Long. Maiden.
			N 1 39 W	S 1 39 E		
			N 85 44 W	S 85 45 E		

## BARNETT.

(Miles River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 45 40.04	76 10 57.24	S 38 36 E	N 38 36 W	Yards. 1,159 1,605 151	Hall. Comb. Barnett.
			N 87 33 E	S 87 33 W		
			N 44 04 W	S 44 04 E		
2	38 45 46.02	76 11 03.90	S 37 15 E	N 37 15 W	117 1,393 684	Barnett. Long. Maiden.
			N 50 03 E	S 50 04 W		
			N 24 35 W	S 24 35 E		
3	38 45 57.80	76 11 00.00	N 59 56 W	S 59 56 E	447 491 1,760	Maiden. Barnett. Comb.
			S 3 46 W	N 3 46 E		
			S 72 28 E	N 72 28 W		
4	38 45 50.45	76 10 47.28	N 56 52 W	S 56 52 E	864 441 1,370	Maiden. Barnett. Comb.
			S 56 38 W	N 56 37 E		
			S 78 07 E	N 78 06 W		

BOUNDARIES OF NATURAL OYSTER BARS—continued.

COX.

(Miles River—Chart No. 34.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 46 16.13	76 09 22.88	N 27 10 E	S 27 10 W	Yards. 1,052 911 1,603	Whit. Hunting. Long.
			N 64 12 W	S 64 13 E		
			S 85 40 W	N 85 40 E		
2	38 46 28.88	76 09 26.79	S 24 11 W	N 24 11 E	1,074 347 1,056	Ham. Kirk. McConnell.
			S 33 37 E	N 33 37 W		
			N 71 02 E	S 71 03 W		
3	38 46 30.98	76 09 19.61	S 30 56 W	N 30 56 E	1,225 360 854	Ham. Kirk. McConnell.
			S 00 25 E	N 00 25 W		
			N 71 24 E	S 71 24 W		
4	38 46 24.46	76 09 07.19	N 5 46 E	S 5 46 W	658 756 1,857	Whit. Spree. Beg.
			N 73 35 W	S 73 35 E		
			S 88 03 W	N 88 02 E		
5	38 46 20.94	76 09 14.50	N 47 50 E	S 47 50 W	911 816 627	McConnell. Whit. Spree.
			N 18 31 E	S 18 31 W		
			N 57 59 W	S 57 59 E		

Thence from corner No. 5 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.

CHLORA POINT.

(Middle Choptank River—Chart No. 35.)

1	38 37 17.02	76 08 23.70	S 45 23 W	N 45 22 E	Yards. 3,580 1,929 2,994	Le Compte. Toot. Howells.
			S 3 16 W	N 3 16 E		
			S 63 42 E	N 63 41 W		
Thence along county boundary as delineated on chart No. 35 to corner No. 2.						
2	38 37 52.86	76 09 25.36	N 47 35 E	S 47 36 W	1,106 3,304 1,538	Chlora. Landeye. Large water tank.
			N 2 15 E	S 2 15 W		
			S 64 59 W	N 64 58 E		
3	38 38 14.98	76 08 54.49	N 57 03 W	S 57 04 E	4,131 2,160 3,944	Choptank River Light. Castle. Toot.
			S 59 05 W	N 59 04 E		
			S 10 18 E	N 10 18 W		
4	38 37 35.40	76 08 18.40	S 52 35 E	N 52 34 W	3,203 1,516 1,641	Howells. Trappe. Chlora.
			N 82 34 E	S 82 35 W		
			N 35 34 W	S 35 35 E		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## BEACONS.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
			° / ' "	° / ' "		
1	38 37 13.20	76 06 50.78	N 40 47 W	S 40 48 E	1,248	Trappe. Chlora. Toot.
			N 57 31 W	S 57 33 E	3,879	
			S 55 02 W	N 55 01 E	3,134	
2	38 37 21.58	76 07 45.12	S 48 20 E	N 48 19 W	2,228	Howells. Trappe. Chlora.
			N 43 14 E	S 43 15 W	909	
			N 45 33 W	S 45 33 E	2,571	
3	38 37 58.10	76 07 52.94	N 70 44 W	S 70 44 E	1,725	Chlora. Toot. Howells.
			S 15 36 W	N 15 35 E	3,437	
			S 34 36 E	N 34 35 W	3,295	
4	38 38 06.64	76 07 40.13	N 81 52 W	S 81 51 E	1,987	Chlora. Toot. Howells.
			S 19 20 W	N 19 20 E	3,813	
			S 27 03 E	N 27 02 W	3,368	
Thence from corner No. 4 along the mean low-water line of the shore to corner No. 5, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
5	38 37 41.21	76 07 21.59	N 65 08 W	S 65 09 E	2,709	Chlora. Large water tank. Toot.
			S 86 52 W	N 86 50 E	4,674	
			S 32 36 W	N 32 36 E	3,253	
6	38 37 36.75	76 07 01.72	N 20 49 E	S 20 49 W	684	Gis. Trappe. Howard.
			N 74 00 W	S 74 01 E	547	
			S 1 21 W	N 1 21 E	5,098	
Thence from corner No. 6 along the mean low-water line of the shore to corner No. 1, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						

## LA TRAPPE.

(La Trappe Creek—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 37 49.10	76 06 57.42	N 19 22 E	S 19 22 W	832	Rice. Lan. Trappe.
			N 33 35 W	S 33 35 E	546	
			S 67 24 W	N 67 24 E	692	
2	38 38 00.36	76 07 06.94	S 9 50 E	N 9 50 W	808	Grubin. Gis. Rice.
			S 67 35 E	N 67 35 W	412	
			N 52 26 E	S 52 27 W	666	
Thence from corner No. 2 along the mean low-water line of the shore to corner No. 3, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
3	38 38 02.40	76 07 03.16	S 2 31 E	N 2 31 W	866	Grubin. Gis. Rice.
			S 51 12 E	N 51 11 W	361	
			N 51 46 E	S 51 46 W	545	
4	38 38 18.30	76 06 35.39	S 57 01 W	N 57 01 E	366	Rice. Trappe. Inez.
			S 44 20 W	N 44 20 E	1,749	
			S 17 42 W	N 17 42 E	647	
5	38 38 11.96	76 06 31.00	N 87 59 W	S 87 59 E	423	Rice. Lan. Inez.
			S 72 26 W	N 72 26 E	1,050	
			S 37 51 W	N 37 51 E	510	

BOUNDARIES OF NATURAL, OYSTER BARS—continued.

LA TRAPPE—Continued.

(La Trappe Creek—Chart No. 35)—Continued.

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
6	38 38 00.08	76 06 53.96	N 23 58 E	S 23 58 W	455	Rice. Lan. Grubin.
			N 77 56 W	S 77 57 E	402	
			S 14 37 W	N 14 37 E	814	
7	38 37 49.40	76 06 52.64	N 10 56 E	S 10 56 W	790	Rice. Lan. Trappe.
			N 43 56 W	S 43 57 E	617	
			S 70 10 W	N 70 10 E	815	

HOWELLS POINT.

(Middle Choptank River—Chart No. 35.)

1	38 36 08.62	76 06 41.08	N 60 42 E	S 60 43 W	3,153	Red. Howells. Toot.
			N 00 25 W	S 00 25 E	980	
			N 82 15 W	S 82 16 E	2,827	
2	38 36 17.00	76 06 47.70	N 66 31 E	S 66 32 W	3,163	Red. Howells. Toot.
			N 11 41 E	S 11 41 W	712	
			N 87 52 W	S 87 53 E	2,652	
3	38 36 21.46	76 07 24.53	S 63 26 E	N 63 25 W	3,578	Command. Howells. Trappe.
			N 63 57 E	S 63 57 W	1,246	
			N 1 39 E	S 1 39 W	2,690	
4	38 36 38.20	76 07 55.21	S 22 33 E	N 22 32 W	3,380	Howard. Howells. Trappe.
			S 89 28 E	N 89 27 W	1,930	
			N 22 43 E	S 22 43 W	2,303	
5	38 37 04.47	76 07 41.54	S 13 07 E	N 13 07 W	4,115	Howard. Howells. Trappe.
			S 60 04 E	N 60 03 W	1,810	
			N 23 04 E	S 23 05 W	1,346	
6	38 36 55.18	76 06 52.64	N 26 16 W	S 26 16 E	1,731	Trappe. Toot. Howard.
			S 64 44 W	N 64 44 E	2,785	
			S 5 34 W	N 5 34 E	3,713	
Thence from corner No. 6 along the mean low-water line of the shore to corner No. 7, excluding any creek, cove, or inlet less than 100 yards in width at its mouth at low tide.						
7	38 36 23.08	76 06 39.78	N 68 35 E	S 68 36 W	2,890	Red. Howells. Toot.
			N 7 34 W	S 7 34 E	496	
			S 87 52 W	N 87 51 E	2,862	
8	38 36 30.34	76 06 37.90	S 14 43 W	N 14 43 E	2,954	Howard. Command. Red.
			S 45 59 E	N 45 59 W	2,734	
			N 72 56 E	S 72 57 W	2,762	
9	38 36 13.20	76 06 25.27	N 58 57 E	S 58 58 W	2,692	Red. Howells. Toot.
			N 28 33 W	S 28 34 E	940	
			N 86 01 W	S 86 02 E	3,251	

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

DICKINSON.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station	
			Forward	Back			
	° / ' "	° / ' "	° / '	° / '	Yards.		
1	38 35 58.78	76 05 55.86	N 39 11 E	S 39 12 W	2,419	Red.	
			N 43 06 W	S 43 06 E			1,797
			S 46 06 W	N 46 05 E			2,586
2	38 36 46.24	76 06 33.60	S 38 25 W	N 38 25 E	369	Howells.	
			S 14 17 W	N 14 17 E			3,502
			N 83 48 E	S 83 49 W			2,543
3	38 36 55.65	76 06 31.08	S 26 00 W	N 26 00 E	675	Howells.	
			S 14 05 W	N 14 05 E			3,825
			S 89 00 E	N 88 59 W			2,461
4	38 36 29.84	76 05 41.78	N 54 24 E	S 54 24 W	1,422	Red.	
			N 80 37 W	S 80 38 E			1,622
			S 38 12 W	N 38 11 E			3,615
5	38 36 40.84	76 04 43.15	S 88 03 W	N 88 02 E	3,153	Howells.	
			S 25 25 W	N 25 25 E			2,495
			S 49 18 E	N 49 17 W			3,215
6	38 36 24.38	76 04 53.36	N 81 10 W	S 81 11 E	2,916	Howells.	
			S 25 14 W	N 25 14 E			1,878
			S 60 20 E	N 60 19 W			3,117
7	38 36 10.60	76 05 12.54	N 71 30 E	S 71 31 W	3,391	Double.	
			N 14 32 E	S 14 32 W			1,526
			N 68 58 W	S 68 59 E			2,544
8	38 36 09.56	76 05 26.90	N 26 46 E	S 26 46 W	1,693	Red.	
			N 64 34 W	S 64 35 E			2,208
			S 50 39 W	N 50 38 E			3,401
Thence along county boundary as delineated on chart No. 35 to corner No. 8.							
Thence along county boundary as delineated on chart No. 35 to corner No. 1.							

## KIRBY.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station	
			Forward	Back			
	° / ' "	° / ' "	° / '	° / '	Yards.		
1	38 35 36.96	76 04 11.95	S 87 00 W	N 86 59 E	1,900	Command.	
			S 36 03 W	N 36 03 E			1,289
			N 87 58 E	S 87 58 W			1,613
Thence along county boundary as delineated on Chart No. 35 to corner No. 2.							
2	38 36 10.60	76 05 12.54	N 71 30 E	S 71 31 W	3,391	Double.	
			N 14 32 E	S 14 32 W			1,526
			N 68 58 W	S 68 59 E			2,544
3	38 36 24.38	76 04 53.36	N 81 10 W	S 81 11 E	2,916	Howells.	
			S 25 14 W	N 25 14 E			1,878
			S 60 20 E	N 60 19 W			3,117
4	38 35 53.98	76 03 49.22	N 41 49 W	S 41 48 E	2,708	Red.	
			S 76 36 W	N 76 35 E			1,714
			S 40 05 W	N 40 05 E			2,113

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SCRAPING LINE.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 35 03.79	76 03 26.56	S 88 27 E	N 88 26 W	Yards. 1,670 1,246 2,618	Boling. Double. Hambrooks Bar Beacon.
			N 19 15 E	S 19 16 W		
			N 60 16 W	S 60 17 E		
2	38 35 04.16	76 03 51.00	S 88 34 E	N 88 33 W	2,317 1,573 2,067	Boling. Double. Hambrooks Bar Beacon.
			N 42 16 E	S 42 17 W		
			N 51 38 W	S 51 38 E		
3	38 35 19.74	76 04 02.77	Thence along county boundary as delineated on Chart No. 35		2,691 1,510 3,512	to corner No. 3. Boling. Double. Red.
			S 77 20 E	N 77 28 W		
			N 65 01 E	S 65 01 W		
4	38 35 11.64	76 03 14.60	S 77 06 E	N 77 05 W	1,388 916 2,781	Boling. Double. Hambrooks Bar Beacon.
			N 5 54 E	S 5 54 W		
			N 68 16 W	S 68 17 E		

BOLINGBROKE SAND.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	Remarks
			Forward	Back		
1	38 34 34.04	76 02 59.57	N 78 36 E	S 78 37 W	2,006 1,353 2,200	Rear. Boling. Double.
			N 44 54 E	S 44 55 W		
			N 7 56 W	S 7 56 E		
2	38 34 40.44	76 03 12.48	Thence along county boundary as delineated on Chart No. 35		2,314 1,494 1,963	to corner No. 2 Rear. Boling. Double.
			N 85 32 E	S 85 33 W		
			N 60 13 E	S 60 13 W		
3	38 35 13.08	76 02 45.08	S 85 34 W	N 85 32 E	3,068 2,497 675	Cambridge. Shoal. Boling.
			S 19 14 W	N 19 14 E		
			S 57 53 E	N 57 53 W		
4	38 35 03.27	76 02 35.10	N 88 24 W	S 88 25 E	3,323 2,299 1,444	Cambridge. Shoal. Rear.
			S 28 12 W	N 28 12 E		
			S 65 55 E	N 65 55 W		

THE BLACK BUOY.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	Remarks
			Forward	Back		
1	38 34 18.74	76 01 58.46	S 49 58 E	N 49 58 W	926 977 1,616	Ferry. Rear. Boling.
			N 20 53 E	S 20 53 W		
			N 24 13 W	S 24 13 E		
2	38 34 24.13	76 02 28.08	Thence along county boundary as delineated on Chart No. 35		1,347 1,298 1,456	to corner No. 2. Rear. Boling. Shoal.
			N 57 10 E	S 57 10 W		
			N 5 22 E	S 5 22 W		
3	38 34 46.00	76 02 20.24	S 89 35 E	N 89 35 W	925 562 3,776	Rear. Boling. Cambridge.
			N 8 51 W	S 8 51 E		
			N 79 42 W	S 79 43 E		
4	38 34 32.08	76 01 52.26	N 84 15 E	S 84 16 W	2,403 498 1,317	Whitehall. Rear. Boling.
			N 21 41 E	S 21 41 W		
			N 38 55 W	S 38 55 E		

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## SUGAR LOAF.

(Middle Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 34 18.74	76 01 58.46	S 49 58 E	N 49 58 W	Yards. 926 977 1,616	Ferry. Rear. Bolting.
			N 20 53 E	S 20 53 W		
			N 24 13 W	S 24 13 E		
2	38 34 32.08	76 01 52.26	N 84 15 E	S 84 16 W	2,403 498 1,317	Whitehall. Rear. Bolting.
			N 21 41 E	S 21 41 W		
			N 38 55 W	S 38 55 E		
3	38 34 26.46	76 01 27.88	N 76 09 E	S 76 10 W	1,798 799 2,960	Whitehall. Rear. Shoal.
			N 35 17 W	S 35 17 E		
			S 74 37 W	N 74 36 E		
4	38 34 20.32	76 01 26.22	N 69 29 E	S 69 30 W	1,820 996 2,967	Whitehall. Rear. Shoal.
			N 30 28 W	S 30 28 E		
			S 78 46 W	N 78 45 E		
Thence along county boundary as delineated on Chart No. 35 to corner No. 1.						

## CHANCELLOR POINT.

(Upper Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 34 20.32	76 01 26.22	N 69 29 E	S 69 30 W	Yards. 1,820 996 2,967	Whitehall. Rear. Shoal.
			N 30 28 W	S 30 28 E		
			S 78 46 W	N 78 45 E		
2	38 34 26.46	76 01 27.88	N 76 09 E	S 76 10 W	1,798 799 2,960	Whitehall. Rear. Shoal.
			N 35 17 W	S 35 17 E		
			S 74 37 W	N 74 36 E		
3	38 34 42.38	76 01 18.55	S 14 00 W	N 14 00 E	1,436 1,503 2,824	Ferry. Whitehall. Duck.
			S 85 57 E	N 85 56 W		
			N 43 53 E	S 43 54 W		
4	38 35 05.22	76 01 23.00	S 6 03 W	N 6 03 E	2,175 1,839 2,430	Ferry. Whitehall. Duck.
			S 61 32 E	N 61 32 W		
			N 58 38 E	S 58 39 W		
5	38 35 07.06	76 00 48.15	S 27 23 W	N 27 22 E	2,505 1,169 1,667	Ferry. Whitehall. Duck.
			S 36 36 E	N 36 35 W		
			N 43 46 E	S 43 47 W		
6	38 34 39.53	76 01 03.10	N 1 17 W	S 1 17 E	1,731 1,137 1,502	Barber. Rear. Ferry.
			N 79 17 W	S 79 18 E		
			S 30 15 W	N 30 15 E		
Thence along county boundary as delineated on chart No. 35 to corner No. 1.						



BOUNDARIES OF NATURAL OYSTER BARS—continued.

BRITISH HARBOR.

(Upper Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 35 14.68	76 00 30.08	N 72 03 E	S 72 04 W	Yards.	Gander. Duck. Barber.
			N 35 29 E	S 35 29 W	3,094	
			N 59 07 W	S 59 07 E	1,162	
2	38 35 25.36	76 00 55.80	S 29 58 E	N 29 57 W	1,796	Whitehall. Shell. Duck.
			S 64 00 E	N 63 59 W	1,775	
			N 66 36 E	S 66 37 W	1,476	
3	38 35 32.84	76 00 48.36	S 21 09 E	N 21 09 W	1,939	Whitehall. Shell. Duck.
			S 53 37 E	N 53 36 W	1,737	
			N 73 54 E	S 73 55 W	1,206	
4	38 35 38.06	76 00 19.50	S 52 11 W	N 52 11 E	2,875	Rear. Shell. Chief.
			S 27 44 E	N 27 43 W	1,363	
			S 66 47 E	N 66 46 W	2,671	
5	38 35 33.88	76 00 01.76	S 59 24 W	N 59 23 E	3,185	Rear. Shell. Chief.
			S 8 46 E	N 8 46 W	1,078	
			S 65 19 E	N 65 18 W	2,184	
6	38 35 29.35	75 59 58.01	N 77 38 E	S 77 39 W	2,144	Gander. Duck. Barber.
			N 21 05 W	S 21 05 E	484	
			N 88 21 W	S 88 21 E	1,762	
Thence along county boundary as delineated on chart No. 35						to corner No. 1.

GOOSE POINT.

(Upper Choptank River—Chart No. 35.)

1	38 35 29.35	75 59 58.01	N 77 38 E	S 77 39 W	Yards.	Gander. Duck. Barber.
			N 21 05 W	S 21 05 E	2,144	
			N 88 21 W	S 88 21 E	484	
2	38 35 33.88	76 00 01.76	S 59 24 W	N 59 23 E	3,185	Rear. Shell. Chief.
			S 8 46 E	N 8 46 W	1,078	
			S 65 19 E	N 65 18 W	2,184	
3	38 35 47.52	75 59 45.76	S 48 42 E	N 48 42 W	2,078	Chief. Gander. War.
			S 85 02 E	N 85 01 W	1,777	
			N 59 11 E	S 59 12 W	2,385	
4	38 35 46.40	75 59 12.80	S 27 19 E	N 27 19 W	1,502	Chief. Gander. War.
			S 82 40 E	N 82 39 W	906	
			N 43 01 E	S 43 02 W	1,724	

## Survey of Oyster Bars, Talbot County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MILL DAM.

(Upper Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 35 46.40	75 59 12.80	S 27 19 E	N 27 19 W	1,502	Chief.
			S 82 40 E	N 82 39 W	906	Gander.
			N 43 01 E	S 43 02 W	1,724	War.
2	38 36 00.58	75 59 35.54	S 35 28 E	N 35 28 W	2,224	Chief.
			S 68 24 E	N 68 23 W	1,613	Gander.
			N 66 16 E	S 66 17 W	1,941	War.
3	38 36 19.46	75 59 25.95	S 45 21 E	N 45 21 W	1,751	Gander.
			N 84 34 E	S 84 34 W	1,530	War.
			N 48 42 E	S 48 43 W	1,971	Wick.
4	38 36 29.37	75 59 02.88	S 22 06 E	N 22 05 W	1,689	Gander.
			S 78 18 E	N 78 17 W	933	War.
			N 42 00 E	S 42 00 W	1,300	Wick.
5	38 36 26.90	75 58 57.27	S 18 11 E	N 18 11 W	1,559	Gander.
			S 82 07 E	N 82 07 W	772	War.
			N 34 31 E	S 34 31 W	1,274	Wick.
Thence along county boundary as delineated on Chart No. 35						to corner No. 1.

## JAMAICA POINT.

(Upper Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 36 32.47	75 58 58.80	S 17 32 E	N 17 31 W	1,751	Gander.
			S 69 58 E	N 69 57 W	857	War.
			N 41 29 E	S 41 30 W	1,150	Wick.
2	38 36 34.74	75 59 10.36	S 25 31 E	N 25 30 W	1,935	Gander.
			S 71 34 E	N 71 34 W	1,171	War.
			N 53 40 E	S 53 41 W	1,325	Wick.
3	38 36 43.05	75 59 07.98	S 20 49 E	N 20 49 W	2,168	Gander.
			S 58 11 E	N 58 10 W	1,234	War.
			N 63 19 E	S 63 19 W	1,124	Wick.
4	38 36 41.02	75 58 56.60	S 13 28 E	N 13 28 W	2,013	Gander.
			S 52 05 E	N 52 04 W	947	War.
			N 50 50 E	S 50 50 W	908	Wick.

## SPAR BUOY.

(Upper Choptank River—Chart No. 35.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' "	° / ' "	° / ' "	° / ' "	Yards.	
1	38 37 46.60	75 58 57.78	N 21 41 E	S 21 42 W	1,322	Blind.
			N 61 00 W	S 61 00 E	732	Raccoon.
			S 58 18 W	N 58 18 E	1,150	Bank.
2	38 38 03.92	75 58 55.44	S 41 13 W	N 41 12 E	1,580	Bank.
			S 50 52 E	N 50 52 W	1,300	House.
			N 86 59 E	S 87 00 W	1,990	Hut.
3	38 38 07.18	75 58 37.02	N 42 21 E	S 42 22 W	1,506	Up.
			N 6 26 W	S 6 26 E	538	Blind.
			S 74 06 W	N 74 05 E	1,237	Raccoon.
Thence along county boundary as delineated on Chart No. 35						to corner No. 1.

## APPENDIXES.

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### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*

SEC. 4. That this act shall take effect from the date of its passage.

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[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

*Survey of Oyster Bars, Talbot County, Md.*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-six, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven \* \* \*.

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[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars \* \* \*.

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[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of Congress approved March 4, 1909.]

AN ACT Making appropriation for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and ten, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and ten, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

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[Act of Congress approved June 25, 1910.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eleven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eleven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys, \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available fifteen thousand dollars.

[Act of Congress approved March 4, 1911.]

AN ACT Making appropriation for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and twelve, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums be, and the same are hereby, appropriated, for the objects herein-after expressed, for the fiscal year ending June thirtieth, nineteen hundred and twelve, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available, thirteen thousand dollars.

[Act of the Legislature of Maryland approved April 2, 1906.]

AN ACT To establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*

SECTION 1. Be it enacted by the General Assembly of Maryland, That the following sections be, and they are hereby, added to article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis, and the said commissioners shall further cause to be delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie. \* \* \*

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

\* \* \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the same to the Clerks of the Circuit court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural

oyster beds, bars or rocks shall be construed in all the courts of the State to be barren bottoms and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act, provided, that the said survey and report shall not be construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act.

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the survey, is as follows:

AN ACT Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland*, That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or leveling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>1</sup> *And be it enacted*, That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses (to be by them sworn or affirmed and examined), shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted*, That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first

<sup>1</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

prosecute, the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from Second Report of Shell Fish Commission.]

OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman oyster culture law, upon the statute books of Maryland, had a twofold object in view:

"1. To encourage an industry in oyster culture upon the barren bottoms beneath the tidewaters of the State.

"2. To prevent the leasing of natural oyster bars for the purpose of oyster culture."

SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."

DEFINITION OF A NATURAL OYSTER BAR.

NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman oyster culture law to exercise its judgment liberally in favor of the natural bars when surveying, charting, and buoing them, but other than this the commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the commission.

DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally, even though now practically barren of oysters, should be considered natural bars. Other citizens of the State, who are not directly interested in the oyster business but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which by methods known to oyster culturists may be made to yield a greater number of oysters than they now produce.

"It should be evident to everyone that neither of these definitions could be adopted by the commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by oystermen on one hand and by oyster culturists on the other is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd *v.* Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed, and is as follows:

What, then, is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State

where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible; but if so, I imagine that their extent must be too limited for them to be of much practical general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them, and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters within the meaning of the act of assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and can not be located or appropriated by any individual.

#### APPLICATION OF DEFINITION.

Before this definition may be of use in determining accurately and scientifically the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors, and these factors must be combined into a practical scheme of investigating the condition of the ground under consideration.

Stated briefly, a livelihood is represented by a sum of money obtained from the sale, at a fixed price, of a certain quantity of oysters gathered in a given time from an allotted area of ground.

Knowing the value of each of these factors, it becomes possible to calculate the number of oysters an oyster ground must produce per square yard in order that oystermen may secure a livelihood by working upon it.

NOTE.—The factors into which the commission resolved the livelihood problem, the value assigned to each factor, and the scheme devised for practical use in examining and applying the definition to oyster bottoms are given in outline in their second report under the heading of the preceding extract, and in detail in their first report on pages 32 to 69.

#### APPENDIX C.—SUMMARY OF THE PARTICULAR SURVEYING OPERATIONS WHICH CONSTITUTE AN "OYSTER SURVEY" AS NOW BEING CARRIED ON IN MARYLAND.

*Explanation.*—A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland, will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest practical accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

*Triangulation survey.*—Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a framework or foundation. Therefore, a triangulation survey, including the permanent marking of the positions of landmarks with monuments, and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.



*Topographic survey.*—The technical records which establish the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the leasable bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore a topographic survey is a necessary operation of a complete oyster survey.

*Hydrographic survey.*—In the settlement of the important question of what is or what is not a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore a hydrographic survey is a necessary operation of a complete oyster survey.

*Necessary foundation for an oyster survey.*—Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

*Special surveys and investigations pertaining to oysters.*—Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>1</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding-boat party in addition to the usual hydrographic work.<sup>2</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells or absence of shells.

The special oyster investigations<sup>3</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affect the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

*Preparation of results.*—The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>4</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for publication by the Government, the preparation of that part of the annual report of the commission covering the special oyster surveys and investigations, the making of the leasing charts and finished projections, and finally the filing of the oyster charts and records with the courts and the commission, thus opening a county for oyster culture.

*Summary.*—From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

<sup>1</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>2</sup> See pp. 104 to 123 of "First Annual Report of Maryland Shell Fish Commission."

<sup>3</sup> See pp. 30 to 67 and 129 to 199 of "First Annual Report of Maryland Shell Fish Commission."

<sup>4</sup> No mention is made here of the large amount of administrative work of the commission, which is greatly complicated and increased by the effect of the oyster-survey operations on many thousands of people whose interests are more or less involved; or of the large amount of survey work involved in the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

## Survey of Oyster Bars, Talbot County, Md.

APPENDIX D.—STATISTICS OF RESULTS OF THE COMBINED OYSTER SURVEY OPERATIONS OF THE GOVERNMENT AND STATE.<sup>1</sup>

Operations	Anne Arundel County	Somerset County	Wicomico County	Worcester County	Calvert County	Charles County
Beginning of field work.....	June 29, 1906	May 2, 1907	Aug. 27, 1907	Nov. 8, 1907	May 2, 1908	Aug. 18, 1908
Filing of certified charts and reports.....	June 20, 1907	July 1, 1908	Dec. 1, 1908	Apr. 12, 1909	Dec. 14, 1909	Jan. 27, 1911
Natural oyster bars surveyed and delineated <sup>2</sup> .....	91	37	15	28	41	15
Acres of natural oyster bars.....	33,577	27,566	2,038	1,655	12,303	2,285
Crab bottoms surveyed and delineated.....		54				
Acres of crab bottoms.....		32,108				
Clam beds surveyed and delineated.....		3				
Acres of clam beds.....		506				
Boundary buoys located and planted.....	362	154	53	104	149	51
Triangulation landmarks established.....	123	86	30	48	78	42
Miles of shore line covered by triangulation.....	110	125	46	95	95	32
Square miles of water covered by triangulation.....	220	375	44	110	157	20
Miles of examination of shell bottom with chain apparatus.....	425	340	59	63	250	38
Oyster investigation stations occupied.....	440	679	162	147	667	113
Tide stations established.....	4	3	1	1	2	1
Number of soundings over shell bottoms.....	37,049	17,904	3,387	3,649	11,292	1,631
Square miles covered by soundings and chain apparatus.....	58	55	3	3	30	4
Projections prepared and plotted.....	9	13	2	5	8	3
Leasing charts prepared.....	13	12	2	3	5	2
Oyster charts published.....	4	6	2	3	5	1
Reports published.....	2	2	2	2	2	2
Progress maps published.....	2	2	2	2	2	2

Operations	St. Marys County	Baltimore County	Kent County	Queen Annes County	Talbot County	Total <sup>3</sup>
Beginning of field work.....	May 2, 1908	Apr. 14, 1909	Apr. 14, 1909	Apr. 14, 1909	July 6, 1909	
Filing of certified charts and reports.....	July 6, 1911	Aug. 10, 1911	Oct. 5, 1911	Nov. 29, 1911	July 20, 1912	
Natural oyster bars surveyed and delineated <sup>2</sup> .....	124	3	64	98	132	648
Acres of natural oyster bars.....	25,755	3,010	12,809	24,721	36,564	182,283
Crab bottoms surveyed and delineated.....						54
Acres of crab bottoms.....						32,108
Clam beds surveyed and delineated.....						3
Acres of clam beds.....						506
Boundary buoys located and planted.....	375	12	211	340	529	2,340
Triangulation landmarks established.....	238	15	147	199	336	1,022
Miles of shore line covered by triangulation.....	160	12	110	240	230	1,070
Square miles of water covered by triangulation.....	180	50	130	500	240	1,710
Miles of examination of shell bottom with chain apparatus.....	400	33	164	288	511	2,571
Oyster investigation stations occupied.....	1,472	64	1,151	1,949	1,975	8,819
Tide stations established.....	7	1	3	3	5	26
Number of soundings over shell bottoms.....	19,344	1,080	8,123	13,880	20,213	137,552
Square miles covered by soundings and chain apparatus.....	57	6	21	47	77	361
Projections prepared and plotted.....	15	4	10	12	14	69
Leasing charts prepared.....	10	1	4	11	12	53
Oyster charts published.....	8	1	3	4	7	35
Reports published.....	2	2	2	2	2	15
Progress maps published.....	2	1	1	1	1	13

<sup>1</sup> These statistics do not include the large amount of triangulation, topography, and hydrography resulting from previous work of the Coast and Geodetic Survey, which was utilized in the preparation of the published oyster charts and records. Work in Kent, Queen Annes, Talbot, and Dorchester Counties has been finished, but final statistics of results will not be published until these counties are opened for oyster culture.

<sup>2</sup> Less quantities covered by statistics of more than one county.

<sup>3</sup> Total area of natural oyster bars of Connecticut, 5,770 acres.





CHART No. 31

CHART No. 32

# COAST AND GEODETIC SURVEY PROGRESS MAP TALBOT COUNTY MARYLAND

To accompany report of work of United States  
Coast and Geodetic Survey in cooperation  
with the Maryland Shell Fish Commission

- Landmarks (Coast Survey Triangulation Stations)
- - - - Waters contiguous to county
- - - - Waters within territorial limits of county
- - - - Limits of projections published on file at Washington
- - - - Limits of charts published by Coast and Geodetic Survey

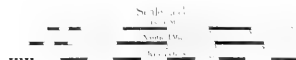


CHART No. 33

CHART No. 34

CHART No. 35

CHART No. 36

CHART No. 37



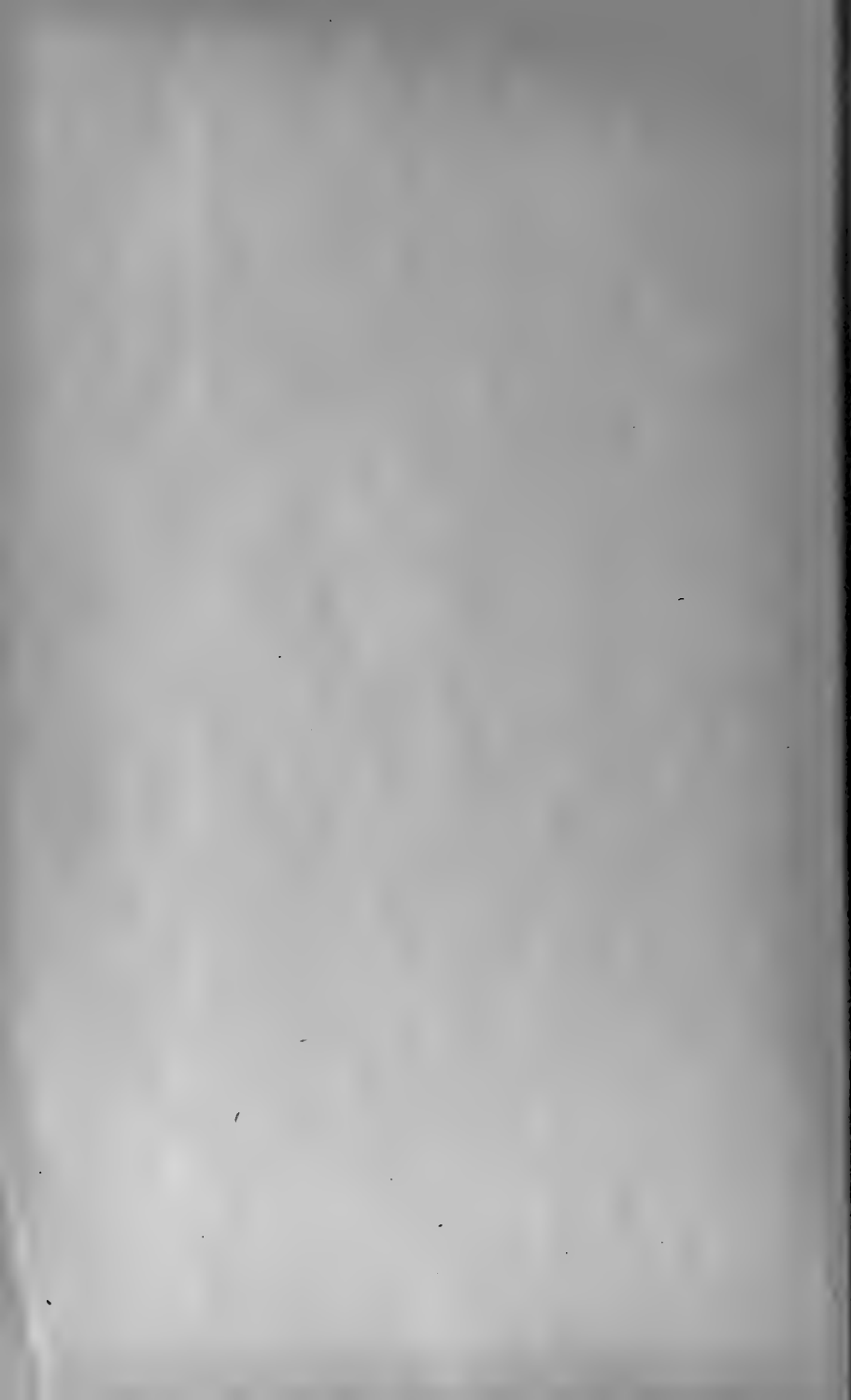
PLATE 100

1870

1870

CHART

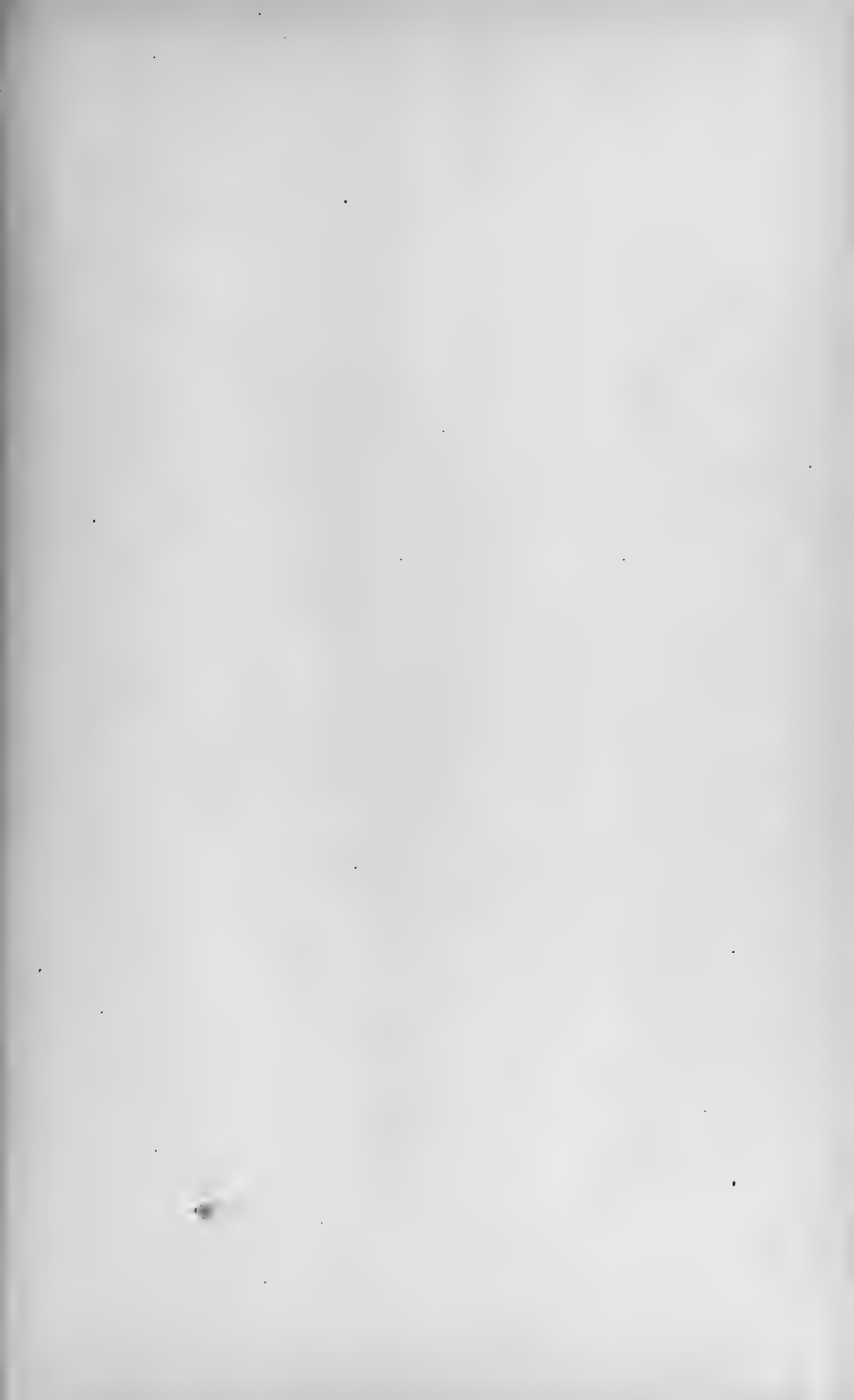














DEPARTMENT OF COMMERCE AND LABOR  
COAST AND GEODETIC SURVEY  
O. H. TITTMANN, Superintendent

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# SURVEY OF OYSTER BARS

## WICOMICO COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND REPORT  
OF WORK OF UNITED STATES COAST AND GEODETIC SUR-  
VEY IN COOPERATION WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND SHELL FISH COMMISSION

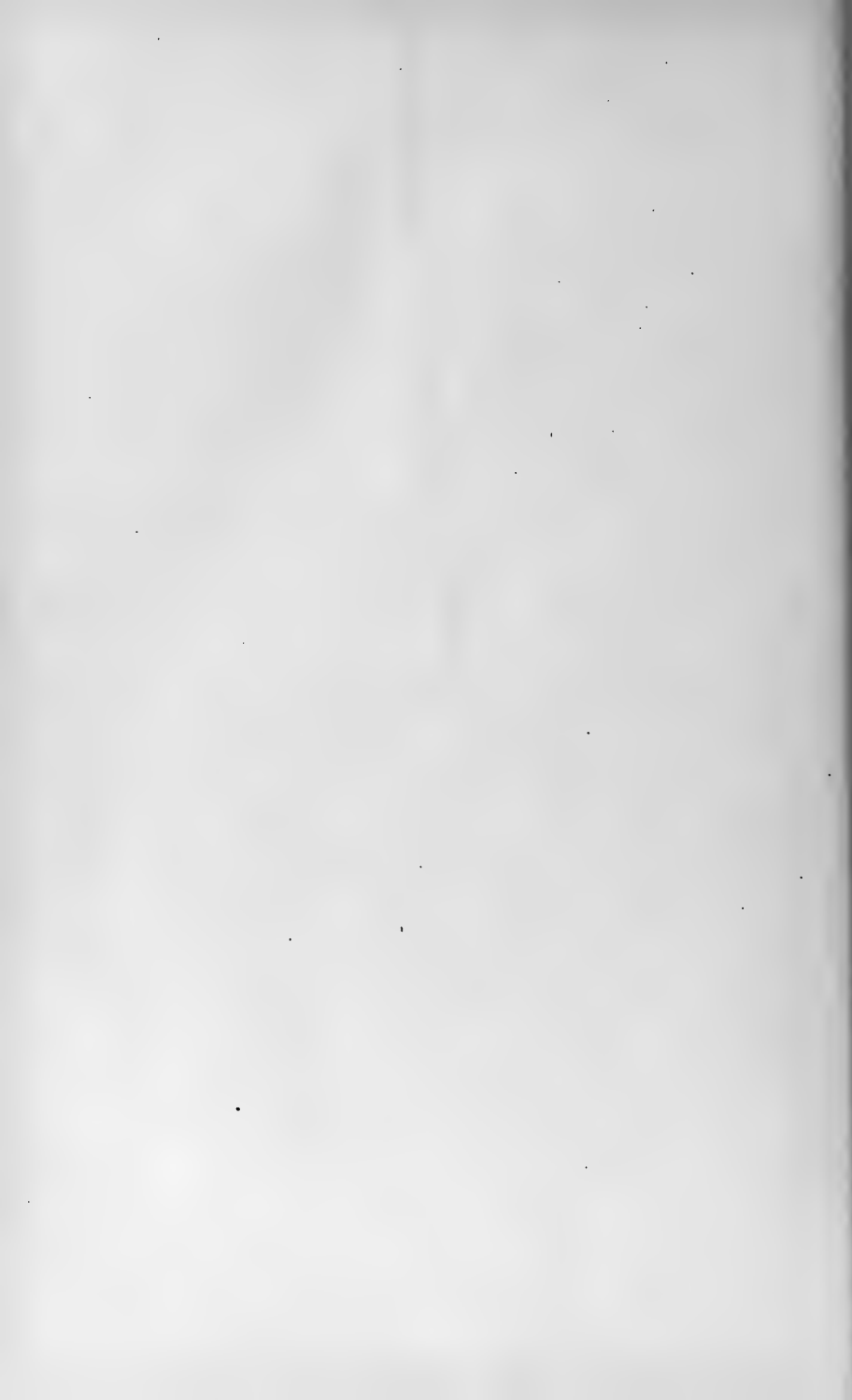
By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE

1909



## LETTER OF SUBMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, November 12, 1908.*

SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, and certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shell fish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, and 1909.

Respectfully,

O. H. TITTMANN, *Superintendent.*

To Hon. OSCAR S. STRAUS,  
*Secretary of Commerce and Labor.*





## CERTIFICATION.

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ANNAPOLIS, MD., *November 10, 1908.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in the waters of Wicomico County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,  
*Chief of Coast and Geodetic Survey Party,  
Assistant, Coast and Geodetic Survey.*

---

ANNAPOLIS, MD., *November 10, 1908.*

Examined and certified to be correct.

WALTER J. MITCHELL,  
CASWELL GRAVE,  
BENJAMIN K. GREEN,  
*Maryland Shell Fish Commission.*  
SWEPSON EARLE,  
*Hydrographic Engineer.*

NOTE.—As required by law, certified copies of this publication and of the charts of the natural oyster bars of "Wicomico County and Adjacent Waters" were filed in the office of the clerk of the circuit court of Wicomico County and in the office of the Board of Shell Fish Commissioners, at Annapolis, on December 1, 1908.



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# SURVEY OF OYSTER BARS, WICOMICO COUNTY, MD.

## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws<sup>a</sup> authorizing the work and the natural division of the surveying operations of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consist of a series of charts and a technical report for each county surveyed.<sup>b</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report<sup>c</sup> of the representative of the Coast and Geodetic Survey in charge of the work of that Service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.

The part prepared and issued by the State under the direction of the Shell Fish Commission consists of an annual report<sup>d</sup> of all the operations of the Commission performed under the provisions of the laws of Maryland,<sup>e</sup> including results of biological

<sup>a</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>b</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C. The publications ready for issue are those for Anne Arundel, Somerset, and Wicomico counties. Those for Worcester, Calvert, St. Marys, and Charles counties are now being prepared.

<sup>c</sup> See page 13 and the progress map attached to this publication.

<sup>d</sup> These reports can be obtained by application to the Shell Fish Commission, Annapolis, Md. They are issued annually in October, and the first report is now available for distribution.

<sup>e</sup> See Appendix B for an extract from the "First Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman Oyster Culture Law."

and economic oyster investigations, methods and results of the hydrographic survey of the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the Service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>a</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the Bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL REMARKS.

A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations

<sup>a</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, Assistant, Bureau of Fisheries.

performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest attainable accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation, it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a frame work or foundation. Therefore, a triangulation survey including the permanent marking of the positions of landmarks with monuments and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

The technical records which established the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation, as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the barren bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore, a topographic survey is a necessary operation of a complete oyster survey.

In the settlement of the important question of what is, or what is not, a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore, a hydrographic survey is a necessary operation of a complete oyster survey.

Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>a</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding boat party in addition to the usual hydrographic work.<sup>b</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells or absence of shells.

<sup>a</sup> See Appendix C of this publication for "Statistics of results of combined operations of the Government and State."

<sup>b</sup> See pages 104 to 123 of "First Annual Report of Maryland Shell Fish Commission."

*Survey of Oyster Bars, Wicomico County, Md.*

The special oyster investigations<sup>a</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affect the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>b</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for record and publication by the Government, the manufacture and planting of "State buoys" at all corners of the oyster-bar boundaries, the preparation of that part of the annual report of the Commission covering the oyster investigations, the making of the leasing charts and finished projections, and finally the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

<sup>a</sup> See pages 30 to 67 and 129 to 199 of "First Annual Report of Maryland Shell Fish Commission."

<sup>b</sup> No mention is made here of the large amount of administrative work of the Commission, which is greatly complicated and increased by the economic and political effect of the oyster-survey operations on many thousands of people whose interests are more or less involved.



# REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY.

## INSTRUCTIONS.

The two following letters, together with the laws<sup>a</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the Survey at Washington, has proved very beneficial to the work, and is greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

LAWRENCE O. MURRAY, *Assistant Secretary.*

His excellency Hon. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the commissioners, prepare a programme of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. and G. S. Steamer Endeavor, Baltimore, Md.*

## ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the

<sup>a</sup> For these laws see Appendix A.

field and the preparation for publication of charts and technical records in the Office at Washington.

The equipment for the work of the party has been ample and satisfactory. The large living and office quarters furnished the Government on the Maryland Shell Fish Commission house boat *Oyster* have been very convenient for the work, besides facilitating efficient cooperation with the surveying and oyster investigation parties of the State. In addition to the accommodations on the *Oyster*, the Coast and Geodetic Survey party has had the constant use of the large steam launch *Inspector* and several other boats furnished by its own Service, and the occasional use of the Bureau of Fisheries launch *Canvasback*<sup>a</sup> and the steamer *Governor McLane*<sup>b</sup> of the State fishery force.

The greater part of the equipment of instruments for the operations of both the Government and State has been furnished by the Coast and Geodetic Survey and consists of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

#### CHRONOLOGICAL STATEMENT OF WORK.<sup>c</sup>

On June 20, 1907, the work in connection with the publication of the "Charts of Natural Oyster Bars" and report<sup>d</sup> of "Survey of Oyster Bars" for Anne Arundel County was finally completed and the survey records and reports for that county were ready for filing in the archives of the Survey at Washington.

In addition to this work, a Coast and Geodetic Survey signal-building party was engaged in the erection of triangulation signals in Somerset County from May 2 to June 25 in cooperation with a signal-building party of the Shell Fish Commission.

From June 25 until the practical completion of the field work in Somerset and Wicomico counties on November 6, the usual routine of field and office work was followed without material interruption except that resulting from the moving of the house boat *Oyster* from Crisfield to Manokin River on July 13, then to Piney Island on August 27, and to Wicomico River on August 30, where she remained until her removal to Nanticoke River on September 30, 1907.

From this latter date the work in Wicomico County predominated until the field surveys of that county were completed, when the entire party left by rail for Worcester County, it being impracticable to move the house boat to the waters of that locality.

At the close of the survey work in Worcester County in the last part of December, office work relating to Somerset and Wicomico counties was begun at Baltimore,<sup>e</sup> and was continued without material interruption until March 23, 1908, when a subparty went to Worcester and Somerset counties to finish some details of field work in those sections required for the preparation of the technical reports and oyster charts.

<sup>a</sup> By courtesy of Dr. H. F. Moore, U. S. Bureau of Fisheries.

<sup>b</sup> By courtesy of Capt. James A. Turner, commanding.

<sup>c</sup> The field and office work relating to Somerset County is so intermixed with that of Wicomico County that this statement includes the work of both counties.

<sup>d</sup> See that report for an account of the work from July 3, 1906, to June 20, 1907.

<sup>e</sup> Office rooms were furnished for the work of the Government party in the "old court-house" and afterwards in the new custom-house by courtesy of Hon. William F. Stone, collector of customs.

The very large amount of work of computation and drafting necessary to make the results of the survey of the previous season available for publication was nearly completed on May 2, 1908, when it was transferred to the Government quarters on the house boat *Oyster*, which left Baltimore on the same day with the party and outfit for her anchorage off Solomons Island, in the Patuxent River.

On July 1, 1908, certified copies of the technical report and oyster charts of Somerset County were filed in the office of the clerk of the circuit court of Somerset County and in the office of the Board of the Shell Fish Commissioners, at Annapolis, thus opening that county for oyster culture on that date.

STATISTICS.<sup>a</sup>

Landmarks and triangulation signals erected.....	30
Monuments planted to mark triangulation stations.....	30
Triangulation stations occupied for observations of horizontal angles.....	32
Old triangulation stations recovered.....	5
New triangulation stations established.....	32
Total old and new triangulation stations marked and described.....	37
Linear miles of shore line covered by triangulation (approximate).....	46
Square miles covered by triangulation (approximate).....	44
Hydrographic projections prepared and completed as records of oyster boundaries.....	2
Triangles computed.....	80
Geographic positions computed.....	37
Corners of oyster boundaries established by computation.....	56
Back azimuths and distances computed from corners of boundaries to triangulation stations.....	168
Descriptions of triangulation stations prepared for publication.....	37
Descriptions of oyster boundaries prepared for publication.....	15
Total typewritten pages of manuscript prepared for publication of report.....	115
"Charts of Natural Oyster Bars" prepared for publication.....	2
Progress map prepared for publication.....	1

GENERAL STATEMENT.

The results obtained from the work of the Coast and Geodetic Survey in Wicomico County in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need no other summary than is indicated by the published "Charts of Natural Oyster Bars" and the scheme of hydrographic projections and triangulation stations shown on the progress map at the end of this report.

The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars, but also to the Government for any future work it may do in the regions covered by the oyster survey operations.

The hydrographic projections and published charts were prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various

<sup>a</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of Wicomico County, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the Commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland.

shell-fish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to by published technical descriptions which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County:"

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last sixty-five years.

In fact, when the survey of the oyster bars of Maryland is completed, it is believed that it will stand the test of time and practical use as a working foundation for whatever form the oyster legislation of the future may assume, and that the doing of the work systematically and accurately, once for all, not only means a better foundation of a great oyster industry by irradicably locating the natural oyster bars for the use of the public, but also a better and more permanent superstructure of oyster culture for the individual by the reason of the integrity of the foundation on which it stands.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unflinching tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the Commission, who, as editor of the Commission's annual report and commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Benjamin K. Green, treasurer of the Commission, who has looked after the equipment and commissary of the house boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

To Thomas H. Robinson, counsel to the Commission, for courteously furnishing valuable information relating to county boundaries.

And to the many others connected with the Commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

## CHARTS AND MAPS.

### CHARTS OF NATURAL OYSTER BARS.

The charts<sup>a</sup> of the natural oyster bars of "Wicomico County and Adjacent Waters," published by the Coast and Geodetic Survey from results of surveys of the Government in cooperation with the Maryland Shell Fish Commission, consist of two sheets covering the eastern shore of Nanticoke River and the northern shore of Wicomico River, including all oyster-producing bottoms of Wicomico County. They are published on a scale of 1 part in 20,000 (approximately  $3\frac{1}{4}$  inches to a statute mile) and are constructed on polyconic projections and based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars and other boundaries established by the Commission, and are certified for the purpose of filing in the office of the clerk of the circuit court of Wicomico County and in the office of the Commission at Annapolis, as required by the oyster laws of Maryland.

In addition to the oyster-bar and other boundaries, the charts show the location and name of all landmarks (U. S. Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography<sup>b</sup> necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the headings of "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a

<sup>a</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>b</sup> Much of the details of the inshore topography was obtained from the excellent map of Wicomico County prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the U. S. Geological Survey.

particular oyster bar or landmark which is only known by name, consult the "Contents" and the desired chart and general location will be indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey. Four curves were selected as being the most convenient for taking off from the original hydrographic sheets and the ones of greatest value to those interested in shell-fish industries. The 1-fathom contour (6 feet) corresponds in a general way to the outer limits of the crab bottoms, while the waters outside of this curve and inside the 5-fathom contour (30 feet) practically include all the oyster bars surveyed. The 3-fathom contour (18 feet) furnishes the curve of about the average depth of water on the oyster bars and the 10-fathom contour (60 feet) serves in a general way to indicate the outer limits of probable oyster culture.

The boundaries of the waters within the "territorial limits of the county" opened up for the leasing with Wicomico County are plainly indicated on the charts. A description of this boundary is given in this publication under the heading "Boundaries of the county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart and are usually located within the boundaries of the different areas.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Wicomico County, like those for Anne Arundel and Somerset counties, have been prepared under the direction of the hydrographic engineer of the Commission. These charts are constructed on polyconic projections and based on the United States standard datum of the Coast and Geodetic Survey. They are made on the scales of 1 part in 5,000 or 1 part in 10,000, as the needs of oyster culture may require. Anne Arundel County required 13 leasing charts, Somerset County 12, and Wicomico County 2 to cover their oyster bottoms.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts have been divided by parallels of latitude and meridians of longitude into small

rectangles of 1 acre or 5 acres, as may be best suited to area under consideration, and prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as practicable.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in Annapolis.

#### PROJECTIONS.

The polyconic projections<sup>a</sup> covering Wicomico County waters are 2 in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, who also plotted the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the office of the Shell Fish Commission at Annapolis.

#### PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the U. S. Coast and Geodetic Survey in Wicomico County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress map<sup>b</sup> accompanying the "First Annual Report of the Maryland Shell Fish Commission" was prepared under the direction of the hydrographic engineer of the Commission. It is on the scale of 1 part in 400,000 and shows the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey of Maryland.

<sup>a</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>b</sup> This map and report can be obtained by application to Maryland Shell Fish Commission, at Annapolis, Md.

## BOUNDARIES OF THE COUNTY WATERS.<sup>a</sup>

### WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>b</sup> between the waters "within the territorial limits" of Wicomico County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the charts and the smooth projections of the Coast and Geodetic Survey, is identical with the boundary line between Wicomico County and the adjacent counties of Dorchester and Somerset; therefore technically all waters opened up for leasing with Wicomico County are within the "territorial limits" of that county.

### WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the U. S. Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners in the city of Annapolis," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county, and the waters contiguous to but not within the territorial limits of adjacent counties. But technically, as explained under the preceding heading of "Waters within territorial limits of county," there are no "waters contiguous to the county" in Wicomico County; and therefore there are no waters opened up for leasing with that county in which a person can lease "a greater amount than ten acres."

<sup>a</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, Superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>b</sup> See "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and the progress map at the end of this publication.



## LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION OF DESCRIPTIONS OF LANDMARKS.

The oyster laws of Maryland authorizing the surveys to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of locations of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking to find a landmark has only an indefinite idea of its location. They then gradually proceed from general descriptions of the surroundings of a landmark to the specific details of the character of the center and reference markings. An examination of the descriptions themselves will best indicate the method followed.

The heading of each description is the name by which the landmark or triangulation station is known and designated in all work and records of the Government and State.

Under the heading of "Locality" the first paragraph gives a description of the general locality of the landmark and the serial number of the published "Chart of Oyster Bars" of Maryland which best shows its location. The published charts are on the large scale of 1 part in 20,000, and show the location of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

Under the same heading of "Locality" the second paragraph furnishes the description of the immediate locality of the landmark and refers to the bearing and distance of standard cement monument marking the reference station, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached.

Under the heading of "Marks" a description is given of the character of the markings of the "observed station" and the reference station. It will be noted that, although

the "observed station" is the one "occupied" and "observed on" for horizontal angles, and also the one whose geographic position is computed, frequently it is not marked as well as the reference station, and in many instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate these stations on edges of banks and ends of points of land, which in Chesapeake Bay and tributaries generally means that they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the necessity of reference marks, if the frequent reestablishment of a new framework of triangulation is to be avoided.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom, the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

It is the expectation that the reference stations,<sup>a</sup> the character of which is explained above, will be used in many cases in the near future in the place of the "observed stations." This has been made possible by the careful measurements of direction and distance of these stations from the "observed station," which are recorded under the heading of "References."

Under the heading of "References" are given the directions and distances of all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>b</sup> of the initial object is always given in parenthesis alongside the name. This furnishes means for the calculation of the bearings of any of the other

<sup>a</sup>To obtain the geographic positions of any of the "observed stations" or of the "reference stations," application should be made to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

<sup>b</sup>The mean magnetic variation for Wicomico County is  $5^{\circ} 45'$  west of north (1908) and is increasing at the rate of  $3'$  yearly.

reference objects for the purposes of locating a station by compass bearings or for the relocation of corner buoys of oyster-bar boundaries by the method of horizontal angles described in this publication under the heading of "Boundaries of oyster bars."

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters," however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner the accuracy of the directions are indicated by the refinement of direction with which they are recorded.

DESCRIPTIONS OF TRIANGULATION STATIONS.

COW.

*Locality.*—Western shore Nanticoke River on Mink Point about ¼ mile east of entrance to Cow Creek. (See Charts Nos. 11 and 12.)

Observed station is on a very soft marsh point at the outer edge of water bushes about 5 yards back from the shore to the east, 15 yards from extreme end of point to the southeast, and 15 yards from the shore to the southwest. No permanent reference objects near station. Cement monument marking reference station is 8.68 meters northwest of observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Frog" (S 6° 13' W).....	0	00	00	2 miles.
A shanty.....	37	16	--	¾ mile.
REFERENCE STATION.....	129	19	20	8.68 meters
White shanty.....	189	53	--	1 mile.
A shanty.....	209	52	--	½ mile.
Tangent of land.....	217	43	--	½ mile.
Large red roof greenhouse.....	236	48	--	2½ miles.
Windmill.....	243	52	--	2¾ miles.
Gambrel of house.....	244	13	--	2½ miles.
Chimney of large greenhouse.....	254	24	--	2¼ miles.
Canning house stack.....	257	28	--	1¾ miles.
Canning house stack.....	275	26	--	1½ miles.
Near corner of Nanticoke wharf.....	284	49	--	1½ miles.
Large red roof white house.....	297	32	--	2½ miles.
Large red roof white house.....	299	24	--	2½ miles.
Right tangent of Nanticoke woods.....	310	15	--	3 miles.
Left tangent of Sandy Point.....	341	48	--	1½ miles.

OKAY.

*Locality.*—Western shore of Nanticoke River about ⅓ mile south of Swan Creek Cove on Marsh Point. (See Chart No. 11.)

Observed station is on marsh land about 2 feet above and 10 yards back from high-water mark. A shanty known as Insleys watch house stands about 35 yards north of observed station. No other permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
Bivalve Church (N 84° 32' E).....	0	00	00	2½ miles.
Chimney of red roof house.....	20	38	--	2½ miles.
Windmill tower.....	46	41	--	2½ miles.
Tangent of land.....	92	23	--	1¾ miles.

## Survey of Oyster Bars, Wicomico County, Md.

## References—Continued.

	°	'	"	
Tangent of land.....	105	45	--	150 yards.
Left side of watch house.....	249	17	--	35 yards.
Right side of watch house.....	258	17	--	35 yards.
Space between chimneys of large white house.....	340	43	--	3¼ miles.
Tangent of Bivalve wharf.....	355	31	--	2¼ miles.
Stack of canning house.....	359	12	--	2¼ miles.

## AR.

*Locality.*—Western shore of Nanticoke River about 1½ miles northwest by west of Bivalve wharf. (See Chart No. 11.)

Observed station is on marsh land between two small creeks about 40 yards back from high-water mark. It is about 43 yards northwest of the mouth of one creek, and 35 yards west-southwest of mouth of the other creek. No permanent objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
"Nanticoke Church" (S 13° 34' E).....	0	00	00	3¾ miles.
Right edge Sandy Point woods.....	23	58	--	4 miles.
Smoke pipe of cabin near "Okay".....	42	57	--	1½ miles.
Chimney on house.....	46	26	--	½ mile.
Left tangent of first woods.....	81	20	--	2¾ miles.
Left tangent of long thick woods.....	98	53	--	1 mile.
Left edge short thick woods.....	134	11	--	1 mile.
Chimney of red roof cabin.....	247	47	--	½ mile.
Houses with several gables.....	262	18	--	3 miles.
Right edge Wetipquin woods.....	274	37	--	2¼ miles.
Chimney of house behind trees.....	302	43	--	2 miles.
Windmill.....	319	03	--	2 miles.
Stack of canning house.....	320	15	--	2 miles.
Chimney of house on Ragged Point.....	350	33	--	2¼ miles.
Windmill.....	352	57	--	3¼ miles.

## GOVER.

*Locality.*—Northwestern shore of Nanticoke River 1¾ miles west-northwest of entrance to Wetipquin Creek and ½ mile north of cove named Perch Haul. See Chart No. 11.)

Observed station is on a point of marsh covered with grass and water bushes, and is about 15 yards northwest from extreme end of point. A shanty stands among the bushes and small trees about 200 yards to the west-southwest. A clump of about 50 pine trees stands about ¼ mile west and another clump stands about ¼ mile northwest.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
Bivalve Church (S 21° 30' E).....	0	00	00	2¾ miles.
Tangent of land.....	35	24	--	1 mile.
Left side of opening in woods.....	72	06	--	2 miles.
Two pine trees together.....	83	07	--	¾ mile.
Center of shanty.....	98	26	--	200 yards.
Clump of pine trees.....	123	56	--	¼ mile.
Clump of pine trees.....	176	20	--	¼ mile.
Inside edge of cove.....	201	45	--	100 yards.
Clump of small pine trees.....	255	31	--	¼ mile.
Tangent to point of land.....	269	35	--	1½ miles.
Left tangent of Sandy Hill wharf.....	276	02	--	3 miles.
Large house.....	286	27	--	3¼ miles.
Left edge of pine woods near Wetipquin Creek.....	328	13	--	2 miles.

STREETT.

*Locality.*—Northwestern shore of Nanticoke River on point on southwest side of entrance to Jacks Creek. (See Chart No. 11.)

Observed station is on a marsh and grass point 7 yards west from its extreme end and about 4 yards from each side of point to north and south. Cement monument marking reference station is 11.89 meters west of observed station.

*Marks.*—Observed station is nail in pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Earle" S 45° 01' E)-----	0	00	00	----- 1 mile.
A shanty-----	0	41	-----	----- 1 mile.
Large white house with red roof-----	27	08	-----	----- 2½ miles.
Canning-house stack at Tyaskin-----	33	42	-----	----- 1¾ miles.
Large white building-----	36	42	-----	----- 1¾ miles.
Point of marsh-----	47	33	-----	----- 100 yards.
First of four trees-----	135	01	-----	----- ½ mile.
REFERENCE STATION-----	164	39	00	----- 11.89 meters.
Point of marsh-----	255	02	-----	----- 30 yards.
House on the other side of Jacks Creek-----	258	13	-----	----- ½ mile.
Left tangent of Sandy Hill wharf-----	309	38	-----	----- 1¼ miles.
White house-----	318	08	-----	----- 1½ miles.

EARLE.

*Locality.*—Southeast shore of Nanticoke River about one mile below Sandy Hill wharf. (See Chart No. 11.)

Observed station is on sand and grass land between river and pine grove, and about 80 yards back and 5 feet above high-water mark. A white oak tree about 2½ feet in diameter stands between station and river and another and larger white oak tree stands about 15 yards to the northeast. There is a shanty about 20 yards to the west and a sand beach northwest of the station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Juliet" (S 41° 05' W)-----	0	00	00	----- 1¼ miles.
Nail in blaze in white oak tree (2½ feet in diameter)-----	88	44	30	----- 13.98 meters.
Nail in blaze in pine tree-----	160	39	00	----- 19.05 meters.
Nail in blaze in oak tree (2½ feet in diameter)-----	196	35	40	----- 13.95 meters.
Nail in blaze in pine tree-----	326	01	00	----- 15.76 meters.
Right tangent of woods on other side of Wetipquin Creek-----	358	52	-----	----- 1½ miles.

JULIET.

*Locality.*—Eastern shore of Nanticoke River on point on southwest side of entrance to Wetipquin Creek. (See Chart No. 11.)

Observed station is on sand and marsh point about 100 yards southwest of entrance to Wetipquin Creek. It is about 10 yards back from high-water mark and about 5 yards outside of several small pine trees. Very dense pine woods stand about 100 yards to the south of the station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Earle" (N 41° 04' E)-----	0	00	00	----- 1¼ miles.
Nail in blaze in pine tree-----	29	41	30	----- 4.92 meters.
Near point of roof of oyster house-----	40	05	-----	----- 300 yards.
Left edge of woods-----	64	21	-----	----- 200 yards.

## References—Continued.

	°	'	"	
Nail in blaze in pine tree.....	71	17	00	6. 31 meters.
Nail in blaze in pine tree.....	98	20	00	6. 88 meters.
Right edge of woods.....	163	52	--	200 yards.
Right tangent of Bivalve wharf.....	170	02	--	1½ miles.
Two-story white house.....	210	06	--	2½ miles.
Two-story white house with red roof.....	228	37	--	¾ mile.
Opening in woods.....	230	16	--	3 miles.
Gray house at Jacks Creek.....	324	00	--	1¾ miles.
Tangent of land.....	345	58	--	150 yards.
Tangent of land.....	354	49	--	150 yards.

## POLE.

*Locality.*—Eastern shore of Nanticoke River on wharf off town of Bivalve, located about 1¼ miles northeast of Ragged Point. (See Chart No. 11.)

*Marks.*—Observed station is flagpole on western peak of a house on wharf at Bivalve about 300 yards from shore.

*References.*—None necessary.

## BIVALVE CHURCH.

*Locality.*—Eastern shore of Nanticoke River about ¾ mile back from shore in town of Bivalve on main road leading to the steamer landing. (See Chart No. 11.)

*Marks.*—Observed station s center of steeple on Bivalve Methodist Church.

*References.*—None necessary.

## RAG.

*Locality.*—Eastern shore of Nanticoke River on northern side Ragged Point. (See Chart No. 11.)

Observed station is on a sandy point about 25 yards back from high-water mark and 100 yards northeast from extreme end of point. A grove of pine trees stands about 50 yards to the east and two groups of pine trees about 20 and 75 yards to the northeast. Two pine trees each 15 inches in diameter and 2½ feet apart stand about 20 yards to the east of the station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
Nanticoke Church (S 1° 46' E).....	0	00	00	1½ miles.
Left end of Sandy Point.....	29	17	--	3½ miles.
Chimney on house near "Cow".....	51	48	--	2½ miles.
Large tree at left end of woods.....	130	20	--	3¼ miles.
Left one of two trees (opposite shore).....	169	56	--	3¼ miles.
Flag pole on Bivalve wharf.....	201	11	--	1¼ miles.
Smoke pipe on Bivalve wharf house.....	207	14	--	1¼ miles.
Nail in stump of limb on pine tree.....	218	35	--	32. 78 meters.
Nail in blaze in double pine tree.....	258	01	--	19. 66 meters.
Nail in blaze in large pine tree.....	293	26	--	43. 19 meters.
Chimney on a white house.....	303	29	--	135 yards.
Windmill near large house.....	344	13	--	¾ mile.
Steeple on a barn.....	356	40	--	1 mile.
Large chimney on large flat-roof house.....	357	10	--	1 mile.

## NANTICOKE CHURCH.

*Locality.*—Eastern shore of Nanticoke River in town of Nanticoke, about ¼ mile back from river and ¾ mile northeast of Roaring Point. (See Charts Nos. 11 and 12.)

*Marks.*—Observed station is center point of spire of church known as "Nanticoke Methodist Episcopal Church."

*References.*—None necessary.

## CRAB.

*Locality.*—Upper end and western shore of Tangier Sound on eastern side of Bloodworth Island about  $2\frac{5}{8}$  miles southeast of Sharkfin Shoal Light and about halfway between Piney Island Cove to north and Great Cove to south. (See Chart No. 12.)

Observed station is about 15 yards from high-water mark to the northeast and about 35 yards from the shore to the east. A small flat-roof crab house stands about 80 yards to the north-northeast and another crab house about twice the distance in the same direction.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sharkfin Shoal Light" (N 45° 25' E).....	0	00	00	2 $\frac{5}{8}$ miles.
Left end of large white house near Stump Point.....	6	11		7 $\frac{3}{8}$ miles.
End of roof of white house on bluff.....	31	36		6 $\frac{1}{4}$ miles.
End of Deal Island wharf.....	53	03		3 $\frac{3}{4}$ miles.
Large white house near red roof house.....	72	35		4 $\frac{1}{4}$ miles.
Aspen tree near "Joshua".....	88	06		5 $\frac{1}{8}$ miles.
Tall pine tree.....	165	00		1 $\frac{1}{2}$ miles.
Near end of flat-roof shanty.....	288	32		80 yards.
Flag pole on Brown's crab house.....	299	01		150 yards.

## SHARKFIN SHOAL LIGHT.

*Locality.*—Northern end of Tangier Sound about equally distant from entrances of Hooper Strait, Fishing Bay, and Nanticoke River. (See Chart No. 12.)

*Marks.*—Observed station is center point of black lantern on hexagonal screw pile known as "Sharkfin Shoal Light."

*References.*—

"Great Shoals Light" (N 81° 45' E).....				5 $\frac{1}{8}$ miles.
---	--	--	--	------------------------

## HEAD.

*Locality.*—Upper end of Tangier Sound, on southern part of peninsula known as "Bishops Head," situated between Hooper Strait and Fishing Bay. (See Chart No. 12.)

Observed station is on eastern side of marsh land about  $\frac{1}{2}$  mile north of extreme southerly end of Bishops Head and about 15 yards east of two crab houses. It is about 15 yards southwest of high-water mark, behind water bushes which skirt the shore. Cement monument marking reference station is 13.41 meters west from observed station.

*Marks.*—Observed station is a nail in a pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Sharkfin Shoal Light" (S 60° 41' E).....	0	00	00	2 $\frac{3}{4}$ miles.
Crab-house flagstaff.....	50	30		3 $\frac{1}{4}$ miles.
Large pine.....	97	42		2 miles.
REFERENCE STATION.....	139	55	40	13.41 meters.
Near gable of 2 $\frac{1}{2}$ -story white house.....	140	24		$\frac{1}{4}$ mile.
Chimney on white house.....	156	44		$\frac{1}{8}$ mile.
Left side of crab house.....	166	38		17.31 meters.
Right side of crab house.....	199	54		16.11 meters.
Chimney on yellow house.....	208	28		1 $\frac{1}{2}$ miles.
Chimney on end of white house.....	238	53		3 miles.
Right side of Nanticoke Point woods.....	326	56		7 $\frac{1}{4}$ miles.

## FROG.

*Locality.*—West shore of mouth of Nanticoke River, on the southeasterly point of Clay Island, known as "Frog Point." (See Chart No. 12.)

Observed station is on a marsh point about 25 yards back from extreme end of point, 20 yards from the east side and 25 yards from the west side. Water bushes abound back of station. There are no permanent reference objects near station. Cement monument marking reference station is 13.10 meters north of observed station.

*Marks.*—Observed station is nail in stub flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sharkfin Shoal Light" (S 41° 25' W).....	0	00	00	3½ miles.
Left tangent of Clay Island.....	35	17	--	1¼ miles.
REFERENCE STATION.....	141	45	50	13.10 meters.
Right tangent of Sandy Point.....	177	41	--	¾ mile.
Chimney on white house with black roof....	179	12	--	2½ miles.
Chimney on near end of large red-roof white house.....	183	02	--	2½ miles.
Stack of canning house.....	184	36	--	2½ miles.
Land end of Nanticoke wharf.....	184	36	--	2½ miles.
End of Nanticoke wharf house.....	186	00	--	2¼ miles.
Chimney on ell end of main part of large red-roof white house.....	211	27	--	2¼ miles.
Right tangent of Nanticoke Point woods....	238	44	--	2¾ miles.
Large square chimney on white house (Dames Quarter).....	264	17	--	4 miles.
Rock Creek poplar tree.....	284	17	--	3½ miles.
Flagstaff on Deal Island wharf.....	322	09	--	4¾ miles.

## ROAR.

*Locality.*—Eastern shore of Nanticoke River on point of land known as Roaring Point, and about ¼ mile north from outer end of Roaring Point wharf. (See Chart No. 12.)

Observed station is 30 yards to the east of the extreme end of the point and on a sandy knoll about 5 feet above high-water mark. It is about 20 yards back from high-water mark on the north side and about 40 yards back from high-water mark on south side of the point. Pine woods stand about 150 yards inshore from station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Frog" (S 39° 02' W).....	0	00	00	2½ miles.
Two shanties.....	19	17	--	2 miles.
One shanty.....	30	20	--	1¾ miles.
A shanty.....	71	32	--	1¼ miles.
White shanty.....	98	53	--	1¾ miles.
Barn steeple.....	117	41	--	4½ miles.
White shanty behind "Okay".....	121	25	--	2¾ miles.
Red roof house.....	144	42	--	7½ miles.
Twin trees on Ragged Point.....	159	30	--	2 miles.
Chimney on white house.....	175	23	--	1½ miles.
Windmill.....	184	04	--	1 mile.
Gambrel roof house.....	184	32	--	1 mile.
White canning house stack.....	195	11	--	½ mile.
Land end of wharf.....	271	58	--	¼ mile.
Large house.....	293	38	--	1½ miles.
Right tangent of Nanticoke Point woods....	297	22	--	2½ miles.
Right tangent of Nanticoke wharf.....	304	52	--	¾ mile.
Left tangent of Sandy Point.....	359	51	--	1¾ miles.



NANTI.

*Locality.*—Eastern side of entrance to Nanticoke River about  $\frac{1}{4}$  mile northwest of Nanticoke Point. (See Chart No. 12.)

Observed station is on grassy land about 2 feet above and 20 yards back from high-water mark. It is about midway between edge of woods on Nanticoke Point and unpainted house near poplars  $\frac{1}{4}$  mile to the north.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Sharkfin Shoal Light" (S 65° 14' W).....	0	00	00	5 miles.
Tangent of Sandy Point.....	51	33	--	2 $\frac{1}{4}$ miles.
Left end of Nanticoke wharf.....	89	45	--	2 miles.
Near chimney of red roof house.....	96	51	--	$\frac{3}{4}$ mile.
Chimney of unpainted house.....	101	08	--	$\frac{1}{4}$ mile.
Near chimney of house nearest woods.....	116	56	--	$\frac{1}{4}$ mile.
Tree high above woods.....	119	53	--	2 $\frac{1}{4}$ miles.
Right end of heavy woods.....	134	03	--	1 $\frac{1}{4}$ miles.
Right end of scant woods.....	147	11	--	$\frac{3}{4}$ mile.
Wild cherry tree.....	178	24	--	50 yards.
Left end of woods.....	227	46	--	$\frac{1}{4}$ mile.
Right end of woods.....	269	45	--	$\frac{1}{4}$ mile.
Poplar tree Dames Quarter.....	307	28	--	2 $\frac{3}{4}$ miles.
Tangent of Haines Point.....	330	55	--	4 $\frac{1}{2}$ miles.

WHITE.

*Locality.*—Eastern shore of entrance to Nanticoke River on western part of Nanticoke Point. (See Chart No. 12.)

Observed station is on a sand and grass point about 2 feet above high-water mark, 3 yards from the west side, 15 yards from the south end, and 20 yards from southeast side. Dense pine woods stand about 100 yards to the northwest, open marsh to the northeast, and a clump of about a dozen pine trees in marsh about  $\frac{3}{4}$  mile to the northeast. There is a cove about 40 yards east of the station and another point of land about 100 yards to the southeast. Cement monument marking reference station is 16.63 meters north of observed station.

*Marks.*—Observed station is a nail in a pine stub about 6 inches below surface or ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	0	'	"	
"Great Shoals Light" (S 44° 16' E).....	0	00	00	1 $\frac{1}{4}$ miles.
Poplar tree at Dames Quarter.....	65	08	--	2 $\frac{1}{2}$ miles.
Tangent of Hall Point.....	86	06	--	3 $\frac{3}{4}$ miles.
Tangent of Sandy Point.....	164	17	--	3 miles.
Left end of pine woods.....	172	27	--	100 yards.
Right end of pine woods.....	213	21	--	150 yards.
REFERENCE STATION.....	227	29	00	16.63 meters.
Largest tree in clump of about 12 pines.....	247	23	--	$\frac{3}{8}$ mile.
Chimney on cabin on Ellis Point.....	279	05	--	2 miles.
White house.....	311	54	--	$\frac{1}{2}$ mile.
Point of land.....	335	02	--	100 yards.

ELLA.

*Locality.*—North shore of Wicomico River on point at east side of entrance to Ellis Bay. (See Chart No. 12.)

Observed station is on a marsh point about 1 foot above high-water mark. It is about 10 yards back from the shore to the west, 20 yards back from the shore to the south, and 20 yards back from the shore to the north. No permanent reference objects near station.

## Survey of Oyster Bars, Wicomico County, Md.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Great Shoals Light" (S 9° 49' W).....	0	00	00	2 miles.
Tangent of land on Mollies Point.....	5	14	--	1 mile.
Watch house.....	26	10	--	½ mile.
Left of woods on Nanticoke Point.....	44	23	--	1½ miles.
Right of woods on Nanticoke Point.....	52	33	--	1½ miles.
Chimney of white house.....	135	45	--	2 miles.
Chimney of gray house.....	142	43	--	2 miles.
Chimney of white house.....	249	27	--	200 yards.
Mount Vernon Church.....	257	58	--	2¼ miles.
Chimney on middle of white house.....	274	28	--	1½ miles.
Chimney on cream and brown house.....	290	49	--	1 mile.
Chimney on brown house.....	291	03	--	1 mile.
Smoke pipe of watch house.....	306	57	--	1 mile.

## HOLLAND.

Locality.—North shore of Wicomico River on Holland Point about 1¼ miles west of Mount Vernon Church, and 1¼ miles east of Ellis Bay. (See Chart No. 12.)

Observed station is on a marsh point about 20 yards north of high-water mark on its extreme end and about 100 yards west of a creek. A small cabin stands about 200 yards to the west.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Wind" (S 28° 35' W).....	0	00	00	1¼ miles.
Great Shoals Light.....	4	34	--	2¾ miles.
Tangent of Mollies Point.....	18	39	--	2 miles.
Left tangent of woods on Nanticoke Point.....	34	33	--	2¾ miles.
Right tangent of woods on Nanticoke Point.....	39	28	--	2¾ miles.
Chimney of house near Ellis Bay.....	46	19	--	1½ miles.
Chimney of cabin.....	56	14	--	200 yards.
Chimney on left end of large red roof building.....	91	56	--	3 miles.
Large chimney on white house.....	188	31	--	1½ miles.
Chimney of slate-colored house.....	230	43	--	1½ miles.
Chimney on middle of light-blue house.....	240	48	--	1 mile.
Chimney on 2½-story light-green house.....	266	41	--	¾ mile.
Right chimney on white house.....	317	29	--	½ mile.

## CHILD.

Locality.—North shore of Wicomico River about ⅞ mile north of Mount Vernon Church. (See Chart No. 12.)

Observed station is on marsh land about 2 feet above and 15 yards back from high-water mark. There is an old wharf about 300 yards to the east and at a point about 100 yards to the north, two creeks join and form a single creek about 20 feet wide which flows into the river at a point about 15 yards west of observed station.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Mount Vernon Church" (S 10° 15' E).....	0	00	00	⅞ mile.
Chimney on white house in woods on opposite shore.....	3	23	--	¾ mile.
Chimney on white house on sand bluff on opposite shore.....	15	32	--	⅝ mile.
Smoke pipe on large white house.....	19	55	--	¾ mile.
Chimney on brown house.....	48	14	--	1½ miles.

References—Continued.

	°	'	"	
Great Shoals Light.....	49	33	-----	3¼ miles.
Tangent of Holland Point.....	62	44	-----	1¼ miles.
Fork of creek.....	183	08	-----	100 yards.
Chimney of large house.....	206	39	-----	2 miles.
Chimney of another large house.....	238	43	-----	¾ mile.
Mount Vernon wharf smoke pipe.....	293	12	-----	1½ miles.
Large white house in woods.....	324	03	-----	¾ mile.
Cream-colored house in woods.....	345	47	-----	½ mile.

CREEK.

Locality.—North shore of Wicomico River about ¾ mile northwest of Mount Vernon wharf and about 1¾ miles northeast of Mount Vernon Church. (See Chart No. 12.)

Observed station is on a marsh grass and sand point making out to the south and about 10 yards from the high-water mark of each of the three sides of the point. About 10 yards west of observed station is the mouth of a creek or drain 10 feet wide which runs only a short distance inland. There are several unpainted houses within 200 yards of observed station and a lone pear tree stands about 200 yards to the north. There is a cultivated field about 150 yards back of station which extends to edge of woods ¼ mile distant.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Mount Vernon Church" (S 30° 39' W).....	0	00	00	----- 1¾ miles.
Chimney on light-blue house with red blinds..	13	46	-----	1¼ miles.
Lone tree.....	72	59	-----	1 mile.
Chimney of old unpainted house.....	108	18	-----	300 yards.
Chimney of light-green trimmed house.....	135	15	-----	200 yards.
Pear tree.....	159	48	-----	200 yards.
Left chimney of cream-colored house.....	218	06	-----	300 yards.
Tangent of cove.....	224	--	-----	30 yards.
Smoke pipe on Mount Vernon wharf.....	282	34	-----	¾ mile.
Chimney outside yellow house.....	312	04	-----	¾ mile.
Chimney on slate-colored house.....	352	57	-----	¾ mile.

END.

Locality.—North shore of Wicomico River opposite Mount Vernon wharf. (See Chart No. 12.)

Observed station is on marsh land about 3 feet above and about 100 yards north of high-water mark in river and about 75 yards to the northwest of a large creek which runs about 2 miles inland. Water bushes skirt shore around station.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	°	'	"	
"Jones" (S 60° 33' W).....	0	00	00	----- ¾ mile.
Chimney on white house.....	7	24	-----	1 mile.
Tangent of land.....	12	28	-----	1 mile.
Near chimney of cream-colored house.....	68	25	-----	½ mile.
Cupola on red barn.....	155	21	-----	¾ mile.
Old-style windmill.....	163	26	-----	¾ mile.
Chimney of Whitehaven Hotel.....	171	09	-----	1¼ miles.
Webster's canning house.....	252	28	-----	½ mile.
Right-hand chimney on gray house.....	273	42	-----	½ mile.
Left side of Mount Vernon wharf.....	294	13	-----	¾ mile.
Stack of Dashiell's canning house.....	304	52	-----	¾ mile.
Middle attic window of white house.....	328	54	-----	½ mile.
Chimney outside of yellow house.....	352	12	-----	½ mile.

## WALNUT.

*Locality.*—South shore of Wicomico River about 175 yards east of Mount Vernon wharf. (See Chart No. 12.)

Observed station is on marsh land about 17 feet from shore and 50 yards west of a small creek. Several large walnut and locust trees stand about 250 yards south of station and 2 houses and 2 sheds about 250 yards to the southwest.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Jones" (S 83° 49' W)-----	0	00	00	¾ mile.
Right side of Mount Vernon wharf house-----	17	18	--	175 yards.
Chimney outside of white house-----	46	52	--	1 mile.
Left chimney of gabled house-----	53	47	--	1 mile.
Old-style windmill-----	121	00	--	½ mile.
Left end of roof of Whitehaven wharf-----	136	18	--	1½ miles.
Chimney on Whitehaven Hotel-----	136	40	--	1½ miles.
Opening between pair of pine trees near Whitehaven-----	140	--	--	1½ miles.
Stack of Webster's canning house-----	187	38	--	300 yards.
Opening between two walnut trees-----	274	--	--	200 yards.
Chimney of Whitlock's house-----	307	37	--	250 yards.
Stack of Dashiell's canning house-----	352	23	--	400 yards.

## JONES.

*Locality.*—South shore of Wicomico River about ¼ mile west of Mount Vernon wharf. (See Chart No. 12.)

Observed station is on a knoll about 25 feet above and 30 yards to south of high-water mark, and about 200 yards to the east of a cove. The knoll on which the station is located is the highest point on the shore in this locality. Several small cabins stand to the northward about 25 yards, and a large lone cedar tree about 35 yards to the southwest.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Ivee" (S 78° 54' W)-----	0	00	00	¾ mile.
Large square chimney on four-gable house-----	10	05	--	¼ mile.
Cedar tree-----	11	22	--	25 yards.
Tangent of point of land-----	34	54	--	½ mile.
Nail in blaze in cedar tree-----	62	26	--	20.30 meters.
Chimney on light-green house on opposite shore-----	102	33	--	¾ mile.
White cupola in Whitehaven-----	148	53	--	2¼ miles.
Old-style windmill-----	153	31	--	1½ miles.
Whitehaven Hotel chimney-----	155	48	--	2¼ miles.
Large chimney on yellow house-----	178	37	--	¼ mile.
Chimney on end of brown house-----	216	37	--	½ mile.
Chimney on white house-----	266	42	--	¼ mile.
Weeping willow-----	307	55	--	¼ mile.
Nail in blaze in cedar tree-----	318	30	--	31.10 meters.

## IVEE.

*Locality.*—Southeast shore of Wicomico River about ¼ mile northwest of Mount Vernon Church. (See Chart No. 12.)

Observed station is on grass land about 1 foot above and 10 feet back from high-water mark. A small cove makes in about 100 yards east of station. A small lone pine stands about 110 yards to

the east-southeast, and a sand bluff with pine trees about 100 yards to the southwest. Beyond the woods along the beach is a bluff 15 feet high upon which are several houses.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Mount Vernon Church" (S 22° 37' E).....	0	00	00	3/8 mile.
White house chimney.....	55	35	--	1/4 mile.
Chimney on end of white house.....	209	55	--	2 miles.
Chimney of green-trimmed house near "Creek".....	245	28	--	1 1/4 miles.
Old-style windmill.....	264	47	--	2 1/8 miles.
Slate-colored house.....	276	22	--	1/2 mile.
Chimney on middle of white house beyond woods.....	297	11	--	1 mile.
Lone pine tree.....	317	53	--	110 yards.

MOUNT VERNON CHURCH.

Locality.—Southeast side of Wicomico River about 3/8 mile back from the shore 1 1/2 miles south-west of Mount Vernon wharf. (See Chart No. 12.)

Observed station is on main road in Mount Vernon and is situated on the highest point in the vicinity.

Marks.—Observed station is center of steeple of Mount Vernon Methodist Church.

References.—None necessary.

BALL.

Locality.—Southeast shore of Wicomico River on a point of land about 1 mile northeast of Wingate Point. (See Chart No. 12.)

Observed station is on a sand and grass point making out about 100 yards west of a sand bluff. A small creek empties into the river about 10 yards to the east, and three poplars stand about 100 yards to the south. The extreme northern end of the point is about 35 yards from station and the western side is about 10 yards.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Holland" N 20° 03' W).....	0	00	00	1/2 mile.
Middle one of five pines.....	107	09	--	100 yards.
Chimney on John Withlock's house.....	137	57	--	100 yards.
Left end of pine woods.....	145	33	--	1/2 mile.
Right end of pine woods.....	165	04	--	1/2 mile.
Chimney on white house.....	183	32	--	1/4 mile.
Third poplar.....	209	04	--	100 yards.
Chimney of brown house.....	248	27	--	1/2 mile.

WIND.

Locality.—Southeast shore of Wicomico River about 1/4 mile north of southern end of Wingate Point. (See Chart No. 12.)

Observed station is about 30 yards from high-water mark of Wicomico River on the north side and 20 yards from the west side. An oyster watchhouse stands about 100 yards to the east of the station.

Marks.—Observed station is center point of triangle on standard cement monument.

References.—

	o	'	"	
"Great Shoals Light" S 36° 29' W).....	0	00	00	1 1/2 miles.
Tangent of Mollies Point.....	33	35	--	1 mile.
Left end of woods.....	46	12	--	1 3/4 miles.
Right end of woods.....	51	45	--	1 3/4 miles.
Tangent of Ellis Point.....	102	47	--	1 mile.
White house in woods.....	157	19	--	3 miles.
Smoke pipe on watchhouse.....	185	49	--	100 yards.
Chimney of brown house.....	203	38	--	1/2 mile.

## Survey of Oyster Bars, Wicomico County, Md.

## References—Continued.

	°	'	"	
Chimney of cream-colored house with brown trimmings	215	34	00	1/2 mile.
Watchhouse	308	41	--	1/4 mile.
Chimney on 2 1/2-story house	342	18	--	3 miles.
Chimney on end of white house Dames Quarter	350	57	--	2 1/2 miles.

## LITTLE.

*Locality.*—Southern shore of Monie Bay on second prominent point of marsh about 1/4 mile to the west entrance to Little Monie Creek. (See Chart No. 12.)

Observed station is on a marsh point covered with water bushes and reeds. It is about 1 foot above high-water mark, 7 yards from the west side, 10 yards from the east side, and about 50 yards from extreme end of point. No permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
"Great Shoals Light" (S 83° 43' W)	0	00	00	2 1/4 miles.
Left side of woods on Nanticoke Point	19	34	--	3 1/4 miles.
Right side of woods on Nanticoke Point	22	24	--	3 1/2 miles.
Tangent of Wingate Point	34	39	--	1 1/2 miles.
Chimney on red roof white house	60	13	--	1 1/2 miles.
Chimney on near end of white house with brown trimmings	62	02	--	1 1/2 miles.
Chimney on red roof white house with green blinds	62	43	--	1 1/2 miles.
Left chimney of yellow house trimmed white	79	52	--	1 1/2 miles.
Middle of woods	80	--	--	1 1/4 miles.
Large brown house	93	55	--	1 3/4 miles.
Mount Vernon Church	102	42	--	1 3/4 miles.
Tangent of point of land	165	47	--	1/4 mile.
Tangent of point of land	320	16	--	.75 yards.
Tangent of land	346	47	--	3 miles.

## DOVE.

*Locality.*—South shore of Monie Bay and about 1/4 mile east of entrance to Pigeon Creek. (See Chart No. 12.)

Observed station is on marsh land about 10 yards back from high-water mark not far from water bushes which stand to the east. Cement monument marking reference station is 13.98 meters southeast from observed station. No permanent reference objects near station.

*Marks.*—Observed station is a nail in pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

## References.—

	°	'	"	
"Great Shoals Light" (N 57° 41' W)	0	00	00	1 1/4 miles.
Left side of Nanticoke Point woods	6	56	--	2 3/4 miles.
Left side of Roaring Point heavy woods	19	29	--	5 miles.
High lone pine showing above woods	23	36	--	5 miles.
Tangent of Wingate Point	52	52	--	2 miles.
Chimney of red roof house	67	39	--	2 miles.
Chimney on yellow house with red gable roof	84	12	--	3 miles.
Mount Vernon Church	86	37	--	3 1/4 miles.
Tangent of land	106	38	--	300 yards.
REFERENCE STATION	202	35	50	13.98 meters.
Chimney of white house with dark red trimmings	245	21	--	1 1/4 miles.

## GREAT SHOALS LIGHT.

*Locality.*—Middle of entrances to Monie Bay and Wicomico River about halfway between Long Point to the south and Mollies Point to the north. (See Chart No. 12.)

*Marks.*—Observed station is center of black lantern on square screw pile structure known as "Great Shoals Light."

*References.*—

"Sharkfin Shoal Light" (S 81° 50' W)----- 5 $\frac{7}{8}$  miles.

## SHORT.

*Locality.*—Southern shore of entrances to Monie Bay and Wicomico River on Long Point and about 1 mile south-southwest from Great Shoals Light. (See Chart No. 12.)

Observed station is on a sandy knoll on eastern side of entrance to Dames Quarter Creek about 15 feet back from high-water mark on the north side and about 30 feet from east side of point. It is on the highest part of the knoll which is about 5 feet above high-water mark.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sharkfin Shoal Light" (S 89° 03' W)-----	0	00	00	5 $\frac{3}{8}$ miles.
Tile pipe in cement ("Long" 1901)-----	23	57	45	63.703 meters.
Nanticoke wharf-----	67	57	--	4 $\frac{1}{8}$ miles.
Left side of Nanticoke woods-----	69	13	--	2 miles.
Yellow house with red blinds-----	74	53	--	3 $\frac{1}{2}$ miles.
Left tangent of Wingate Point-----	124	13	--	2 $\frac{3}{8}$ miles.
Chimney on red roof white house-----	132	39	--	3 miles.
Near chimney of yellow house-----	136	40	--	3 miles.
Chimney on red trimmed house-----	212	49	--	2 miles.
Left tree at Dames Quarter-----	260	37	--	$\frac{1}{4}$ mile.
Chimney on white barn-----	279	45	--	300 yards.
Left chimney on white house-----	320	05	--	200 yards.
Chimney on yellow house-----	341	35	--	200 yards.

## ROOM.

*Locality.*—Upper end and eastern shore of Tangier Sound on Halls Point. (See Chart No. 12.)

Observed station is on a bluff 15 feet high about 5 yards back from its edge. It is about 25 yards east of a clump of mulberry trees and about 15 yards north-northwest of a barn. Locust and mulberry trees stand all about station and locust bushes along the edge of the bluff. A wagon trail runs parallel to the shore about 15 yards back of station. Cement monument marking reference station is 21.45 meters south-southwest of observed station and almost in line with a large mulberry tree.

*Marks.*—Observed station is nail in center of stub with top flush with ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Sharkfin Shoal Light" (N 70° 00' W)-----	0	00	00	2 $\frac{1}{2}$ miles.
Gable on near side of red roof on white house on Bishops Head-----	3	01	--	5 $\frac{1}{2}$ miles.
Near end of roof of large 2 $\frac{1}{2}$ -story house--	12	53	--	7 $\frac{1}{4}$ miles.
Left tangent of Clay Island-----	39	18	--	3 $\frac{1}{2}$ miles.
Left side of Sandy Point woods-----	70	08	--	4 miles.
Roaring Point wharf-----	85	22	--	5 miles.
Near chimney on end of large red roof white house-----	94	36	--	4 $\frac{1}{4}$ miles.
Right side of Nanticoke woods-----	110	28	--	3 $\frac{3}{4}$ miles.
Mount Vernon Church-----	127	18	--	7 miles.
Near corner of barn-----	137	06	--	15.96 meters.

## Survey of Oyster Bars, Wicomico County, Md.

## References—Continued.

	o	'	"	
Right-hand corner of barn.....	152	08	--	18. 11 meters.
REFERENCE STATION.....	268	30	00	21. 45 meters.
Large cedar tree.....	276	30	--	100 yards.
Two-inch iron pipe.....	279	38	30	9. 21 meters.

## HAINES.

*Locality.*—Upper end and eastern shore of Tangier Sound on Haines Point, about  $\frac{5}{8}$  mile north of Deal Island wharf. (See Chart No. 12.)

Observed station is on sand and grass point about 20 yards back and 5 feet above high-water mark. Locust and water bushes stand about 20 yards to the north and the left edge of this clump is about on line with Sharkfin Shoal Light. A barbwire fence runs 3 yards east of station. Cement monument marking reference station is 9.64 meters east of observed station.

*Marks.*—Observed station is nail in pine stub in center of a drain tile with top broken off below surface. Reference station is center point of triangle on standard cement monument.

## References.—

	o	'	"	
"Sharkfin Shoal Light" (N 45° 58' W).....	0	00	00	2½ miles.
Left of bushes.....	39	57	--	20 yards.
Left of Sandy Point woods.....	53	38	--	4¾ miles.
Chimney of 2¼-story white house trimmed with red.....	75	04	--	½ mile.
Chimney of unpainted house.....	85	49	--	350 yards.
Chimney on end of red cottage trimmed white.....	99	00	--	¾ mile.
REFERENCE STATION.....	123	40	40	9. 64 meters.
Pine tree.....	148	37	30	2. 14 meters.
Large square chimney on red house.....	152	49	--	400 yards.
Right one of 5 large pines.....	184	40	--	300 yards.
Half way between chimneys on store on Deal Island.....	213	08	--	¾ mile.
Deal Island Church.....	217	00	--	1½ miles.
Black gum tree.....	223	49	--	6. 70 meters.
Right end of Deal Island wharf.....	234	10	--	½ mile.
Hooper Straits Light.....	343	34	--	7½ miles.

## DEAL ISLAND CHURCH.

*Locality.*—Deal Island on main road about  $\frac{1}{4}$  mile from the shore and about  $\frac{3}{4}$  mile south of Laws Thoroughfare. (See Chart No. 12.)

*Marks.*—Observed station is center of steeple on Deal Island Methodist Church.

*References.*—None necessary.

## BAR.

*Locality.*—Eastern shore of Tangier Sound on western side of Deal Island, about 1 mile northwest of entrance to Lower Thoroughfare and  $\frac{1}{2}$  mile south of Middle Creek. (See Chart No. 12.)

Observed station is about 10 yards east of high-water mark on sand and grass land back of sandy beach. The first of many tree stumps which are submerged at high water commence about 100 yards to the north and cat-tails grow abundantly back of station. Cement monument marking reference station is 6.09 meters east of observed station.

*Marks.*—Observed station is a nail in pine stub flush with ground. Reference station is center point of triangle on standard cement monument.

## References.—

	o	'	"	
"Sharkfin Shoal Light" (N 19° 40' W).....	0	00	00	4½ miles.
Tangent of Haines Point.....	27	29	--	2½ miles.



*Survey of Oyster Bars, Wicomico County, Md.*

*References—Continued.*

	°	'	"	
Flag pole on large building on Deal Island wharf-----	28	45	--	2 miles.
Middle chimney of large gray building-----	37	41	--	1 mile.
Chimney on white house-----	59	54	--	400 yards.
Middle chimney on red roof white house-----	79	51	--	$\frac{3}{8}$ mile.
REFERENCE STATION-----	107	10	00	6.09 meters.
Chimney on white house-----	118	43	--	400 yards.
Chimney on dark gray house-----	161	57	--	300 yards.
Right chimney on white four-gabled house with red roof-----	176	39	--	$\frac{1}{2}$ mile.

## BOUNDARIES OF OYSTER BARS.

### EXPLANATION OF DESCRIPTION OF BOUNDARIES.

The oyster bars of Wicomico County are 15 in number, and their total area, as marked out by buoys placed by the hydrographic engineer of the Commission, is 1,638 acres. As provided by law, the boundaries of the oyster bars are all straight lines, but they inclose areas of all shapes from triangles to complicated eight-sided figures, and of all sizes from 1,123 acres to 4 acres.<sup>a</sup> The sides vary in length from 120 to 3,800 yards, and in some cases the corners of the boundaries are practically at the triangulation stations from which they are located, while in other instances they are over 7,500 yards from the landmarks most available for the purpose of fixing their positions.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made and the magnitude of the work with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the Commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and future.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in the county.

At the top of each tabular form is given the legal name of the oyster bar to be described, its general locality, and the serial number of the "Charts of Oyster Bars" of Maryland on which its legal boundaries are shown.

The first column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar; but where a corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars only the number of the corner of the oyster bar being described in the table is given in this column.

The second and third columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the

<sup>a</sup> For similar statistics for other counties that have been surveyed, see Appendix C of this publication.

Commission as the primary technical definition of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations of the Survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural causes or by acts of vandals desiring to defeat the purposes of the oyster laws of Maryland.

The fourth and fifth columns, under the general heading of "True bearing"<sup>a</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

The sixth column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

The seventh and last column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>b</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication, under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars. One, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

<sup>a</sup> The mean magnetic variation for Wicomico County is 5° 45' west of north (1908), and is increasing at the rate of 3' yearly.

<sup>b</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington.

(1) *Triangulation*.—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the Commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant, the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "Upper 'Stake" bar, which is the first one described in this publication, and assume that "Corner No 3," is to be examined as to its position. The angle between the two landmarks "Juliet" and "Earle" as determined from right to left from the forward bearings from this corner is  $92^{\circ} 57'$  and the angle between "Earle" and "Streett" is  $66^{\circ} 51'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor ("position finder"), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the

protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the protractor. The second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant then the other until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic locations of points are attained; in fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the Commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State fishery force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer takes compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>a</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks for which the bearings are published have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used by getting their bearings directly from the chart by parallel rulers or a protractor and then applying them in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fourth column of the tables opposite the "corner" in question, and the direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

<sup>a</sup> The mean magnetic variation for Wicomico County is 5° 45' west of north (1908) and is increasing at the rate of 3' yearly.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit, and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

## BOUNDARIES OF NATURAL OYSTER BARS.

## UPPER STAKE.

(Nanticoke River—Chart No. 11.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 20 06.36	75 52 59.76	S 0 01 E N 59 07 E N 3 51 E	N 0 01 W S 59 08 W S 3 51 W	811 1718 2209	Juliet. Earle. Streett.
2	38 20 08.36	75 53 06.16	S 11 10 E N 63 45 E N 8 28 E	N 11 10 W S 63 46 W S 8 28 W	895 1834 2160	Juliet. Earle. Streett.
3	38 20 22.41	75 53 07.20	S 8 27 E N 78 36 E N 11 45 E	N 8 27 W S 78 36 W S 11 45 W	1366 1706 1703	Juliet. Earle. Streett.
4	38 20 19.59	75 52 32.41	N 59 59 E N 78 39 W S 29 56 W	S 59 59 W S 78 40 E N 29 56 E	864 3169 1449	Earle. Govr. Juliet.

## WETIPQUIN.

(Nanticoke River—Chart No. 11.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 19 47.59	75 53 16.03	S 67 52 E N 51 35 E N 48 52 W	N 67 53 W S 51 36 W S 48 52 E	479 2433 2587	Juliet. Earle. Govr.
2	38 20 01.90	75 53 21.70	S 41 37 W N 63 25 E N 55 51 W	N 41 37 E S 63 26 W S 55 52 E	883 2300 2173	Juliet. Earle. Govr.
3	38 20 08.36	75 53 06.16	S 11 10 E N 63 45 E N 8 28 E	N 11 10 W S 63 46 W S 8 28 W	895 1834 2160	Juliet. Earle. Streett.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

SAND LUMP.

(Nanticoke River—Chart No. 11.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	Yards.	
1	38 18 45.20	75 53 49.80	N 34 40 E	S 34 40 W	2342	Juliet. Ar. Pole.
			N 63 18 W	S 63 19 E	2780	
			S 10 25 W	N 10 25 E	536	
2	38 18 52.18	75 53 47.54	N 36 57 E	S 36 58 W	2116	Juliet. Ar. Pole.
			N 68 16 W	S 68 17 E	2739	
			S 11 36 E	N 11 36 W	779	
3	38 18 48.82	75 53 42.02	N 31 57 E	S 31 58 W	2127	Juliet. Ar. Pole.
			N 67 16 W	S 67 17 E	2918	
			S 25 04 W	N 25 04 E	717	

HICKORY NUT.

(Nanticoke River—Chart No. 11.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "		
1	38 18 35.22	75 53 50.58	N 30 52 E	S 30 53 W	2637	Juliet. Ar. Pole.
			N 57 14 W	S 57 14 E	2930	
			S 21 47 W	N 21 47 E	206	
2	38 18 38.40	75 54 08.15	S 52 39 E	N 52 39 W	491	Pole. Juliet. Ar.
			S 40 10 E	N 40 10 W	2821	
			N 53 29 W	S 53 29 E	2485	
3	38 18 45.20	75 53 49.80	N 34 40 E	S 34 40 W	2342	Juliet. Ar. Pole.
			N 63 18 W	S 63 19 E	2780	
			S 10 25 W	N 10 25 E	536	

OLD WOMANS PATCH.

(Nanticoke River—Chart No. 11.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	U. S. C. & G. S. triangulation station
			Forward	Back		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "		
1	38 18 21.60	75 54 11.80	N 42 53 W	S 42 54 E	2792	Ar. Okay. Rag.
			S 83 47 W	N 83 46 E	3241	
			S 15 20 W	N 15 20 E	1655	
2	38 18 29.24	75 54 16.24	N 44 54 W	S 44 55 E	2524	Ar. Okay. Rag.
			S 78 55 W	N 78 54 E	3164	
			S 9 47 W	N 9 47 E	1880	
3	38 18 31.58	75 54 06.00	N 50 14 W	S 50 15 E	2672	Ar. Okay. Rag.
			S 78 30 W	N 78 28 E	3446	
			S 17 02 W	N 17 01 E	2020	

## Survey of Oyster Bars, Wicomico County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## CEDAR SHOAL.

(Nanticoke River—Chart No. 11.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 18 09.96	75 54 12.74	N 37 34 W	S 37 35 E	Yards.	Ar. Okay. Rag.
			N 89 15 W	S 89 16 E	3075	
			S 18 56 W	N 18 56 E	3197	
2	38 18 12.02	75 54 28.56	N 31 34 W	S 31 36 E	2779	Ar. Okay. Rag.
			S 89 25 W	N 89 24 E	2778	
			S 0 22 E	N 0 22 W	1272	
3	38 18 24.37	75 54 31.60	N 35 09 W	S 35 09 E	2387	Ar. Okay. Rag.
			S 80 38 W	N 80 37 E	2733	
			S 3 01 E	N 3 00 W	1691	
4	38 18 27.58	75 54 20.33	N 42 14 W	S 42 14 E	2490	Ar. Okay. Rag.
			S 79 33 W	N 79 32 E	3047	
			S 6 41 W	N 6 41 E	1809	

## LONG SHOAL.

(Nanticoke River—Chart No. 11.)

1	38 18 17.84	75 54 55.96	N 18 30 W	S 18 30 E	Yards.	Ar. Okay. Rag.
			S 83 45 W	N 83 44 E	2290	
			S 26 38 E	N 26 37 W	2061	
2	38 18 27.04	75 54 54.42	N 22 25 W	S 22 25 E	2013	Ar. Okay. Rag.
			S 75 37 W	N 75 37 E	2152	
			S 21 21 E	N 21 21 W	1908	
3	38 18 26.22	75 54 37.60	N 32 44 W	S 32 45 E	2246	Ar. Okay. Rag.
			S 78 42 W	N 78 41 E	2587	
			S 8 04 E	N 8 04 W	1768	

## CHERRY TREE.

(Nanticoke River—Chart No. 11.)

1	38 18 06.21	75 54 38.20	N 25 03 W	S 25 04 E	Yards.	Ar. Okay. Rag.
			N 86 11 W	S 86 12 E	2830	
			S 13 47 E	N 13 47 W	2526	
2	38 18 13.16	75 54 44.72	N 23 46 W	S 23 46 E	2545	Ar. Okay. Rag.
			S 88, 23 W	N 88 22 E	2349	
			S 18 27 E	N 18 27 W	1381	
3	38 18 15.00	75 54 33.76	N 30 09 W	S 30 09 E	2621	Ar. Okay. Rag.
			S 87 13 W	N 87 12 E	2642	
			S 6 03 E	N 6 03 W	1387	



BOUNDARIES OF NATURAL OYSTER BARS—continued.

WILSON SHOALS.

(Lower Nanticoke River—Chart No. 11.)

Corner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	38	17	04.58	75	55	15.02	S 36 46 E	N 36 44 W	Yards.	Nanticoke Church. Rag. Okay.
							N 51 08 E	S 51 08 W	2221	
							N 34 29 W	S 34 30 E	1597	
2	38	17	06.76	75	55	27.60	S 41 55 E	N 41 55 W	2490	Nanticoke Church. Rag. Okay.
							N 59 31 E	S 59 32 W	1830	
							N 29 05 W	S 29 05 E	2486	
3	38	17	55.16	75	55	18.02	N 69 44 W	S 69 44 E	1559	Okay. Roar. Rag.
							S 2 42 E	N 2 42 W	4131	
							S 61 59 E	N 61 58 W	1498	
4	38	18	03.50	75	54	52.84	N 16 57 W	S 16 58 E	2776	Ar. Okay. Rag.
							N 83 04 W	S 83 05 E	2148	
							S 33 33 E	N 33 33 W	1182	
5	38	17	44.10	75	54	50.18	S 60 25 E	N 60 24 W	670	Rag. Pole. Okay.
							N 44 31 E	S 44 32 W	2150	
							N 67 28 W	S 67 29 E	2384	

ROARING POINT EAST.

(Lower Nanticoke River—Chart No. 12.)

Corner of bar	Latitude			Longitude			True bearing		Distance	U. S. C. & G. S. triangulation station
	°	'	"	°	'	"	Forward	Back		
1	38	15	37.80	75	55	33.62	S 34 23 E	N 34 22 W	Yards.	Nanti. Roar. Cow.
							N 50 18 E	S 50 19 W	4041	
							N 65 17 W	S 65 18 E	791	
2	38	15	46.36	75	55	49.20	N 78 01 E	S 78 02 W	1047	Roar. Rag. Cow.
							N 30 35 E	S 30 34 W	4228	
							N 68 50 W	S 68 50 E	1448	
3	38	16	07.78	75	55	43.22	S 82 29 W	N 82 28 E	1522	Cow Roar. Nanticoke Church.
							S 59 42 E	N 59 42 W	1002	
							N 86 14 E	S 86 15 W	2083	

## Survey of Oyster Bars, Wicomico County, Md.

## BOUNDARIES OF NATURAL OYSTER BARS—continued.

## MIDDLEGROUND.

(Mouth Nanticoke River—Chart No. 12.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38° 12' 26.22"	75° 55' 40.38"	N 79° 30' E	S 79° 32' W	4697	Great Shoals Light. Frog. Sharkfin Shoal Light.
			N 29° 24' W	S 29° 25' E	4058	
			S 83° 42' W	N 83° 39' E	5699	
2	38° 12' 32.01"	75° 55' 51.86"	N 82° 21' E	S 82° 23' W	4968	Great Shoals Light. Frog. Sharkfin Shoal Light.
			N 26° 49' W	S 26° 48' E	3741	
			S 81° 17' W	N 81° 15' E	5422	
3	38° 12' 47.41"	75° 55' 44.62"	N 88° 17' E	S 88° 19' W	4734	Great Shoals Light. Frog. Sharkfin Shoal Light.
			N 33° 40' W	S 33° 41' E	3389	
			S 76° 26' W	N 76° 23' E	5711	
4	38° 13' 13.01"	75° 55' 54.46"	S 81° 47' E	N 81° 45' W	5045	Great Shoals Light. Frog. Sharkfin Shoal Light.
			N 39° 34' W	S 39° 35' E	2539	
			S 67° 23' W	N 67° 21' E	5729	
5	38° 14' 43.39"	75° 55' 32.02"	N 13° 38' E	S 13° 38' W	2408	Roar Cow. Frog.
			N 34° 19' W	S 34° 20' E	3204	
			S 63° 48' W	N 63° 47' E	2468	
6	38° 15' 03.62"	75° 55' 00.00"	N 9° 44' W	S 9° 44' E	1683	Roar. Cow. Frog.
			N 53° 32' W	S 53° 33' E	3305	
			S 59° 59' W	N 59° 58' E	3541	
7	38° 13' 12.39"	75° 55' 00.00"	S 78° 48' E	N 78° 47' W	3613	Great Shoals Light. Frog. Sharkfin Shoal Light
			N 57° 10' W	S 57° 11' E	3649	
			S 72° 04' W	N 72° 02' E	7082	
8	38° 13' 10.60"	75° 54' 40.80"	S 78° 04' E	N 78° 03' W	3100	Great Shoals Light. Frog. Sharkfin Shoal Light.
			N 60° 19' W	S 60° 21' E	4116	
			S 73° 42' W	N 73° 39' E	7553	

## BIG HILL.

(Mouth Nanticoke River—Chart No. 12.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38° 12' 23.70"	75° 56' 45.82"	N 81° 34' E	S 81° 37' W	6429	Great Shoals Light. Frog. Sharkfin Shoal Light.
			N 3° 58' W	S 3° 58' E	3629	
			S 82° 08' W	N 82° 07' E	3960	
2	38° 12' 29.41"	75° 56' 47.82"	N 83° 20' E	S 83° 22' W	6457	Great Shoals Light. Frog. Sharkfin Shoal Light.
			N 3° 19' W	S 3° 19' E	3433	
			S 79° 15' W	N 79° 14' E	3938	
3	38° 12' 32.10"	75° 56' 32.89"	N 83° 45' E	S 83° 48' W	6052	Great Shoals Light. Frog. Sharkfin Shoal Light.
			N 10° 07' W	S 10° 07' E	3397	
			S 79° 04' W	N 79° 01' E	4346	
4	38° 12' 25.42"	75° 56' 36.84"	N 81° 47' E	S 81° 49' W	6184	Great Shoals Light. Frog. Sharkfin Shoal Light.
			N 7° 50' W	S 7° 50' E	3596	
			S 81° 48' W	N 81° 46' E	4205	

Survey of Oyster Bars, Wicomico County, Md.

BOUNDARIES OF NATURAL OYSTER BARS—continued.

GREAT SHOALS.

(Mouth Wicomico River—Chart No. 12.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 12 47.01	75 52 37.71	N 54 28 W	S 54 28 E	Yards. 285 1505 1979	Great Shoals Light. Short. Dove.
			S 39 20 W	N 39 19 E		
			S 57 44 E	N 57 43 W		
2	38 13 00.41	75 54 00.00	S 37 25 E	N 37 25 W	2034 1971 1433	Short. Great Shoals Light. White.
			S 81 19 E	N 81 18 W		
			N 11 40 E	S 11 40 W		
3	38 13 13.97	75 54 00.00	S 30 49 E	N 30 48 W	2414 2090 990	Short. Great Shoals Light. White.
			S 68 49 E	N 68 48 W		
			N 17 01 E	S 17 01 W		
4	38 13 20.76	75 52 19.72	N 36 44 E	S 36 44 W	1545 2500 1219	Wind. Dove. Great Shoals Light.
			S 28 34 E	N 28 35 W		
			S 36 10 W	N 36 10 E		
5	38 12 49.82	75 52 24.28	S 48 49 E	N 48 49 W	1749 1818 601	Dove. Short. Great Shoals Light.
			S 46 10 W	N 46 10 E		
			N 84 22 W	S 84 22 E		

INGRAM SHOAL.

(Lower Wicomico River—Chart No. 12.)

1	38 13 38.61	75 52 23.64	S 21 12 W	N 21 12 E	Yards. 1702 1210 1877	Great Shoals Light. Wind. Ella.
			N 58 14 E	S 58 14 W		
			N 0 31 W	S 0 31 E		
2	38 13 51.98	75 52 31.90	S 10 59 W	N 10 59 E	2075 1262 1439	Great Shoals Light. Wind. Ella.
			N 81 31 E	S 81 32 W		
			N 8 06 E	S 8 06 W		
3	38 13 57.26	75 52 18.97	S 18 28 W	N 18 28 E	2335 904 1255	Great Shoals Light. Wind. Ella
			N 89 29 E	S 89 30 W		
			N 6 28 W	S 6 28 E		

*Survey of Oyster Bars, Wicomico County, Md.*

BOUNDARIES OF NATURAL OYSTER BARS—continued.

· HOLLAND.

*(Lower Wicomico River—Chart No. 12.)*

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 14 36.02	75 51 06.20	N 8 40 W	S 8 40 E	469	Holland. Wind. Ball.
			S 38 27 W	N 38 26 E	1659	
			S 32 56 E	N 32 56 W	414	
2	38 14 38.98	75 51 09.36	N 1 40 E	S 1 40 W	364	Holland. Wind. Ball.
			S 34 06 W	N 34 06 E	1690	
			S 34 36 E	N 34 35 W	545	
3	38 14 42.04	75 51 03.04	N 30 42 W	S 30 42 E	303	Holland. Wind. Ball.
			S 36 36 W	N 36 36 E	1871	
			S 14 23 E	N 14 23 W	569	
4	38 14 39.00	75 51 00.40	N 31 47 W	S 31 47 E	428	Holland. Wind. Ball.
			S 40 16 W	N 40 16 E	1834	
			S 9 00 E	N 9 00 W	454	

## A P P E N D I X E S .

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### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*

SEC. 4. That this act shall take effect from the date of its passage.

*Survey of Oyster Bars, Wicomico County, Md.*

[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven. \* \* \*

[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

[Act of the legislature of Maryland approved April 2, 1906.]

AN ACT to establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to Article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis; and the said commissioners shall further cause to be

delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie.

\* \* \* \* \*

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section. \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey, and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable, the limits and boundaries of the natural beds, bars and rocks, as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the same to the clerks of the Circuit Court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed, other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks, shall be construed in all the courts of the State to be barren bottoms, and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act; provided, that the said survey and report shall not be so construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act. \* \* \*

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the Survey, is as follows:

An Act Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or levelling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>a</sup> *And be it enacted,* That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the

<sup>a</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses, (to be by them sworn or affirmed and examined) shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid, if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted*, That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

#### APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from First Report of Shell Fish Commission.]

##### OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland had a twofold object in view:

1. To encourage an industry in oyster culture upon the barren bottoms beneath the tidewaters of the State.
2. To prevent the leasing of natural oyster bars for the purpose of oyster culture."

##### SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."



NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, charting and buoying them, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the Commission."

DEFINITION OF A NATURAL OYSTER BAR.

DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturists, may be made to yield a greater number of oysters than they now produce."

"It should be evident to every one that neither of these definitions could be adopted by the Commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

THE GOLDSBOROUGH DEFINITION.

"The definition of a natural bar which very nearly approaches a reasonable and satisfactory compromise between the extreme views given above and which has therefore been adopted by the Commission, is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Tood, v. Job T. Moore. It is as follows:

What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them; and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters, within the meaning of the Act of Assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the Act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and cannot be located or appropriated by any individual."

---

APPENDIX C.—STATISTICS OF RESULTS OF THE COMBINED OPERATIONS OF THE GOVERNMENT AND STATE.

For a further understanding of the character of the oyster survey work that is being carried on in Maryland, the following statistical tabulation of the combined results of the various operations of both the Government and State will be of value. In this connection it should be remembered that

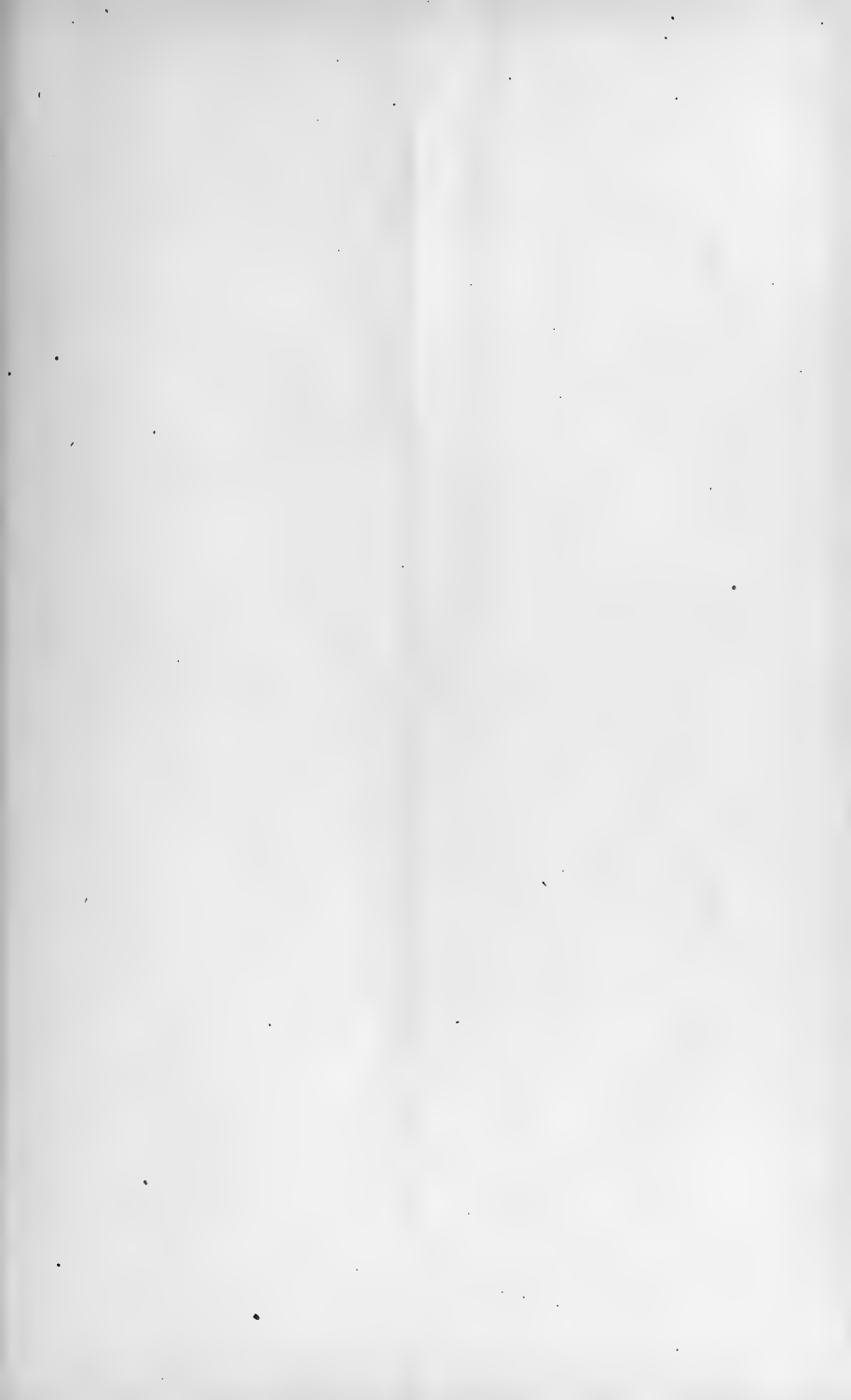
*Survey of Oyster Bars, Wicomico County, Md.*

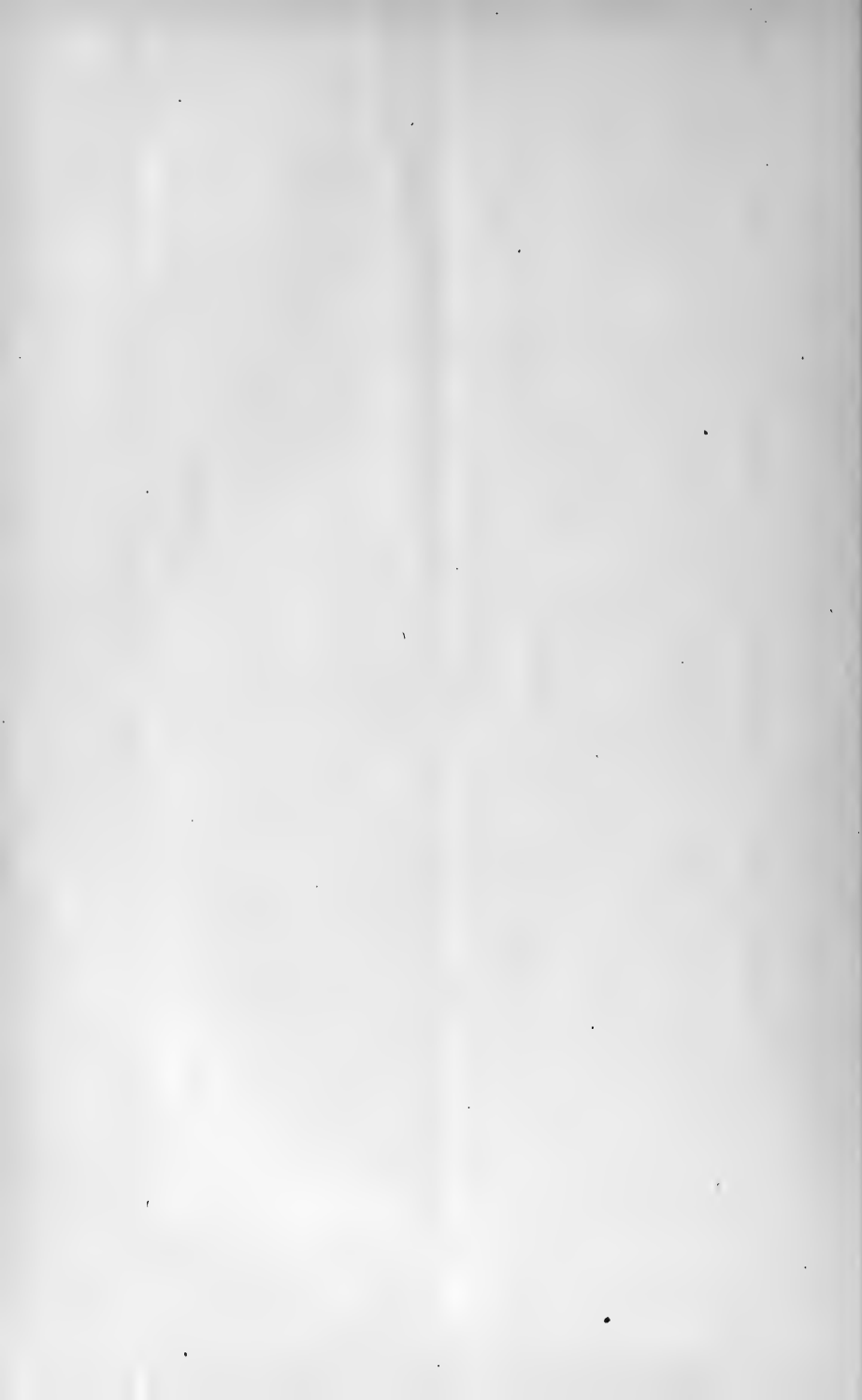
these statistics only include the new work required to supplement the large amount of existing data obtained from the archives of the Coast and Geodetic Survey and utilized in the preparation of the charts and technical records.

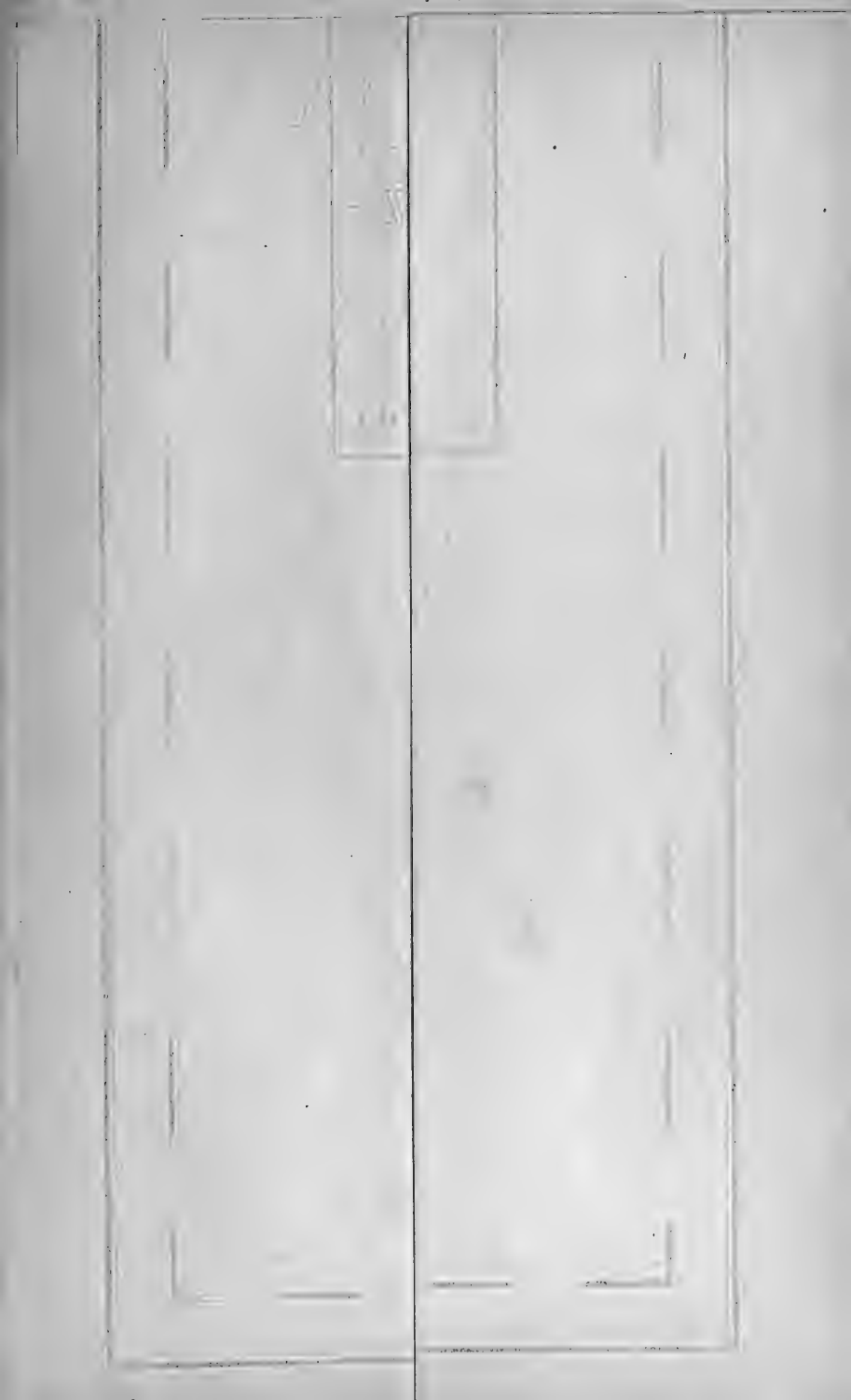
Operations	County			Total.
	Anne Arundel	Somerset	Wicomico	
Natural oyster bars surveyed and delineated.....	91	37	15	143
Acres of natural oyster bars.....	33,666	27,566	1,638	<sup>a</sup> 62,870
Crab bottoms surveyed and delineated.....		54		54
Acres of crab bottoms.....		32,108		32,108
Clam beds surveyed and delineated.....		3		3
Acres of clam beds.....		506		506
Boundary buoys located and planted.....	362	154	53	569
Triangulation landmarks established.....	123	86	30	<sup>b</sup> 209
Miles of shore line covered by triangulation.....	110	125	46	<sup>b</sup> 265
Square miles of water covered by triangulation.....	220	375	44	<sup>b</sup> 620
Miles of examination of shell bottom with chain apparatus.....	369	296	58	723
Oyster investigation stations occupied.....	440	679	162	1,281
Number of soundings over shell bottoms.....	37,049	17,904	3,387	58,340
Square miles covered by soundings and chain apparatus.....	58	47	3	108
Projections prepared and plotted.....	9	13	2	24
Leasing charts prepared.....	13	12	2	27
Oyster charts published.....	4	6	2	12
Reports published.....	2	2	2	6
Progress maps published.....	2	2	1	5

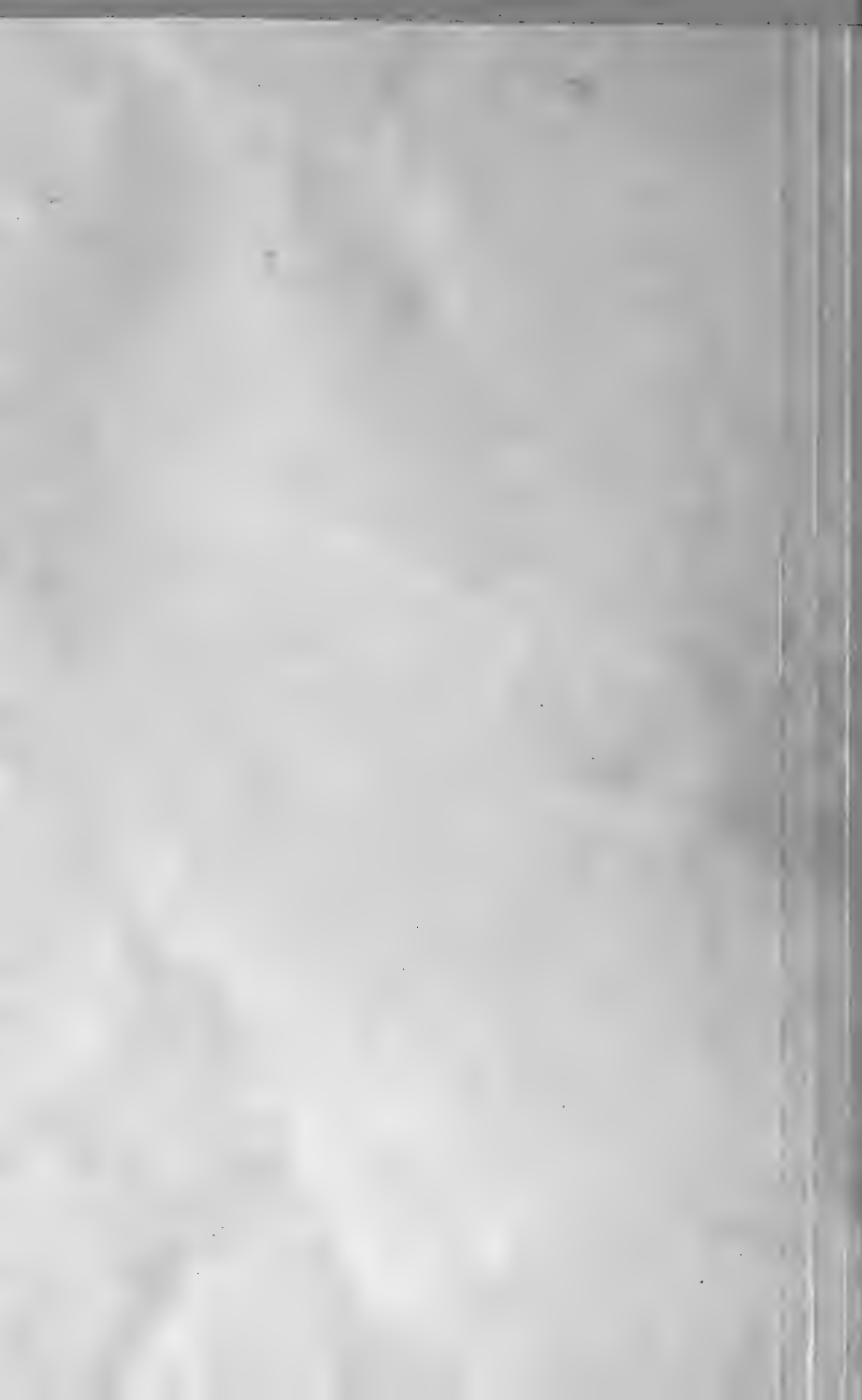
<sup>a</sup> Total area of natural oyster bars of Connecticut is 5,770 acres.

<sup>b</sup> Less quantities covered by statistics of more than one county.









COAST AND GEODETIC SURVEY

PROGRESS MAP

WICOMICO COUNTY  
MARYLAND

To accompany report of work of United States  
Coast and Geodetic Survey in cooperation  
with the Maryland Shell Fish Commission

1907

- Landmarks (Coast Survey Triangulation Stations)
- Waters contiguous to county
- - - Waters within territorial limits of county
- ==== Limits of projections on file at Washington
- ===== Limits of charts published by Coast and Geodetic Survey



CHART No.11.

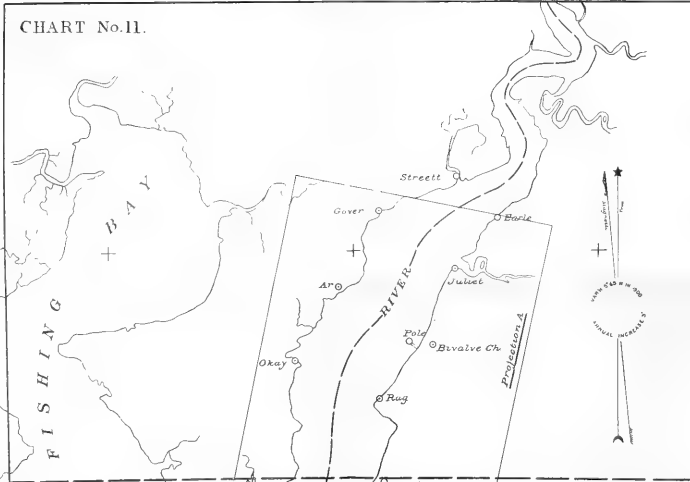
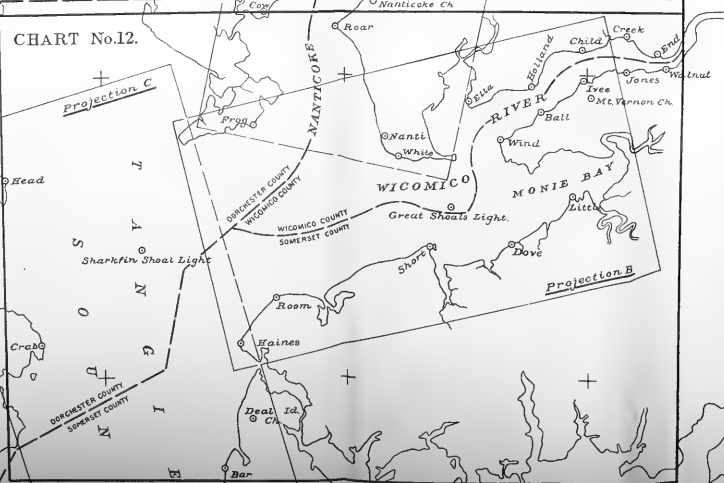


CHART No.12.







DEPARTMENT OF COMMERCE AND LABOR

COAST AND GEODETIC SURVEY

O. H. TITTMANN, Superintendent

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# SURVEY OF OYSTER BARS

## WORCESTER COUNTY MARYLAND

DESCRIPTION OF BOUNDARIES AND LANDMARKS AND REPORT  
OF WORK OF UNITED STATES COAST AND GEODETIC SUR-  
VEY IN COOPERATION WITH UNITED STATES BUREAU OF  
FISHERIES AND MARYLAND SHELL FISH COMMISSION

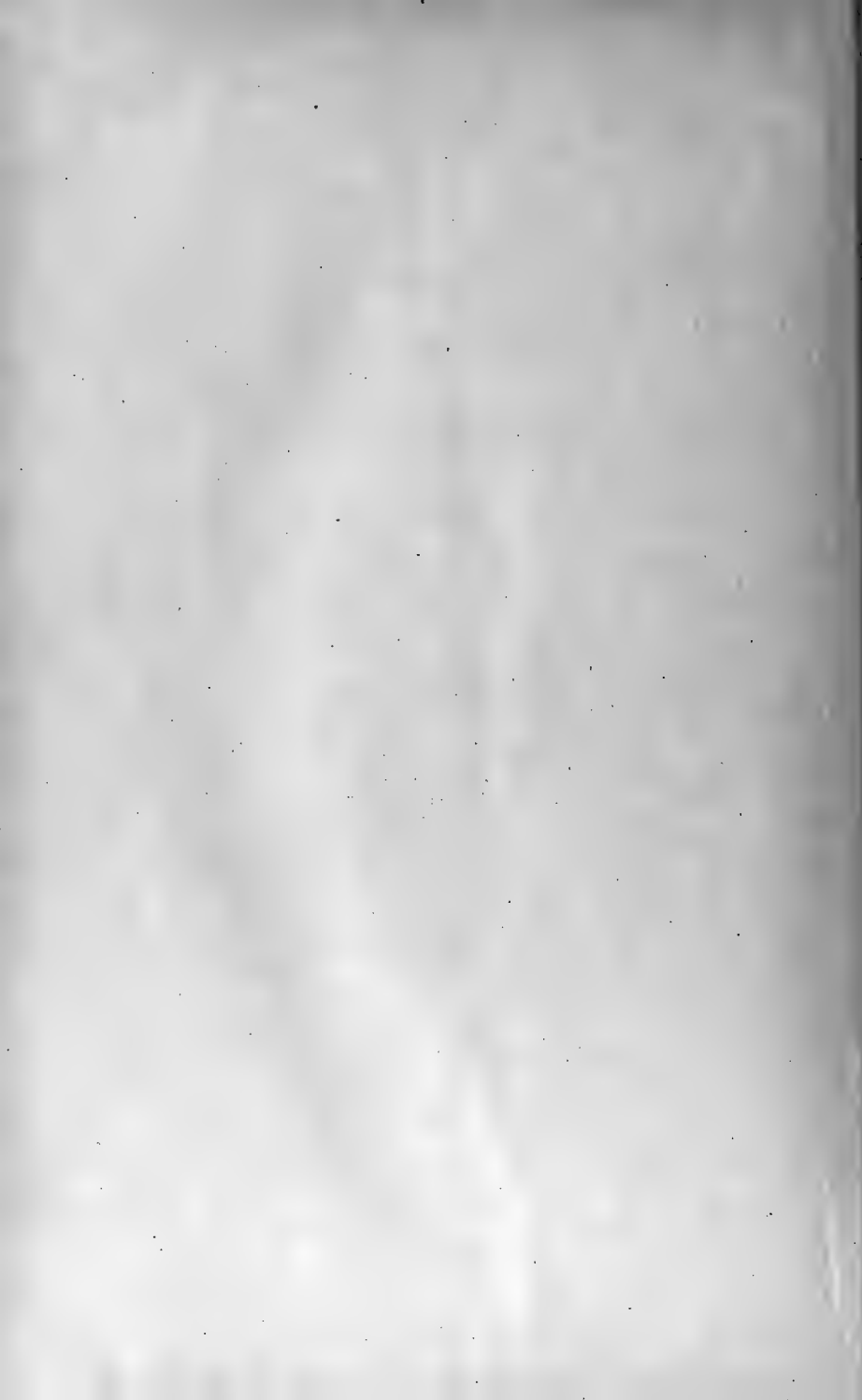
By C. C. YATES

CHIEF OF COAST AND GEODETIC SURVEY PARTY  
ASSISTANT, COAST AND GEODETIC SURVEY



WASHINGTON  
GOVERNMENT PRINTING OFFICE

1909



## LETTER OF SUBMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,

*Washington, April 10, 1909.*

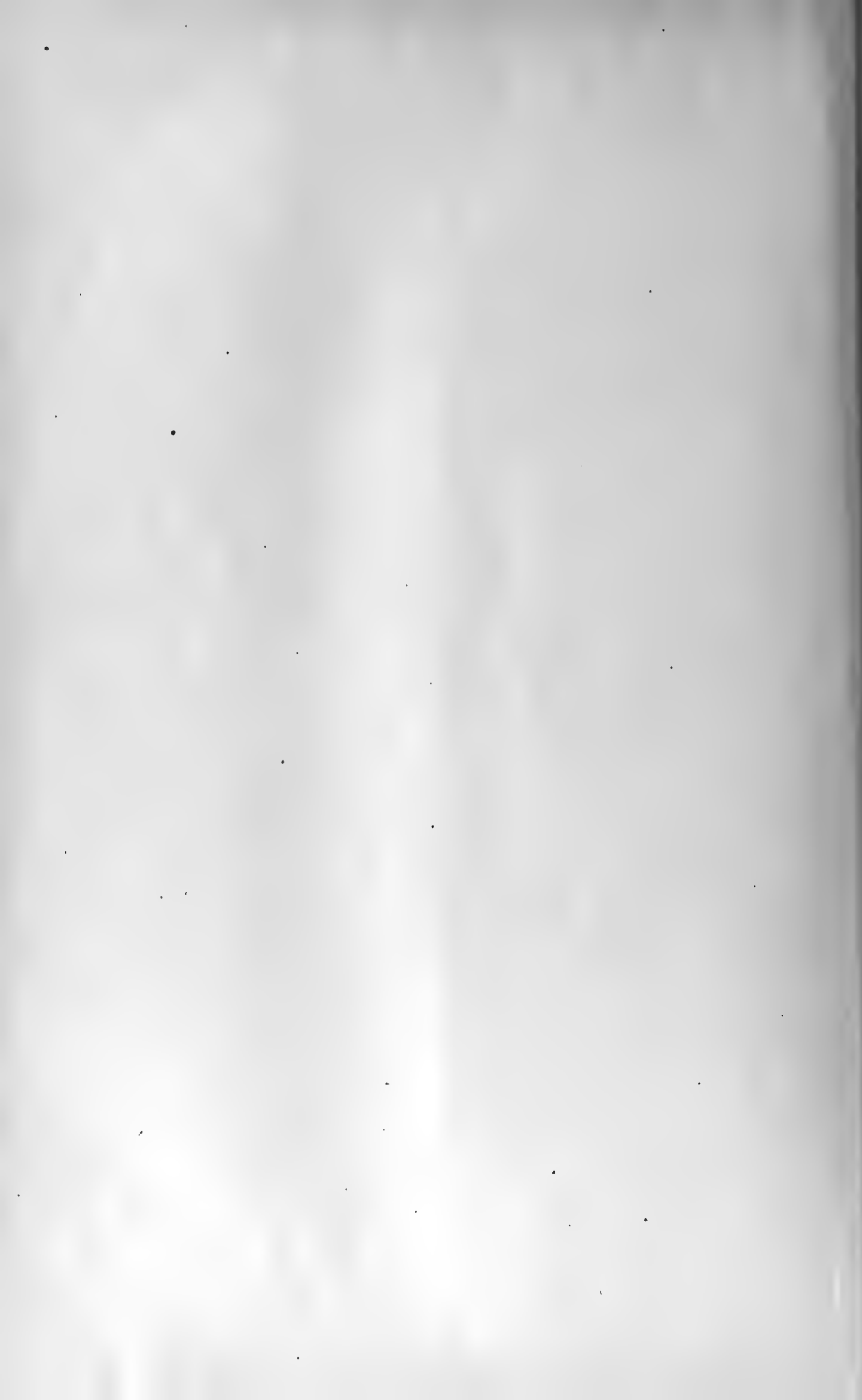
SIR: I have the honor to transmit herewith a report of the officer detailed from the Coast and Geodetic Survey to cooperate with the Bureau of Fisheries and the Maryland Shell Fish Commission in surveying the oyster bars of the State of Maryland, and certain technical results which are necessary for the interpretation and use of the plats of the survey made by the Government.

This work has been done under the provisions of the act of Congress entitled "An act to authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shell fish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland," approved May 26, 1906, and of the acts of Congress making appropriations for sundry civil expenses of the Government for the fiscal years ending June 30, 1907, 1908, and 1909.

Respectfully,

O. H. TITTMANN, *Superintendent.*

TO HON. CHARLES NAGEL,  
*Secretary of Commerce and Labor.*



## CERTIFICATION.

---

ANNAPOLIS, MD., *April 8, 1909.*

The following publication is certified to contain correct technical descriptions of all boundaries and landmarks established in the waters of Worcester County by the Maryland Shell Fish Commission in cooperation with the United States Coast and Geodetic Survey.

C. C. YATES,  
*Chief of Coast and Geodetic Survey Party,*  
*Assistant, Coast and Geodetic Survey.*

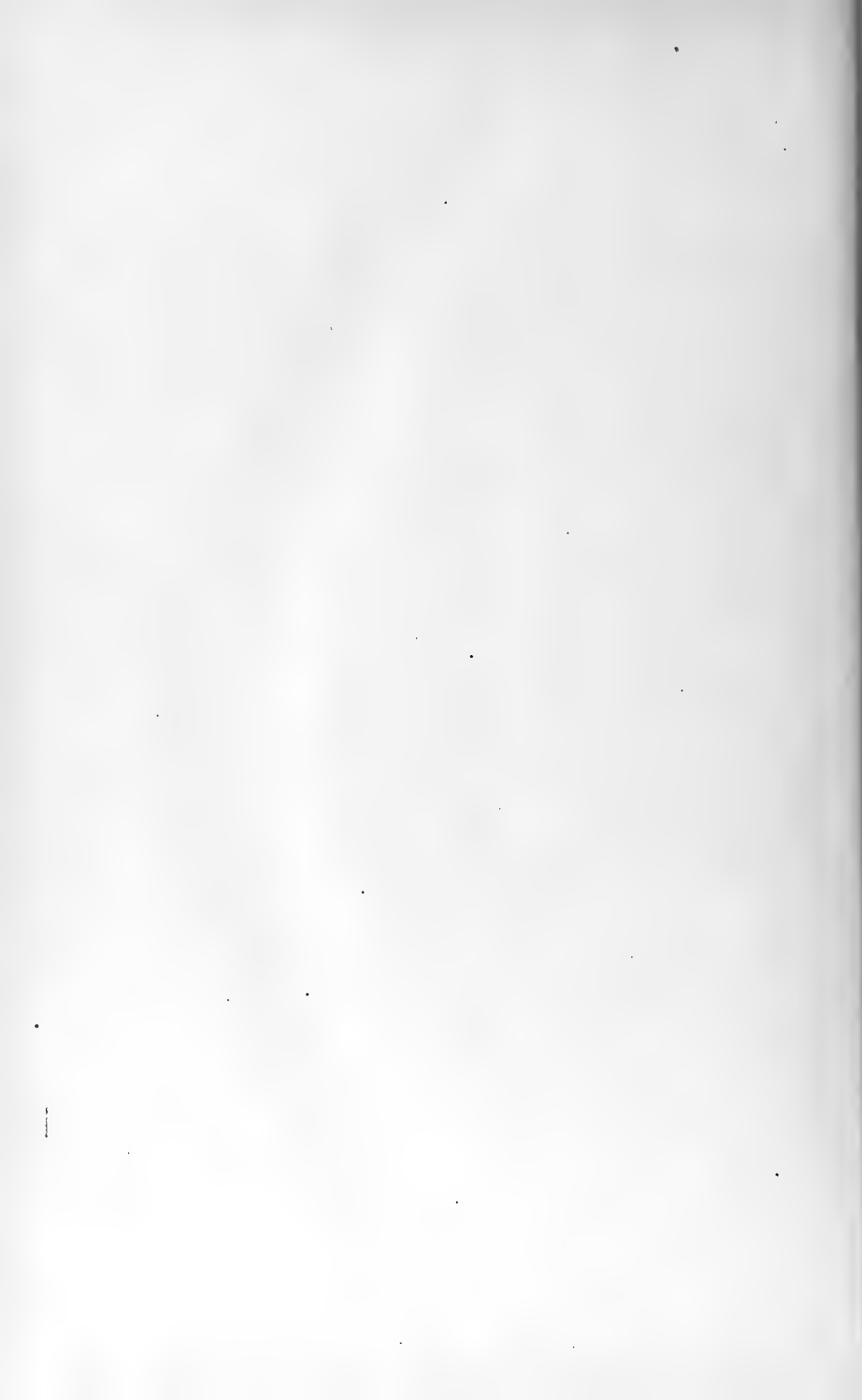
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ANNAPOLIS, MD., *April 8, 1909.*

Examined and certified to be correct.

WALTER J. MITCHELL,  
CASWELL GRAVE,  
BENJAMIN K. GREEN,  
*Maryland Shell Fish Commission.*  
SWEPSON EARLE,  
*Hydrographic Engineer.*

NOTE.—Certified copies of this publication and of the charts of the natural oyster bars of Worcester County were filed in the office of the clerk of the circuit court of Worcester County and in the office of the Board of Shell Fish Commissioners, at Annapolis, on April 12, 1909.



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Boundaries of natural oyster bars—Continued.

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# SURVEY OF OYSTER BARS, WORCESTER COUNTY, MD.

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## INTRODUCTION.

### PUBLICATIONS.

The preparation of publications relating to the survey of the oyster bars of Maryland has been divided between the Government and the State in accordance with the laws <sup>a</sup> authorizing the work and the natural division of the surveying operations <sup>b</sup> of the cooperating forces.

The publications prepared and issued by the Government under the direction of the Superintendent of the Coast and Geodetic Survey consist of a series of charts and a technical report for each county surveyed.<sup>c</sup> The charts show all legal boundaries of oyster bars within the adopted boundaries of the waters opened up for leasing with each county, and the location of all landmarks (Coast and Geodetic Survey triangulation stations) used as a foundation for the delineation of these various boundaries. The technical report gives technical and legal descriptions of all oyster-bar and other boundaries, and descriptions of all landmarks shown on the charts, and includes the report of the representative of the Coast and Geodetic Survey in charge of the work of that Service in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission. These charts and technical reports are prepared and certified for file with the courts and the Commission, as required by the laws of the State, and contain all information necessary to make a permanent record of the work of the Commission and the Government for all future requirements of the courts, or for any resurveys that may become necessary.<sup>d</sup>

The publications prepared and issued by the State under the direction of the Shell Fish Commission consist of annual reports<sup>e</sup> of all the operations of the Commission

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<sup>a</sup> See Appendix A for laws relating to the cooperation of the Coast and Geodetic Survey and Bureau of Fisheries with the Maryland Shell Fish Commission.

<sup>b</sup> See Appendix C for a summary of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland.

<sup>c</sup> These charts and technical reports can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C. The publications ready for issue are those for Anne Arundel, Somerset, Wicomico, and Worcester counties; those for Calvert, St. Marys, and Charles counties are now being prepared.

<sup>d</sup> The technical records and charts for each county are published separately on account of the requirements of the oyster-culture laws of the State and the practical considerations which make it desirable to have each county "opened up" for oyster culture as soon as practicable after the completion of its survey. For these reasons and the fact that these reports are each arranged for distribution and use in one county only without reference to other published records, much of the text of this publication is of necessity identical with similar previous publications for other counties.

<sup>e</sup> These reports can be obtained by application to the Shell Fish Commission, Annapolis, Md. They are issued annually in October, and the first and second reports are now available for distribution.

performed under the provisions of the laws of Maryland,<sup>a</sup> including results of biological and economic oyster investigations, methods and results of the hydrographic survey of the boundaries of oyster bars and crab bottoms, the administrative report and financial statement of the Commission, information relating to oyster culture, methods of surveying and leasing of oyster lots, and much other important matter of legal and scientific value.

These two sets of publications are planned and arranged to supplement each other without unnecessary duplication, and when combined they form a complete report of operations, methods, and results of the work of both the Government and State.<sup>b</sup>

#### COOPERATION OF THE COAST AND GEODETIC SURVEY.

The work of the Coast and Geodetic Survey, as the name of the Service indicates, includes a survey of the coasts of the United States made on a geodetic basis. This has involved the gradual construction of a great framework of interstate triangulation for use as a foundation for detail hydrographic and topographic surveys, from which there has been compiled and published a complete set of charts of the coasts of the United States, including all waters of Maryland where oysters grow. This existing triangulation, hydrography, and topography is essential as a foundation for a correct and practical survey of natural oyster bars; and it being one of the fundamental functions of the Coast and Geodetic Survey to furnish such data, the cooperation of the Coast and Geodetic Survey with the Bureau of Fisheries and the Maryland Shell Fish Commission is a practical and natural development of Government work leading to the conservation and increase of the supply of food.

#### COOPERATION OF THE BUREAU OF FISHERIES.

The Bureau of Fisheries has cooperated with the Coast and Geodetic Survey and the Maryland Shell Fish Commission principally as an adviser in matters relating to the biological and economic survey of oyster bars and the methods to be employed for that purpose.<sup>c</sup> A steam launch, rowing boat, and certain apparatus have also been furnished.

The primary function of the Bureau of Fisheries is to increase the productiveness of marine and fresh waters by such measures as may be best suited to the purpose, and the services rendered in connection with the survey of the oyster bars of Maryland are strictly in line with the fundamental law under which it acts. In certain States other than Maryland similar work has been conducted by the Bureau acting independently, the same ends being attained at greater expense to the Government.

#### GENERAL STATEMENT OF WORK OF COAST AND GEODETIC SURVEY.<sup>d</sup>

The results obtained from the work of the Coast and Geodetic Survey in cooperation with the Bureau of Fisheries and the Maryland Shell Fish Commission need very

<sup>a</sup> See Appendix B for an extract from the "Second Report of the Maryland Shell Fish Commission," giving a concise summary of the "Haman Oyster Culture Law."

<sup>b</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>c</sup> Hon. George M. Bowers, Commissioner of Fisheries, has detailed for this service Dr. H. F. Moore, Assistant, Bureau of Fisheries.

<sup>d</sup> For a detail statement of the very large amount of excellent oyster survey work of the Maryland Shell Fish Commission see the "Annual Reports of the Maryland Shell Fish Commission."

little other summary than is indicated by the published "Charts of Natural Oyster Bars" and the scheme of hydrographic projections and triangulation stations shown on the county progress maps attached to each report.

The triangulation has been carried on in accordance with the standard methods of the Coast and Geodetic Survey, making this work and that of the "Descriptions of Triangulation Stations" of permanent value, not only to the State of Maryland in the survey of her oyster bars, but also to the Government for any future work it may do in the regions covered by the oyster-survey operations.

The hydrographic projections and published charts are prepared with all the accuracy permitted by their large scale, especially as to the boundaries of the various shellfish bottoms in relation to landmarks, but this accuracy of location on the charts is further added to and permanently fixed by published technical descriptions which should minimize the probability of any future dispute as to either landmarks or boundaries.

Stated another way and quoting from the report of the "Survey of Oyster Bars of Anne Arundel County:"

The geographic positions of the permanent landmarks and signals have been determined with the usual precision of a trigonometric survey, and their locations at all points necessary to provide ample foundation for the surveying and charting operations permitted great accuracy of definition and location for the natural oyster bar and other boundaries established. At the same time, the very important element of permanency of the positions of boundaries has been secured, as the relocation of geodetic positions can always be accomplished by a competent surveyor, even though the original landmarks and monuments have been washed away, as has been the fate of hundreds of such points established by the Coast and Geodetic Survey on the shores of the Chesapeake Bay during the last sixty-five years.

In fact, when the survey of the oyster bars of Maryland is completed, it is believed that it will stand the test of time and practical use as a working foundation for whatever form the oyster legislation of the future may assume, and that the doing of the work systematically and accurately, once for all, means the establishment of a foundation of a great oyster industry by ineradicably locating the natural oyster bars for the use of the public, and a still greater permanent superstructure of real oyster culture as a reward for individual enterprise, by reason of the integrity of the survey by which the rights of the public are secured.

REPORT OF THE WORK OF THE COAST AND GEODETIC SURVEY IN  
WORCESTER COUNTY.

INSTRUCTIONS.

The following two letters, together with the laws<sup>a</sup> of the United States relating to the subject, constitute the "instructions" received by the chief of the Coast and Geodetic Survey party engaged on work in connection with the Maryland Shell Fish Commission. They are short and definite, but furnish ample authority and leeway for all legitimate development of the cooperation of the Government and the State in the survey of oyster bars. The "free hand" permitted by these orders, together with the aid and many valuable suggestions received from the officers of the Survey at Washington, have proved very beneficial to the work, and are greatly appreciated.

DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, June 2, 1906.*

SIR: In reply to your letter of May 28, requesting me to designate officers of the Coast and Geodetic Survey and of the Bureau of Fisheries to cooperate with the State of Maryland in making survey of and locating the natural oyster beds, I have the honor to inform you that Mr. C. C. Yates will be designated to cooperate on the part of the Coast and Geodetic Survey as soon as Congress makes the provisions of the act effective by providing an appropriation for the purpose.

Respectfully,

LAWRENCE O. MURRAY, *Assistant Secretary.*

His Excellency HON. EDWIN WARFIELD,  
*Governor of Maryland, Annapolis, Md.*

DEPARTMENT OF COMMERCE AND LABOR,  
COAST AND GEODETIC SURVEY,  
*Washington, July 3, 1906.*

SIR: Upon the receipt of these instructions you will surrender the command, accounts, etc., of the steamer *Endeavor* to the Hydrographic Inspector. \* \* \*

As soon as this transfer is completed you will enter upon the duties of Coast Survey representative on the Shell Fish Commission of Maryland.

You will consult the commissioners, prepare a programme of work, and submit estimates in the usual form.

You are authorized to come to Washington for consultation from time to time as may be necessary.

\* \* \* \* \*

Very respectfully,

O. H. TITTMANN, *Superintendent.*

Capt. C. C. YATES,  
*U. S. C. and G. S. Steamer Endeavor, Baltimore, Md.*

<sup>a</sup> For these laws see Appendix A.

## ORGANIZATION AND EQUIPMENT.

The personnel and occupation of the party of the Coast and Geodetic Survey have remained practically unchanged since the beginning of the "oyster survey." Besides the chief of party, it consists of the necessary triangulators, computers, draftsmen, and temporary employees required to carry on both the surveying operations in the field and the preparation for publication of oyster charts and technical records in the Office at Washington.

The transportation equipment for the field work of the party in Worcester County was confined to hired launches and boats, as the waters of that region are too shallow for the use of the type of boats utilized by the Survey and the Commission in Chesapeake Bay.

It being impracticable to move the Shell Fish Commission house boat *Oyster* to the ocean coast of Maryland, the convenient living and office quarters furnished the Government on that vessel had to be exchanged for temporary quarters on shore.

The greater part of the equipment of instruments for the operations of both the Government and State has been furnished by the Coast and Geodetic Survey, and consists of all necessary theodolites, levels, sextants, drafting instruments, hydrometers, etc., required for all field and office work.

## CHRONOLOGICAL STATEMENT OF WORK.

The field work in Worcester County dates from November 8, 1907, when the survey in Wicomico County was completed and the entire party moved to Chincoteague, Va., where headquarters were established.

On December 6, 1907, a subparty was organized for field work in the upper part of the county, the work of this party being done from a small house boat which was towed by a gasoline launch.

On December 19, 1907, all field work was closed for the season and office quarters established in Baltimore.<sup>a</sup>

No further field work was done in Worcester County until March 23, 1908, when a subparty was organized to complete the triangulation, which work was finished on April 18, 1908.

On March 8, 1909, a subparty was organized to do some additional field work in Somerset County, and at the same time to inspect and replace certain triangulation monuments in Worcester County which were reported to have been injured. This latter work occupied thirteen days and was completed March 30, 1909.

The office work connected with Worcester County, including the preparation of the oyster charts and technical records for publication, has been continued intermittently from the beginning of the field work, on November 8, 1907, to the present time. The delay in the completion of the office work was due to various causes, but chiefly to the desirability of utilizing the new shore line being surveyed for other purposes by a topographic party of the Coast and Geodetic Survey. This topographic work was available for use in the preparation of publications in beginning of present year, and adds greatly to the accuracy and value of the published oyster charts of Worcester County.

<sup>a</sup> Office rooms were furnished for the work of the Coast and Geodetic Survey in the new custom-house by courtesy of Hon. William F. Stone, collector of customs.

STATISTICS.<sup>a</sup>

Landmarks and triangulation signals erected.....	36
Monuments planted to mark triangulation stations.....	34
Triangulation stations occupied for observations of horizontal angles.....	38
Old triangulation stations recovered.....	5
New triangulation stations established.....	43
Total old and new triangulation stations marked and described.....	48
Linear miles of shore line covered by triangulation (approximate).....	95
Square miles covered by triangulation (approximate).....	110
Hydrographic projections prepared and completed as records of oyster boundaries.....	5
Triangles computed.....	90
Geographic positions computed.....	45
Corners of oyster boundaries established by computation.....	108
Back azimuths and distances computed from corners of boundaries to triangulation stations.....	324
Descriptions of triangulation stations prepared for publication.....	48
Descriptions of oyster boundaries prepared for publication.....	28
"Charts of Natural Oyster Bars" prepared for publication.....	3
Progress map prepared for publication.....	1

## GENERAL REMARKS.

Before ending this report the representative of the Coast and Geodetic Survey wishes to renew his statement of appreciation of the courteous assistance received from various Government and State officials and others interested in the oyster industry of Maryland, especially to the following:

To his colleague from the Department of Commerce and Labor, Dr. H. F. Moore of the Bureau of Fisheries, whose well-known scientific knowledge of all matters relating to oysters has been of great value to the work.

To Mr. Walter J. Mitchell, chairman of the Maryland Shell Fish Commission, who, by his administrative ability in carrying out the complicated requirements of the oyster laws and by his unflinching tact, has made the cooperation of the various services engaged on the work both agreeable and effective.

To Dr. Caswell Grave, secretary of the Commission, who, as editor of the Commission's annual report and Commissioner in charge of the biological and economic oyster investigations, has been brought into constant contact with the Government work and aided its operations in every way.

To Benjamin K. Green, treasurer of the Commission, who has looked after the equipment and commissary of the house boat in such a way as to add greatly to the comfort and convenience of the party of the Coast and Geodetic Survey.

To Swepson Earle, hydrographic engineer to the Commission, whose knowledge of the work from former service in the Coast and Geodetic Survey has greatly facilitated his practical use of the technical data furnished by the Government.

To Thomas H. Robinson, counsel to the Commission, for courteously furnishing valuable information relating to county boundaries.

And to the many others connected with the Commission or who as residents in the locality where the work was being carried on have greatly assisted by furnishing important information or willing services.

<sup>a</sup> These statistics only include field and office work directly performed by the party of the Coast and Geodetic Survey in connection with the oyster survey of Worcester County, and do not include the many thousands of soundings and examinations of the character of the bottom made by the engineers of the Commission, which are of considerable value to the Coast and Geodetic Survey as hydrographic records for future use in connection with the preparation of new editions of charts of the waters of Maryland.



## CHARTS AND MAPS.

### CHARTS OF NATURAL OYSTER BARS.

The charts<sup>a</sup> of the natural oyster bars of Worcester County, published by the Coast and Geodetic Survey from results of surveys of the Government in cooperation with the Maryland Shell Fish Commission, consist of three sheets covering the greater part of the shores of Chincoteague and Sinepuxent bays, including all oyster-producing bottoms of Worcester County. They are published on a scale of 1 part in 20,000 (approximately  $3\frac{1}{6}$  inches to a statute mile) and are constructed on polyconic projections which are based on the United States standard datum of the Coast and Geodetic Survey.

These charts show all oyster bars and other boundaries established by the Commission, and are certified for the purpose of filing in the office of the clerk of the circuit court of Worcester County and in the office of the Commission at Annapolis, as required by the oyster laws of Maryland.

In addition to the oyster-bar and other boundaries, the charts show the location and name of all landmarks (U. S. Coast and Geodetic Survey triangulation stations) used in making the survey, together with the hydrography and topography<sup>b</sup> necessary to make the technical definitions and delineations of boundaries readily understandable both by the people engaged in the oyster industry and the general public who may become interested through leasing of barren bottoms for oyster culture.

The names of the oyster bars are those used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission. When there was no local name in common use, a name was selected from one of the prominent features of the vicinity. By the use of recognized names or those that would naturally suggest certain sections of water, it is believed that much confusion will be avoided in the location on the charts of the oyster bars, especially by those not familiar with the use of maps.

The corners of the oyster bars are numbered from 1 to the total number of corners in each area under consideration. Where boundaries adjoin, making one point a corner of two or more oyster bars, these points have two or more numbers, each number corresponding to the bar in which the figure is located. The numbers of the corners correspond with the technical and legal descriptions of this publication under the heading "Boundaries of natural oyster bars."

The landmarks and oyster bars have been grouped in the "Contents" of this publication in accordance with the charts upon which they are shown. To find a

<sup>a</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>b</sup> Much of the detail of the inshore topography was obtained from the excellent map of Worcester County prepared and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark from surveys of the Maryland Geological Survey in cooperation with the U. S. Geological Survey.

particular oyster bar or landmark which is only known by name, consult the "Contents" and the desired chart and general location will be indicated. To find the name of a bar or landmark which is only known by location, consult the progress map at the end of this publication for the number of the chart on which it is to be found, and then examine the known locality on the chart for the name of the bar or landmark in question.

The contours on the charts showing the depth of water at mean low tide have been taken from the hydrographic sheets of former work of the Coast and Geodetic Survey.

The boundaries of the waters within the "territorial limits of the county" opened up for the leasing with Worcester County are plainly indicated on the charts. A description of this boundary is given in this publication under the heading "Boundaries of the county waters."

The areas in acres of the oyster bars were determined under the direction of the hydrographic engineer of the Commission by two independent planimeter measurements of the areas as delineated on the smooth projections of the Coast and Geodetic Survey. These areas are given in small figures in parentheses on the face of the chart within the boundaries of the different shellfish bottoms.

The symbols used on the charts for the different kinds of boundaries, triangulation stations, contours of depth of water, etc., require no other explanation than that given in the legend and other notes on the face of the charts.

#### LEASING CHARTS.

The leasing charts of Worcester County, like those for Anne Arundel, Somerset, and Wicomico counties, have been prepared under the direction of the hydrographic engineer of the Commission. These charts are constructed on polyconic projections which are based on the United States standard datum of the Coast and Geodetic Survey. They are made on the scales of 1 part in 5,000 or 1 part in 10,000, as the needs of oyster culture may require. Anne Arundel County required 13 leasing charts, Somerset County 12, Wicomico County 2, and Worcester County 3 to cover their oyster bottoms.

These charts show all the oyster bars, crab bottoms, and clam beds and other boundaries established by the Commission, and also all boundaries of oyster lots leased for the purpose of oyster culture, thus making them comprehensive and valuable records of the results of the operations of the oyster-culture laws.

The lots leased under the provision of the "old 5-acre law" are frequently of irregular shape, but the lots leased under the provision of the new oyster laws must be of rectangular shape by the terms of that act. For this latter purpose the leasing charts have been divided by parallels of latitude and meridians of longitude into small rectangles of 1 acre or 5 acres, as may be best suited to the area under consideration, and prospective leaseholders by the rules of the Commission are compelled to select whole rectangles as far as practicable.

For reasons of the present changeable nature of the number of lots leased and the large number of charts required, the leasing charts are not likely to be published for some years, but they can be seen at any time on file at the offices of the Commission, in Annapolis.

PROJECTIONS.

The polyconic projections <sup>a</sup> covering Worcester County waters are 5 in number and on the scale of 1 part in 10,000. They were constructed by draftsmen of the Coast and Geodetic Survey, who also plotted the sextant positions which determine the location of the legal boundaries of the oyster bars as delineated by the Shell Fish Commission.

A copy of each of these projections, with all the plotted positions of triangulation stations, shore line, sextant positions, and boundaries of oyster bars, was made under the direction of the hydrographic engineer of the Commission by pricking through with a sharp needle the intersections of the projection lines and all other points as plotted on the original sheets.

These projections (in duplicate) are the original records of all oyster-bar and other boundaries established by the Commission, one set being filed in the archives of the Coast and Geodetic Survey, at Washington, and the other set in the office of the Shell Fish Commission, at Annapolis.

PROGRESS MAPS.

The progress map to be found at the end of this publication is on a scale of 1 part in 100,000, and shows in outline the work accomplished by the U. S. Coast and Geodetic Survey in Worcester County and contiguous waters. It gives the scheme of all the charts and smooth projections constructed in connection with the survey, the location and names of all triangulation stations used as a basis for the surveying work, and the "boundaries of county waters" established by the Commission for the purpose of carrying out the laws of Maryland relating to oyster culture.

Besides indicating the amount of work done by the Coast and Geodetic Survey in connection with the work of the Shell Fish Commission, this progress map will be of special value for index purposes to engineers and others searching for the particular chart or projection covering the locality of the oyster bars or landmarks that may be under consideration.

The progress maps <sup>b</sup> accompanying the first and second annual reports of the Maryland Shell Fish Commission were prepared under the direction of the hydrographic engineer of the Commission. They are on the scale of 1 part in 400,000, and show the outline of the tide-water counties of Maryland, with shaded areas to indicate the waters already covered by the operations of the oyster survey.

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<sup>a</sup> For the scheme of these projections see the progress map at the end of this publication.

<sup>b</sup> These maps and reports can be obtained by application to Maryland Shell Fish Commission, Annapolis, Md.

## BOUNDARIES OF THE COUNTY WATERS.<sup>a</sup>

### WATERS WITHIN TERRITORIAL LIMITS OF COUNTY.

The laws of Maryland relating to oyster culture provide that "no person shall be permitted, by lease, assignment, or in any other manner, to acquire a greater amount of land than ten acres situated within the territorial limits of any of the counties, or one hundred acres in any other place."

The boundary line<sup>b</sup> between the waters "within the territorial limits" of Worcester County and the waters in "any other place," as established by the Shell Fish Commission for the purpose of carrying out the oyster laws, and delineated on the charts and the smooth projections of the Coast and Geodetic Survey, is identical with the boundary line between the waters of Worcester County and the waters of the adjacent States of Delaware and Virginia excepting the waters of the Atlantic Ocean. Therefore technically all waters opened up for leasing with Worcester County are within the "territorial limits" of that county.

### WATERS CONTIGUOUS TO COUNTY.

The oyster laws of Maryland provide that a true and accurate delineation of all natural oyster bars shall be made on copies of charts of the U. S. Coast and Geodetic Survey, "which said copies shall be filed in the office of the said Commissioners in the city of Annapolis," and "in the office of the clerks of the circuit courts for the respective counties wherein the grounds so designated may lie."

For the purpose of carrying out the latter part of this section of the law and for the purpose of establishing the limits of the oyster-culture area to be opened up for leasing with each county surveyed, it is necessary for the Shell Fish Commission to establish a boundary line between the waters contiguous to but not within the territorial limits of each county, and the waters contiguous to but not within the territorial limits of adjacent counties. But technically, as explained under the preceding heading of "Waters within territorial limits of county," there are no "waters contiguous to the county" in Worcester County excepting the waters of the ocean, and therefore there are no waters opened up for leasing with that county in which a person can lease "a greater amount than ten acres."

<sup>a</sup> For a complete historical and legal description of the boundaries of the counties of Maryland, the valuable publication entitled "The Counties of Maryland—Their Origin, Boundaries, and Election Districts," prepared by Dr. Edward B. Mathews and published by the Maryland Geological Survey under the direction of Dr. William Bullock Clark, Superintendent, should be consulted, as the boundaries described in this publication have been established and technically defined for the purpose of carrying out the oyster laws of the State, and may or may not be correct for other purposes.

<sup>b</sup> See "Charts of Natural Oyster Bars," published by the Coast and Geodetic Survey, and the progress map at the end of this publication.

## LANDMARKS (U. S. COAST AND GEODETIC SURVEY TRIANGULATION STATIONS).

### EXPLANATION.

The oyster laws of Maryland authorizing the survey to be made by the Shell Fish Commission provide for "an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of said natural oyster beds, bars, and rocks, as shown by delineation on the maps and charts." The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the erection of "such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland."

Under the provisions of the sections of the laws stated above, the markings and descriptions of landmarks must be sufficient for the present and future needs of both the Government and the State. With this end in view, considerable work has been expended in erecting permanent monuments at the triangulation stations and in the proper description of their location.

An effort has been made to arrange the descriptions of location and character of landmarks in a uniform and logical manner. The descriptions start with the assumption that the individual seeking a landmark has only an indefinite idea of its location. They gradually proceed from description of the general locality of a landmark to the descriptions of its immediate surroundings. This is followed by specific details of the character of the center and reference marks and a "round" of reference angles and distances which in themselves frequently contain enough information to furnish an independent and reliable location of the triangulation station.

### METHOD OF DESCRIBING TRIANGULATION STATIONS.

*The separate descriptions of triangulation stations should not be used without reading the following explanation of the method of describing the triangulation stations, as it contains certain details that are common to all the landmarks described in this publication and which are omitted in the separate descriptions as being needless repetitions.*

*Name.*—The title at the top of each separate description is the name by which the landmark or triangulation station is known and designated in all work and published oyster records or oyster charts of both the Government and State. The selection of the name is usually left to the triangulator establishing the station, and it may or may not have geographic or other significance in reference to the locality.

*General locality.*—Under this heading is given the general locality of the landmark in reference to well-known and prominent natural or artificial features, such as the nearest body of water, town, river, steamer wharf, well-defined point of land, church, or any other feature that is likely to remain both permanent and prominent.

This heading also covers a reference to the published chart or map which shows the location of the station most clearly. Nearly all the triangulation stations described in this publication are plainly indicated by name and a triangulation symbol on the published charts of oyster bars of Maryland. In this case they are referred to by serial number only, the words "charts of oyster bars of Maryland" being omitted to avoid needless repetition. These published oyster charts are on the large scale of 1 part in 20,000 (approximately  $3\frac{1}{2}$  inches to a statute mile) and show the location of the triangulation stations so clearly that in many cases the written descriptions will not be required to find them.

*Immediate locality.*—Under this heading is given the description of the "observed station" in reference to its immediate surroundings. This is supposed to include a statement of the station's estimated elevation above high water or some other well-defined level of the locality, such as a road or house; the character of the ground on which it is located, such as marsh land, sand beach, cultivated field, or meadow; estimated bearings in points of the compass and estimated distances in yards *from* (not *to*) easily recognized features, such as extreme end of point, edge of bluff, bank of creek, line of telephone poles, shore line, barn, house, fence, ditch, trees, or any other definite detail, such as being on range with the tangent of an island and a church; and so forth.

When a standard monument has been established near the station as a "reference station," this heading also covers a statement of the true bearing of the monument in degrees and minutes and its measured distance in meters, as it is the first object that is likely to catch the eye when the immediate vicinity of the desired station is reached and might be mistaken for the center mark of the "observed station" unless special attention is called to it.

The distinction between the "observed station" and "reference station" should be carefully noted by anyone making use of the description of stations for any future surveying operations.

The "observed station" is located at the particular triangulation point covered by the description of stations, and is the one whose geographic position is first computed, as it is the point which was "occupied" and "observed on" for horizontal angles. However, in spite of the primary importance of the location of the "observed station," it will be noted from the description of stations that frequently it is not marked as well as the "reference station," and in many instances has only a pine stub to indicate its position. This is the case for the reason that the necessity of intervisibility of landmarks usually made it compulsory to locate "observed stations" on edges of banks and ends of points of land, which in the tide-water section of Maryland generally means they will be washed away in a short period of years. The past experience of the Coast and Geodetic Survey in this region has shown the great need of "reference stations," if the frequent reestablishment of a new framework of triangulation is to be avoided.

The chief reason and need for the establishment of the "reference station," or secondary station, as it might be well named, is explained in the preceding paragraph, but in several instances other reasons, such as the location of the "observed station"

on an unstable sand dune, in a cultivated field, in front of a residence, or other places objectionable to the landowner, have led to establishment of "reference stations." The location of the "reference station" in relation to the "observed station" is fixed for plotting on charts or for computation of its geographic position by checked measurements of its distances and azimuth from the "observed station."<sup>a</sup>

*Marks.*—Under this heading is given a description of the character of the permanent monuments or other marks of the location of the "observed station," and of the "reference station" where one has been established.

All the marks designated in the descriptions as "the center point of triangle on standard cement monument" are exactly alike. These monuments are made of cement, sand, and gravel, and are 2 feet long and 8 inches square at top and bottom. Their tops are all marked with the same brass mold and show a center hole surrounded by a triangle, with the letters "M. S. F. C." arranged around the vertex and the letters "U. S. C. S." underneath the base of the triangle. The center hole is always in the center of the top of the monument by construction, and if this is found to have been broken off without disturbing the bottom the center of its square section can be used as the location of the station.

All the "standard cement monuments," whether used for marking the "observed station" or "reference station," have been planted upright in exactly the same manner, with their tops projecting 3 or 4 inches above the surface of the ground, unless otherwise stated.

Therefore, as the above facts in reference to the "standard cement monuments" are a constant element in all cases, the repetition of these facts in the description of stations is made needless by this one statement.

*References.*—Under this heading are given the "rounds" of directions and distances to all objects that might be useful in locating the stations when the surface marks can not be found. It is also contemplated that for general purposes of topography, hydrography, or location of boundaries of oyster bars these references will be sufficient in many cases to relocate the position of an "observed station" or "reference station" when both of them have been destroyed.

The first reference object given in the descriptions is always a triangulation station visible from the station being described, this, if possible, being a light-house, church spire, or other permanent and prominent point. Its direction is taken as being  $0^{\circ} 00' 00''$ , and the directions of all other objects are measured from it as an initial point, the angles being taken in a clockwise direction (left to right).

The true bearing<sup>b</sup> of the initial object is always given in parentheses alongside its name. This furnishes means for the calculation of the bearings of any of the other reference objects for the purposes of locating a station by horizontal angles or for the relocation of corner buoys of oyster-bar boundaries by the method of compass directions described in this publication under the heading of "Boundaries of oyster bars."

<sup>a</sup> Geographic coordinates (latitude, longitude, distance, and azimuth) relating to any of the "observed stations" or of the "reference stations" described in this publication can be obtained by application to the Superintendent of the Coast and Geodetic Survey, at Washington, D. C.

<sup>b</sup> The mean magnetic variation for Worcester County was  $5^{\circ} 55'$  west of north in 1909 and increasing at the rate of  $3\frac{1}{2}'$  yearly.

The distances in the last column under "References" are given in three different units, which vary according to their accuracy. The "miles" are statute miles and may be considered only as rough estimates. The "yards" are more accurate, but must be looked on as results generally obtained by pacing or careful estimating. The "meters," however, are accurate to the degree indicated by their decimals and in every case have been measured with a steel tape. In the same manner the accuracy of the directions are indicated by the refinement of angular measure with which they are recorded.

## DESCRIPTIONS OF TRIANGULATION STATIONS.

## THOROFARE.

*General locality.*—Western shore of Sinepuxent Bay and southern shore of Isle of Wight Bay on land known as Drum Point. (See progress map.)

*Immediate locality.*—Observed station is on "Thorofare Farm," about 400 yards from Sinepuxent Bay and 165 yards southwest from the Thorofare. It is in a cultivated field about 8 feet above high-water mark on the second knoll southwest from the Thorofare, 400 yards north of "Thorofare Farm" house, 200 yards west of a wagon trail, and 32 yards southwest of the lowest point of the hollow between the two knolls.

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 12 inches below surface of ground. Cement monument marking reference station is in bottom of hollow between the two knolls 51.032 meters N 65° 21' E of observed station and about on range with Isle of Wight Life-Saving Station.

<i>References.</i> —	°	'	"	
"Hamilton" (S 32° 06' E)-----	0	00	00	1 ¼ miles.
Middle of lookout of Ocean City Life-Saving Station-----	5	09	--	1 ¾ miles.
Presbyterian Church spire-----	5	53	--	1 ¾ miles.
Flagstaff on middle of square roof of Atlantic Hotel-----	9	47	--	1 ⅞ miles.
Power-house chimney-----	9	53	--	1 ⅞ miles.
"Ocean City Water Tower"-----	9	55	--	1 ¾ miles.
Ice-plant stacks-----	17	12	--	2 miles.
Between two chimneys on top of Tabor house on Tabor Hill-----	24	01	--	1 ¾ miles.
Chimney of "Thorofare Farm" house-----	35	01	--	¼ mile.
Chimney on gray house-----	89	00	--	½ mile.
Left chimney on white house-----	116	04	--	1 mile.
Left chimney on white house-----	150	05	--	3 miles.
REFERENCE STATION-----	245	21	20	51.032 meters.
Center of Isle of Wight Life-Saving Station-----	245	24	30	4 miles.
"Convent Water Tower"-----	334	30	20	1 ¼ miles.
Episcopal Church spire-----	359	05	--	1 ½ miles.

## COLLIER.

*General locality.*—Eastern shore of Sinepuxent Bay about one-half way between bay and ocean, ¼ mile north-northeast of "Convent Water Tower" and ½ mile south of Collier Islands. (See progress map.)

*Immediate locality.*—Observed station is on sand and grass beach land about 3 feet above high water, about 65 yards west of top of sand dunes, 8 yards north of a high-water overflow, and 42 yards west of line of telephone poles.



*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 4 inches below surface of sand.

*References.*—

	°	'	"	
"Thorofare" (N 71° 43' W).....	0	00	00	1 ¼ miles.
Right tangent of Dog and Bitch islands.....	22	33	--	¾ mile.
Left tangent of Collier Islands.....	46	12	--	½ mile.
Isle of Wight Life-Saving Station.....	86	55	--	3¾ miles.
Eighth telephone pole north of convent.....	137	40	10	50 yards.
Seventh telephone pole north of convent.....	233	01	40	65 yards.
Convent chimney.....	263	35	--	¼ mile.
"Convent Water Tower".....	268	53	30	¼ mile.
Episcopal Church spire.....	271	19	30	1 mile.
Flagstaff on Atlantic Hotel.....	272	04	--	1 ½ miles.
Power-house chimney.....	272	55	--	1 ½ miles.
"Ocean City Water Tower".....	274	05	--	1 ¾ miles.
Ice-plant stacks.....	275	36	--	1 ¾ miles.
Left tangent of water tank at Ocean City bridge.....	281	53	--	1 ⅝ miles.
Between chimneys on Tabor house on Tabor Hill.....	288	06	--	1 ⅝ miles.
Chimney of "Thorofare Farm" house.....	345	11	--	1 ¼ miles.

## CONVENT WATER TOWER.

*General locality.*—Between Sinepuxent Bay and Atlantic Ocean, about 1 mile north-northeast of "Ocean City Water Tower." (See progress map.)

*Immediate locality.*—Observed station is on a large wooden water-tower structure belonging to the Convent of Saint Rose, at Ocean City. This tower is detached from the main building and is a very prominent object.

*Marks.*—Observed station is center point of top part of water-tank structure.

*References.*—None necessary.

## GANTT.

*General locality.*—Western shore of Sinepuxent Bay, opposite Ocean City and about ½ mile back from the water. (See progress map.)

*Immediate locality.*—Observed station is in cultivated field on Gantt (formerly Davis) farm, and is about 10 feet above high water. It is about 300 yards north by west of the old Davis farmhouse, on a ridge or slight rise of ground making out from woods, 260 yards east-southeast of old woods and 90 yards east of a young growth of pines adjacent to old woods. It is also about 70 yards north of east-and-west wire fence and ditch and 83 yards west of a north-and-south fence and road running to farmhouse. Cement monument marking reference station is 85.44 meters S 89° 48' W of station in the edge of young growth of pines.

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 2 feet below the surface of the ground. Reference station is center point of triangle on standard cement monument with top about 4 inches above the ground.

*References.*—

	°	'	"	
"Harmon" (S 4° 38' W).....	0	00	00	1 mile.
REFERENCE STATION.....	85	10	30	85.44 meters.
East tip of barn roof.....	195	45	--	¾ mile.
Chimney of "Thorofare Farm" house.....	206	10	--	¾ mile.
Middle chimney of Convent.....	259	40	--	1 ½ miles.
Episcopal Church spire.....	286	35	30	1 ¼ miles.
Catholic Church cross.....	300	49	--	1 ¼ miles.
"Ocean City Water Tower".....	303	30	--	1 ¼ miles.
Power-house chimney.....	304	19	--	1 ¼ miles.
Flagstaff on square roof of Atlantic Hotel.....	304	45	--	1 ¼ miles.
Ice-plant stack.....	316	53	--	1 ¼ miles.
Left chimney of house on Tabor Hill.....	320	28	--	1 mile.
Near chimney on house on Tabor farm.....	359	31	--	¾ mile.

## HAMILTON.

*General locality.*—Eastern shore of Sinepuxent Bay, in Ocean City, about  $\frac{1}{2}$  mile northeast of the railway bridge and two-thirds the way from Sinepuxent Bay to the board walk on the ocean side. (See progress map.)

*Immediate locality.*—Observed station is on sand and grass land about 6 yards east-southeast of the extension of the east curb line of Philadelphia avenue, 145 yards northwest of Episcopal Church spire, 16 yards east-southeast of the telephone line edge of wagon trail along proposed Philadelphia avenue, and 40 yards north of an exposed line of sewer pipe.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Harmon" (S 66° 20' W).....	0	00	00	1 $\frac{1}{4}$ miles.
Chimney of house on Thorofare Farm.....	73	11	--	1 $\frac{1}{2}$ miles.
Right tangent of Drum Point.....	91	14	--	1 mile.
Left tangent of island.....	110	31	--	$\frac{3}{4}$ mile.
"Convent Water Tower".....	140	43	--	$\frac{3}{4}$ mile.
South end of roof of Quillin's cottage.....	183	33	--	400 yards.
Peak on tower of Doyle cottage.....	198	09	--	350 yards.
Chimney of Mervue cottage.....	226	40	--	350 yards.
Chimney of Hotel Hamilton.....	229	53	--	225 yards.
Episcopal Church spire.....	241	44	--	145 yards.
Chimney on Atkins cottage.....	275	50	--	175 yards.
Flagstaff on left end of Mount Pleasant Hotel.....	287	36	--	$\frac{1}{4}$ mile.
Presbyterian Church spire.....	305	42	50	$\frac{1}{4}$ mile.
Power-house chimney.....	308	56	--	$\frac{1}{4}$ mile.
"Ocean City Water Tower".....	312	31	--	$\frac{1}{2}$ mile.
Between two chimneys on Tabor house.....	347	40	--	1 mile.
Left chimney of Gray's house.....	357	14	--	1 $\frac{1}{4}$ miles.

## OCEAN CITY WATER TOWER.

*General locality.*—Between Atlantic Ocean and Sinepuxent Bay, in Ocean City, Md. (See Chart No. 13.)

*Immediate locality.*—Observed station is located about 80 yards north by east of Ocean City railroad station, 30 yards south by west from curb of Talbot street, and 60 yards west by north from curb of Baltimore avenue. It is on a steel structure 100 feet high, supporting a large round water tank 25 feet deep, which is known as "Ocean City Water Tower."

*Marks.*—Observed station is center point of upper end of standpipe.

*References.*—None necessary.

## HARMON.

*General locality.*—West shore of Sinepuxent Bay, about  $\frac{3}{4}$  mile back from west end of railroad bridge and just south of the B. C. & A. railway tracks. (See Chart No. 13.)

*Immediate locality.*—Observed station is about 170 yards east of the first pine woods from the bay shore and about 145 yards east of some young growth pines adjacent to the woods. It is in a field about 72 yards south of the east and west railway tracks and about 65 yards south of the railway fence.

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top about 12 inches below the surface of the ground.

*References.*—

	o	'	"	
"Gantt" (N 4° 38' E).....	0	00	00	1 mile.
Near chimney of Harmon house.....	1	46	--	$\frac{1}{4}$ mile.
"Convent Water Tower".....	48	59	30	1 $\frac{3}{4}$ miles.
Convent high chimney (not ventilator).....	49	51	--	1 $\frac{3}{4}$ miles.
Episcopal Church spire.....	64	27	--	1 $\frac{1}{4}$ miles.
Presbyterian Church spire.....	71	26	--	1 $\frac{1}{4}$ miles.
Right chimney of Tabor house.....	75	--	--	$\frac{3}{4}$ mile.

	o	'	"	
"Ocean City Water Tower"-----	77	04	10	1½ miles.
Power-house chimney-----	79	01	--	1 mile.
Flagstaff on square roof of Atlantic Hotel.....	80	18	--	1 mile.
Cropper's ice-plant stacks-----	92	31	--	1 mile.
Corner of fence and woods-----	218	--	--	242 yards.
Corner of railroad fence and woods-----	291	--	--	138 yards.
3 or 4 small trees-----	126	--	--	½ mile.
Left clump of trees-----	157	--	--	½ mile.

## OCEAN.

*General locality.*—Eastern shore of Sinepuxent Bay, about one-third way from bay to ocean and about ⅓ mile south-southwest of "Ocean City Water Tower." (See Chart No. 13.)

*Immediate locality.*—Observed station is on sand and grass land about 8 yards east of telephone line and about 2 yards west of an old line of poles formerly used to support wires. It is apparently in proposed extension of Philadelphia avenue, but this is uncertain, as the street lines are indefinite in this locality.

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 12 inches below surface of sand.

*References.*—

	o	'	"	
"Buffing" (S 64° 10' W)-----	0	00	00	1¼ miles.
Near corner of ice house sill-----	16	51	--	110 yards.
Left chimney on Harmon house-----	49	32	--	1 mile.
Left chimney of Tabor house-----	78	45	--	¾ mile.
Left stack of Cropper's ice plant-----	127	19	--	170 yards.
Left tangent of Captain Ludlam's office-----	133	04	--	165 yards.
Near chimney on Ocean City station-----	140	10	--	¾ mile.
"Ocean City Water Tower"-----	141	52	--	¾ mile.
Power-house chimney-----	146	17	--	¾ mile.
Flagstaff on Atlantic Hotel-----	149	50	--	¾ mile.
Chimney of 2½-story house-----	162	49	--	200 yards.
Near corner of house-----	181	58	--	200 yards.
Near corner of T. Cropper house-----	254	08	--	33 yards.
Chimney of white house-----	311	45	--	200 yards.
Near corner of Baker house-----	352	22	--	1¾ miles.
Baker windmill-----	353	18	--	1¾ miles.
Chimney of Buffington house-----	358	13	--	1¾ miles.
"Buffington Windmill"-----	358	35	--	1¾ miles.

## BUFFING.

*General locality.*—Western shore of Sinepuxent Bay, on lowland about 200 yards northeast of knoll known locally as "Steam Mill Hill" and about 1½ miles southwest of Ocean City. (See Chart No. 13.)

*Immediate locality.*—Observed station is on sand and loam land about 2 feet above high water, 25 yards west from shore, 65 yards northwest of where wire fence meets shore, 30 yards northeast of nearest point of fence, and 60 yards from junction of fence and pine woods.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Harmon" (N 13° 19' E)-----	0	00	00	¾ mile.
"Convent Water Tower"-----	29	02	--	2¾ miles.
Between chimneys on Tabor house on Tabor Hill-----	30	34	--	1¼ miles.
Episcopal Church spire-----	36	31	--	2 miles.
Middle of Ocean City Life-Saving Station tower.	41	35	--	2 miles.
"Ocean City Water Tower"-----	41	21	--	1½ miles.

	°	'	"	
Power-house chimney	42	47	--	1½ miles.
Flagstaff on square roof of Atlantic Hotel	43	48	--	1½ miles.
Cropper's ice-plant stacks	47	19	--	1¼ miles.
Left end of fence at shore	155	01	--	65 yards.
Left chimney of Kelley brown house	187	03	--	1 mile.
Chimney at right end of roof of Buffington house	207	50	--	200 yards.
"Buffington Windmill"	213	28	--	200 yards.
Fence and woods	272	51	--	60 yards.
Chimney on top of hip roof of house	311	14	--	½ mile.
Right tangent of woods	311	14	--	60 yards.
Middle of convent roof	29	53	--	2½ miles.

## BUFFINGTON WINDMILL.

*General locality.*—Western shore of Sinepuxent Bay, on knoll known locally as "Steam Mill Hill" and about 1½ miles southwest of Ocean City. (See Chart No. 13.)

*Immediate locality.*—Near house belonging to Mr. Buffington.

*Marks.*—Observed station is center of windmill tower.

*References.*—None necessary.

## GULL.

*General locality.*—Eastern shore of Sinepuxent Bay nearly halfway between bay and ocean and about 1 mile south-southwest of Ocean City. (See Chart No. 13.)

*Immediate locality.*—Observed station is on sand and grass beach land about 2 feet above high water, 130 yards west of Life-Saving Service telephone line, 200 yards west of top of sand dunes and 65 yards south of a square marble pillar projecting above ground in middle of a bare washed space. Cement monument marking reference station is 7.68 meters S 88° 58' W of observed station and about on line with left end of woods below Buffington farmhouse.

*Marks.*—Observed station is nail in stub flush with sand and grass. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Buffing" (N 67° 04' W)	0	00	00	¾ mile.
Right end of barn roof	9	19	--	1½ miles.
Chimney on near side of roof of gray house	12	07	--	1½ miles.
Near chimney of Harmon house	45	13	--	1¼ miles.
Near chimney of Gantt farm house	55	33	--	2½ miles.
Near chimney of gray house	64	44	--	3 miles.
Near end of roof of Tabor house on Tabor Hill	74	42	--	1 mile.
Left tangent of water tank on left end of Ocean City bridge	82	54	--	1⅛ miles.
Between stacks of Cropper's ice plant	92	21	--	1 mile.
"Ocean City Water Tower"	93	34	--	1¼ miles.
Power-house chimney	94	54	--	1⅜ miles.
Flagstaff on square roof of Atlantic Hotel	95	54	--	1¼ miles.
Near chimney of Kelley house	304	04	--	1¼ miles.
Left chimney on Baker house	329	05	--	1⅛ miles.
Baker windmill	330	14	--	1 mile.
REFERENCE STATION	336	01	30	7.685 meters.
Chimney on Buffington house	352	42	--	¾ mile.

## INKQUILL.

*General locality.*—Western shore of Sinepuxent Bay, near Coffins Point, about 2¾ miles southwest of Ocean City. (See Chart No. 13.)

*Immediate locality.*—Observed station is on top of a shell knoll about 10 feet above high-water mark, 30 yards west of shore, 100 yards from corner of fence near Kelley house, 150 yards from near corner of Kelley house, and about 55 yards southeast of a ditch. \*

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 12 inches below surface of ground.

<i>References.</i> —	°	'	"	
"Buffing" (N 20° 01' E).....	0	00	00	1 mile.
Near end of roof on Tabor house on Tabor Hill.....	13	27	--	2½ miles.
"Convent Water Tower".....	16	19	--	3½ miles.
Between two chimneys on middle of convent roof.....	16	58	--	3¼ miles.
Church spire.....	20	05	--	2¾ miles.
"Ocean City Water Tower".....	21	46	--	2¾ miles.
Power-house chimney.....	22	38	--	2¾ miles.
Flagstaff on square roof of Atlantic Hotel.....	23	15	--	2¾ miles.
Cropper's ice-plant stacks.....	23	32	--	2 miles.
Tangent of land.....	25	38	--	170 yards.
Tangent of land.....	89	52	--	40-50 yards.
Left tangent of fence.....	156	40	--	125 yards.
Corner of fence.....	178	05	--	100 yards.
Near chimney of Kelley house.....	184	04	--	150 yards.
Chimney of gray house.....	203	23	--	3 miles.
Chimney of large four-sided roof.....	215	03	--	1½ miles.
Baker windmill.....	331	42	--	½ mile.
"Buffington Windmill".....	356	42	--	¾ mile.
Chimney of Buffington house.....	357	27	--	¾ mile.

## SEASIDE.

*General locality.*—Eastern shore of Sinepuxent Bay, about halfway between bay and ocean and about 2¼ miles south-southwest of Ocean City. (See Chart No. 13.)

*Immediate locality.*—Observed station is on sand and grass land about 4 feet above high water. It is on the north side of an overflow from the ocean, about 200 yards from Sinepuxent Bay and 120 yards west-northwest of sand dunes between the ocean and the station. Cement monument marking reference station is 10.32 meters N 52° 39' E of observed station. No other permanent reference objects near station.

*Marks.*—Observed station is nail in stub flush with ground. Reference station is center point of triangle on standard cement monument with top 4 inches above ground.

<i>References.</i> —	°	'	"	
"Inkquill" (N 66° 35' W).....	0	00	00	¾ mile.
Baker house.....	22	--	--	1 mile.
Chimney on Buffington house.....	43	56	--	1¼ miles.
Tabor house on Tabor Hill.....	78	35	--	2 miles.
"Ocean City Water Tower".....	89	18	--	2¼ miles.
Power-house chimney.....	90	01	--	2¼ miles.
Flagstaff on square roof of Atlantic Hotel.....	90	35	--	2¼ miles.
Telephone pole.....	106	40	10	81.4 meters.
REFERENCE STATION.....	109	14	20	10.32 meters.
Telephone pole.....	141	07	00	39.5 meters.
Telephone pole.....	217	51	10	47.8 meters.
Right chimney of Coffin Hotel.....	321	47	--	2 miles.
Right chimney of Kelley brown house.....	353	40	--	¾ mile.

## ELLPOW.

*General locality.*—Western shore of Sinepuxent Bay, about  $\frac{1}{4}$  mile inland from what is known locally as Powell Point and about  $3\frac{1}{2}$  miles southwest of Ocean City. (See Chart No. 13.)

*Immediate locality.*—Observed station is on marshy grass land well back from bay, near a property line indicated by crab apple trees and a wire fence which runs from bay to crab apple trees and joins a snake fence. It is about  $\frac{1}{4}$  mile southeast of Hastings house, about  $\frac{1}{4}$  mile southwest of Kelley house, and about  $\frac{1}{4}$  mile northeast of Coffin Hotel (a large, unpainted, square house with four-sided roof). Cement monument marking reference station is 7.20 meters S  $83^{\circ} 50'$  W of observed station.

*Marks.*—Observed station is nail in pine stub flush with the ground. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Fassett" (S $10^{\circ} 32'$ W).....	0	00	00	1 $\frac{1}{4}$ miles.
"North Beach Life-Saving Station".....	0	10	30	6 $\frac{5}{8}$ miles.
Chimney of Henry brick house.....	9	48	--	1 $\frac{7}{8}$ miles.
Chimney on right side of four-sided roof of Coffin Hotel.....	59	46	--	$\frac{1}{4}$ mile.
REFERENCE STATION.....	73	18	00	7.20 meters.
Chimney on left end of roof of Hastings house.....	133	16	--	$\frac{1}{4}$ mile.
Baker windmill.....	203	41	--	1 $\frac{3}{8}$ miles.
Center of roof of Baker house.....	205	02	--	1 $\frac{3}{8}$ miles.
"Buffington Windmill".....	205	39	--	1 $\frac{7}{8}$ miles.
Chimney of Buffington house.....	206	00	--	1 $\frac{7}{8}$ miles.
"Ocean City Water Tower".....	214	08	--	3 $\frac{1}{2}$ miles.
Power-house chimney.....	214	44	--	3 $\frac{1}{2}$ miles.
Flagstaff on square roof of Atlantic Hotel.....	215	10	--	3 $\frac{1}{2}$ miles.

## BEACH.

*General locality.*—Eastern shore of Sinepuxent Bay, about halfway between bay and ocean and about 3 miles south-southwest of Ocean City. (See Chart No. 13.)

*Immediate locality.*—Observed station is on sand and grass beach land about 3 feet above high water, 250 yards west of shore of Sinepuxent Bay and 2 feet east of line of telephone poles. Cement monument marking reference station is 6.40 meters N  $0^{\circ} 23'$  E of observed station. No other permanent reference objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument. Reference station is center point of triangle on standard cement monument. (NOTE.—Reported lost in shifting sand at date of publication.)

*References.*—

	o	'	"	
"Inkquill" (N $22^{\circ} 59'$ W).....	0	00	00	1 $\frac{1}{8}$ miles.
Cupola on Baker house.....	3	15	--	1 $\frac{1}{2}$ miles.
Baker windmill.....	4	14	--	1 $\frac{1}{2}$ miles.
Nearest chimney on Baker house.....	5	07	--	1 $\frac{1}{2}$ miles.
Cupola on Buffington barn.....	15	20	--	1 $\frac{7}{8}$ miles.
"Buffington Windmill".....	16	41	--	1 $\frac{7}{8}$ miles.
Chimney on left end of roof of Buffington house.....	17	00	--	1 $\frac{7}{8}$ miles.
REFERENCE STATION.....	23	21	50	6.40 meters.
Between two chimneys on Harmon house.....	24	21	--	2 $\frac{7}{8}$ miles.
Tabor house on Tabor Hill.....	37	08	--	2 $\frac{3}{8}$ miles.
Cropper's ice-plant stacks.....	44	00	--	2 $\frac{3}{4}$ miles.
"Ocean City Water Tower".....	44	58	--	3 miles.
Flagstaff on square roof of Atlantic Hotel.....	45	54	--	3 miles.
Point of four-sided roof.....	249	21	--	3 $\frac{3}{8}$ miles.

	o	'	"	
"Longwells Windmill" .....	249	45	--	3 $\frac{3}{8}$ miles.
Chimney on near end of Henry brick house ..	287	40	--	2 miles.
Left tangent of Coffin Hotel .....	301	13	--	2 miles.
Right chimney of large white house .....	315	37	--	2 miles.
Left chimney on Kelley brown house .....	356	21	--	1 $\frac{1}{8}$ miles.

FASSETT.

*General locality.*—Western shore of Sinepuxent Bay about  $\frac{1}{2}$  mile north-northeast of Fassett Point. (See Chart No. 13.)

*Immediate locality.*—Observed station is on shell and marsh land about 2 feet above high water, 120 yards south by east from slough making into marsh, about 140 yards west of side of point, and 110 yards north of side of point. It is about 200 yards northeast of a fence with a clump of trees beyond it.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	S	o	'	"	
"North Beach Life-Saving Station" (S 10°	o	'	"		
43' W) .....	o	00	00	--	5 $\frac{1}{2}$ miles.
Tangent of point .....	7	45	--	--	300 yards.
"Nellys" .....	13	56	40	--	$\frac{3}{4}$ mile.
Left of clump of trees .....	21	33	--	--	500 yards.
Right edge of clump of trees .....	51	20	--	--	400 yards.
Chimney on gray house .....	89	05	--	--	$\frac{5}{8}$ mile.
Right tangent of roof of brick house .....	133	15	--	--	$\frac{3}{4}$ mile.
Chimney on center of red roof on white house ..	141	26	--	--	$\frac{3}{4}$ mile.
Chimney on left side of a French roof house ..	165	10	--	--	2 miles.
Slough .....	167	--	--	--	120 yards.
Baker windmill .....	192	36	--	--	2 $\frac{1}{2}$ miles.
Chimney on right edge of Baker house .....	193	24	--	--	2 $\frac{1}{2}$ miles.
"Buffington Windmill" .....	195	27	--	--	3 miles.
Between chimneys on Tabor house near Ocean					
City bridge .....	200	53	--	--	4 $\frac{1}{2}$ miles.
"Ocean City Water Tower" .....	205	23	--	--	4 $\frac{5}{8}$ miles.
"Convent Water Tower" .....	203	05	--	--	5 miles.
Power-house chimney .....	205	49	--	--	5 miles.
Flag pole on square roof of Atlantic Hotel ..	206	08	--	--	4 $\frac{5}{8}$ miles.

SHORE.

*General locality.*—Eastern shore of Sinepuxent Bay, about halfway between the bay and the ocean and about  $4\frac{1}{4}$  miles south-southwest of Ocean City. (See Chart No. 13.)

*Immediate locality.*—Observed station is on sand and grass beach land about 2 feet above high water and 16 yards east of line of Life-Saving Service telephone line poles. Cement monument marking reference station is 6.78 meters N 72° 59' E of observed station. No other permanent objects near station.

*Marks.*—Observed station is nail in stub about 3 inches above sand. Reference station is center point of triangle on standard cement monument.

*References.*—

	o	'	"		
"Ellpow" N 29° 35' W) .....	o	00	00	--	1 $\frac{3}{4}$ miles.
Chimney of gray house .....	21	19	--	--	2 $\frac{1}{4}$ miles.
Baker windmill .....	28	55	--	--	2 $\frac{5}{8}$ miles.
Left chimney of Kelley brown house .....	29	32	--	--	2 miles.
Baker house beyond .....	29	33	--	--	2 $\frac{1}{2}$ miles.
"Buffington Windmill" .....	34	59	--	--	3 miles.
Buffington house chimney .....	35	11	--	--	3 miles.

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	o	'	"	
Chimney of Tabor house on Tabor Hill	46	35	--	4½ miles.
"Ocean City Water Tower"	52	06	--	4¼ miles.
Power-house chimney	52	29	--	4¼ miles.
REFERENCE STATION	102	33	45	6.78 meters.
Top point of large four-sided roof	267	58	--	2½ miles.
"Longwells Windmill"	268	30	--	2¼ miles.
Large chimney on house in woods	278	02	--	2½ miles.
Left chimney of Henry house	287	35	--	1½ miles.
Left chimney of brick house	330	41	--	2 miles.
Chimney on left end of gray house	340	06	--	2 miles.
Left chimney of Coffin Hotel	349	42	--	1¾ miles.

## NELLYS.

*General locality.*—Western shore of Sinepuxent Bay, about 1¼ miles north of Sandy Point on a point of land near place called Nellys Bar. (See Chart No. 13.)

*Immediate locality.*—Observed station is about 5 feet above high water, 45 yards west-northwest of extreme end of point, 25 yards from north side of point and 20 yards from south side of point. It is on the edge of a cultivated field and about ¼ mile southeast of a large old-fashioned 2½-story brick house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Fassett" (N 24° 40' E)	0	00	00	¾ mile.
"Buffington Windmill"	1	11	30	4 miles.
Chimney of Buffington house	1	22	--	4 miles.
Between two chimneys on Kelley house	3	54	--	2½ miles.
Near end of roof of Tabor house	5	51	--	5 miles.
"Convent Water Tower"	8	00	--	6½ miles.
Middle of convent	8	21	--	6½ miles.
Church spire	9	24	--	6 miles.
Church spire	9	36	--	6 miles.
"Ocean City Water Tower"	9	43	--	6 miles.
Power-house chimney	10	05	--	6 miles.
Middle of square roof of Atlantic Hotel	10	22	--	6 miles.
"North Beach Life-Saving Station"	163	40	40	4½ miles.
Tangent of Sandy Point	174	02	--	1¼ miles.
Weather vane on Longwell house	192	40	--	1 mile.
"Longwells Windmill"	194	06	--	1 mile.
Left chimney of Henry brick house	300	02	--	¼ mile.

## BAR.

*General locality.*—Eastern shore of Sinepuxent Bay, about halfway between bay and ocean and about 5¼ miles south-southwest of Ocean City. (See Chart No. 13.)

*Immediate locality.*—Observed station is on sand and grass beach land about 3 feet above high water, 110 yards west of top of sand dunes, and 5 yards east of line of Life-Saving Service telephone poles. There are no permanent objects near the station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Nellys" (N 66° 14' W)	0	00	00	1½ miles.
Southerly chimney of Henry brick house	4	33	--	1¼ miles.
Chimney on northerly end of roof with two gable windows	34	33	--	2 miles.
Chimney on middle of red roofed white house	37	42	--	2¾ miles.
Left chimney of large white house	39	27	--	2¾ miles.



	°	'	"	
Chimney on southerly corner of four-sided roof of gray house.....	48	20	--	2½ miles.
Baker windmill.....	72	16	--	3½ miles.
"Buffington Windmill".....	76	16	--	3¾ miles.
Buffington house chimney.....	76	25	--	3¾ miles.
"Ocean City Water Tower".....	89	05	--	5¼ miles.
Power-house chimney.....	89	24	--	5¼ miles.
Telephone pole.....	80	28	--	32 yards.
Telephone pole.....	275	45	--	65 yards.
Middle of roof of Longwell house.....	324	48	--	1½ miles.

## LONGWELLS WINDMILL.

*General locality.*—Western side of Sinepuxent Bay, about ½ mile north by west from Sandy Point. (See Chart No. 13.)

*Immediate locality.*—Observed station is on tower in rear of house on "Longwell Farm."

*Marks.*—Observed station is center of windmill.

*References.*—None necessary.

## SANPOI.

*General locality.*—Western shore of Sinepuxent Bay, on Sandy Point. (See Chart No. 13.)

*Immediate locality.*—Observed station is on sage land 2 feet above high-water mark, about 80 yards west of extreme end of point, which is well rounded, 40 yards north of one shore of the point and 110 yards south of the other shore of the point. It is about 25 yards east-southeast of one end of a grove of crab-apple trees and about 110 yards south of the other end. Small bushes about 18 inches high surround station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"North Beach Life-Saving Station" (S 3° 33' W).....	0	00	00	3¾ miles.
North Beach Life-Saving Station flagstaff.....	0	15	--	3¾ miles.
Tangent to "Indian Graveyard Point".....	36	44	--	1 mile.
Crab-apple tree.....	64	--	--	70 yards.
Southerly chimney of stone house.....	70	15	--	½ mile.
Left end of grove of crab-apple trees.....	118	--	--	25 yards.
Dark brown house.....	191	--	--	1½ miles.
"Ocean City Water Tower".....	208	10	--	6¼ miles.
Chimney on Baker barn.....	199	19	--	4¾ miles.
Chimney on Baker house.....	199	41	--	4¾ miles.
Tabor house near Ocean City bridge.....	204	58	--	6¾ miles.

## MUD.

*General locality.*—Eastern shore of lower Sinepuxent Bay, about two-thirds way from bay to ocean and 1 mile east-southeast of Sandy Point. (See Chart No. 13.)

*Immediate locality.*—Observed station is on sandy ground about 3 feet above high water, 60 yards west-northwest from top of a sand dune, 100 yards east of head of a small, narrow inlet from Sinepuxent Bay, and 110 yards east-southeast of a line of Life-Saving Service telephone poles which pass about 18 yards to the east of the wagon trail. Cement monument marking reference station is 18.84 meters N 57° 54' W of observed station. No other permanent reference objects near station.

*Marks.*—Observed station is a nail in a stub flush with the sand. Reference station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"North Beach Life-Saving Station" (S. 21° 39' W).....	0	00	00	3¼ miles.
Telephone pole.....	49	01	--	150 yards.
Southerly chimney of storehouse.....	78	50	--	1½ miles.

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	°	'	"	
Telephone pole.....	83	07		110 yards.
REFERENCE STATION.....	100	26	50	18.84 meters.
Northerly end of ridge of roof of large barn.....	104	09		1¾ miles.
"Longwells Windmill".....	108	26		1½ miles.
Top point of four-sided roof.....	108	27		1¾ miles.
Chimney on southerly end of long building.....	119	05		1¾ miles.
Telephone pole.....	120	29		125 yards.
Near chimney of brick house.....	139	44		2 miles.
"Ocean City Water Tower".....	180	56	20	6½ miles.

## INGRAYA.

*General locality.*—Western shore of Sinepuxent Bay, on easterly side of Sinepuxent Neck, on point known locally as Indian Graveyard. (See Chart No. 13.)

*Immediate locality.*—Observed station is about 5 feet above high water, 55 yards north of nearest shore, 180 yards west of extreme end of point near bushes, and 80 yards east of where a ditch coming from the northward turns to westward. Two trees, each about 75 yards distant, are located on the line of the ditch.

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 14 inches below surface of ground.

*References.*—

	°	'	"	
"North Beach Life-Saving Station" (S 12° 25' E).....	0	00	00	2¾ miles.
Tangent to Green Point.....	42	19		½ mile.
Corner of ditch.....	109	10		80 yards.
Tree, 8 inches diameter.....	118	20		75 yards.
Tree, 8 inches diameter.....	162	24		80 yards.
Near chimney of 2½-story house (Hawks Nest).....	216	54		¾ mile.
"Longwells Windmill".....	219	50		1½ miles.
Tangent to Sandy Point.....	239	43		1¼ miles.
Bushes to east of end of point.....	299			180 yards.

## SALT.

*General locality.*—Eastern shore of lower Sinepuxent Bay, about two-thirds way from bay to ocean and 1½ miles south-southeast of Sandy Point. (See Chart No. 13.)

*Immediate locality.*—Observed station is on sand and marsh beach land about 3 feet above high water, 105 yards east by south of line of poles of Life-Saving Service telephone line, and 175 yards east of a small creek known as "Jones Salt Works Drain." No permanent objects near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"North Beach Life-Saving Station" (S 20° 36' W).....	0	00	00	2 miles.
North Beach Life-Saving Station flagstaff.....	0	14	20	2 miles.
Telephone pole.....	50	36		175 yards.
Telephone pole.....	72	36		135 yards.
Jones Salt Works Drain.....	80			175 yards.
Telephone pole.....	111	48		135 yards.
Left chimney of stone house.....	121	44		1¾ miles.
Telephone pole.....	137	07		200 yards.
"Longwells Windmill".....	141	23		2 miles.
Center of roof of white house.....	141	44		2½ miles.
Near chimney of 2½-story house.....	150	21		4½ miles.
"Ocean City Water Tower".....	182	07	40	7¾ miles.

## NORTH BEACH LIFE-SAVING STATION.

*General locality.*—Atlantic coast side of strip of beach land between lower Sinepuxent Bay and the ocean. (See Charts Nos. 13 and 14.)

*Immediate locality.*—Observed station is on lookout cupola on the North Beach Life-Saving Station. This cupola is a gable-roof structure on a gable-roof 2½-story house.

*Marks.*—Observed station is a black and white 4 by 4 inch pole secured temporarily to the exact middle of ridge of gable roof of lookout cupola.

*References.*—None necessary.

## BIRCH.

*General locality.*—Southern part of Sinepuxent Neck, between Sinepuxent Bay and Newport Bay, about ½ mile north-northwest of South Point. (See Charts Nos. 13 and 14.)

*Immediate locality.*—Observed station is on the northwest and higher of two knolls about 20 feet above high-water mark, 600 yards east of Island Point, 200 yards northeast of shore of upper Chincoteague Bay, 75 yards east-southeast of where a ditch and fence meet, and about 400 yards southwest of a house and barn.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Guilberts Cupola" (S 48° 09' W)-----	0	00	00	6¾ miles.
Chimney on left of a small house -----	12	13	--	4¾ miles.
Nail in blaze in walnut tree (20 inches diameter)-----	25	14	--	28.61 meters.
Chimney on black roof of white house....	28	46	--	4¼ miles.
"Handys Hammock"-----	34	41	30	3 miles.
Cedar tree-----	41	39	--	80 yards.
Jones windmill-----	47	27	--	3½ miles.
Nail in blaze in walnut tree-----	66	33	40	25.52 meters.
Chimney of house near "Newport"-----	83	50	--	2½ miles.
Holly tree-----	156	57	--	150 yards.
Cedar tree near Birch farm buildings....	184	58	--	300 yards.
Chimney of Birch farm house-----	192	32	--	300 yards.
Cedar tree-----	229	57	--	195 yards.
Chimney of hotel near "North Beach Life-Saving Station"-----	259	49	--	2½ miles.
Nail in blaze in walnut tree-----	341	34	--	12.72 meters.

## NECK.

*General locality.*—Northeastern shore of Newport Bay, on easterly side of Newport Neck between Greys Inlet and Spence Cove. (See Chart No. 13.)

*Immediate locality.*—Observed station is on marsh land about 400 yards northeast of Knot Point, 100 yards north from shore of Spence Cove, 50 yards northwest of small marsh inlet, and 10 yards south of edge of a prominent grove of old oaks. There are bushes between the station and the oak grove. Cement monument marking reference station is 12.72 meters N 7° 23' W from observed station.

*Marks.*—Observed station is center point of triangle on standard cement monument. Reference station is center point of triangle on standard cement monument. (NOTE.—Top disconnected, but re cemented.)

*References.*—

	°	'	"	
"Handys Hammock" (S 53° 53' W)-----	0	00	00	3 miles.
Tall water bushes-----	17	--	--	75 yards
House behind bushes-----	17	33	--	4½ miles.
Left chimney of large house-----	29	37	--	2¾ miles.
Chimney of 1½-story white house-----	43	48	--	1½ miles.
Left edge of oak grove-----	81	14	--	25 yards.
Nail in blaze of persimmon tree (3 inches diameter)-----	100	36	50	12.24 meters

## Survey of Oyster Bars, Worcester County, Md.

	°	'	"	
Nail in blaze in oak tree (12 inches diameter).....	117	35	30	25. 28 meters.
REFERENCE STATION.....	118	43	40	12. 72 meters.
Nail in blaze in oak tree.....	173	04	--	17. 88 meters.
Chimney of house in woods.....	216	32	--	¾ mile.
Left chimney of large house.....	277	26	--	1 mile.
Tangent of marsh.....	253	07	--	¾ mile.
Right tangent of Island Point.....	304	29	--	1½ miles.
Tangent of marsh point.....	334	02	--	¼ mile.

## NEWPORT.

*General locality.*—Northwestern shore of Newport Bay on easterly side of elevated land known as Cropper Island. (See Chart No. 13.)

*Immediate locality.*—Observed station is on elevated tilled land about 5 feet above high-water mark, 200 yards west of mouth of marsh creek in bay shore, and 150 yards south of the only house on the island. It is near east edge of tilled land, about 70 yards west from edge of marsh. The tilled and marsh land is separated by a strip of land covered with trees.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Neck" (S 86° 10' E).....	0	00	00	1½ miles.
A house.....	22	42	--	2 miles.
Chimney of Birchs house.....	32	29	--	2½ miles.
Walnut tree (24 inches diameter).....	83	53	--	70 yards.
Three trees.....	94	--	--	150 yards.
Left tangent of point of land.....	115	07	--	1 mile.
New barn.....	129	06	--	2½ miles.
Chimney on house.....	133	39	--	1½ miles.
Chimney on left end of house.....	158	36	--	1 mile.
Thorn bushes.....	171	44	--	150 yards.
Chimney on house.....	266	57	--	150 yards.
Double walnut tree.....	297	41	--	250 yards.
Well sweep.....	214	11	--	200 yards.

## HANDYS HAMMOCK.

*General locality.*—Western shore of upper end of Chincoteague Bay and western side of entrance to Newport Bay on solid land partly surrounded by marsh known as Handys Hammock. (See Charts Nos. 13 and 14.)

*Immediate locality.*—Observed station is on a sand knoll about 10 feet above high water and 140 yards west-northwest from the extreme end of the narrow point on which it is situated. It is about 35 yards west of another short point, 30 feet south-southwest of shore at a sand beach, 20 yards north of a thorn bush and 50 yards north-northwest of a small pool 20 feet square.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"North Beach Life-Saving Station" S 82° 13' E).....	0	00	00	5 miles.
North Beach Life-Saving Station flagstaff.....	00	14	--	5 miles.
Left edge of woods beyond Kelleys Point.....	106	39	--	2¼ miles.
Myrtle tree.....	115	42	--	50 yards.
Chimney on left end of large white house.....	131	57	--	1¼ miles.
Chimney right end of another large white building.....	136	48	--	2¼ miles.
Center of large white house.....	146	42	--	1½ miles.
Right end of new barn roof.....	178	12	--	1½ miles.
Windmill.....	221	42	--	½ mile.

	°	'	"	
Chimney of house with two piazzas	224	17		½ mile.
Chimney of large unpainted house	251	18		1 mile.
Middle of clump of 12 persimmon trees	267	35		50 yards.
Chimney on near end of large white house	289	48		2¼ miles.
Tangent to South Point	354	31		3 miles.

BEACON CLUMPS.

*General locality.*—Easterly side of upper Chincoteague Bay, on the southern and larger of the two small marsh islands called Beacon Clumps. (See Chart No. 14.)

*Immediate locality.*—Observed station is on a small marsh island covered at extreme high water. It is situated about 35 yards south of shore, 22 yards west of shore, 28 yards north of shore, and 75 yards east of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Guilberts Cupola" (S 78° 50' E)	0	00	00	4½ miles.
Modern house being constructed	2	58		4½ miles.
Silo building	3	18		4½ miles.
Chimney of Jones house on Newport Bay	51	50		6¼ miles.
Near end of roof of house on South Point	86	18		5½ miles.
First tree near North Beach Life-Saving Station	103	21		5 miles.
North Beach Life-Saving Station flagstaff	111	13		5 miles.
"North Beach Life-Saving Station"	111	15	20	5 miles.
Other Beacon Clump	116			¼ mile.
Green Run Inlet Life-Saving Station lookout	255	46		3½ miles.
Right end of Green Run Inlet woods	271	31		3½ miles.
Between two chimneys on cream-colored house	339			5½ miles.

TURNAGAIN.

*General locality.*—Eastern shore of Chincoteague Bay, on main land marsh about 1 mile southeast of Whittington Point. (See Charts Nos. 14 and 15.)

*Immediate locality.*—Observed station is on marsh land awash at high water, about 75 yards south from shore, 55 yards east from shore, and about 83 yards west from shore of a small bay. A creek runs nearly around this piece of marsh, but does not make an island of it. No permanent reference marks near station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Pope Island Life-Saving Station" (S 15° 22' W)	0	00	00	4¾ miles.
Point of land	18	02		¼ mile.
Point of land	34	23		2 miles.
Point of marsh	91	11		¼ mile.
Point of land	97	54		¼ mile.
Point of land	164	16		¼ mile.
Point of this marsh	194	28		¼ mile.
Beginning of woods	251	41		1 mile.
Cut in top of woods	281	41		¾ mile.
End of woods	313	19		½ mile.
Sand dune behind woods	330	44		1¾ miles.
Clump of trees	336	32		1¾ miles.
Duck blind	355	44		1 mile.

## GREEN RUN INLET LIFE-SAVING STATION FLAGSTAFF.

*General locality.*—Atlantic coast, about 18 miles south-southwest of Ocean City and about 15 miles northeast by north of "Assateague Light." (See Charts Nos. 14 and 15.)

*Immediate locality.*—Observed station is detached flagstaff with a topmast belonging to Green Run Inlet Life-Saving Station.

*Marks.*—Observed station is center of flagstaff.

*References.*—None necessary.

## LANDLET.

*General locality.*—Western shore of Chincoteague Bay, about 2¼ miles south of Snow Hill Landing, on point of land known locally as Watermelon Point. (See Chart No. 14.)

*Immediate locality.*—Observed station is on a small sandy island surrounded by marsh land and about 20 yards west of shore. This so-called island is the only hard land on the marsh point and is about ⅓ mile to the east of the nearest solid land.

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 2 inches below surface of ground.

*References.*—

	°	'	"	
"Guilberts Cupola" (N 7° 05' E).....	0	00	00	2¼ miles.
Chimney of white house.....	8	02		4 miles.
Right of Green Run woods.....	111	29		5 miles.
"Pope Island Life-Saving Station".....	151	52		6¾ miles.
Four trees on Martin Point.....	185	21		1 mile.
Left of clump of trees called Purnell Hammock.	197	23		¾ mile.
House.....	217	55		6 miles.
Large tree.....	245	16		¼ mile.
Chimney of white house.....	264	00		¾ mile.
Cedars on property line.....	275	50		¾ mile.
Chimney on middle of house.....	316	13		1 mile.
Chimney outside of house.....	328	08		1¼ miles.
Near end of large barn.....	342	05		1¼ miles.

## GUILBERTS CUPOLA.

*General locality.*—Western shore of Chincoteague Bay, close to Snow Hill Landing. (See Chart No. 14.)

*Immediate locality.*—Observed station is on a large mansion house located about 100 yards north-west of the land end of Snow Hill Landing.

*Marks.*—Observed station is center point of top of cupola.

*References.*—None necessary.

## RICKS.

*General locality.*—Western shore of upper Chincoteague Bay, on point of marsh land about 1½ miles northeast of Snow Hill Landing called Ricks Point. (See Chart No. 14.)

*Immediate locality.*—Observed station is on a marsh point about 20 yards west from a pool making into marsh, 20 yards south from shore and 90 yards north of shore.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Green Run Inlet Life-Saving Station flag-staff" (S 31° 48' E).....	0	00	00	6¼ miles.
Green Run Inlet Life-Saving Station cupola..	0	08	05	6¼ miles.
Right tangent of Green Run woods.....	7	45		7 miles.
Right tangent of pool.....	32	18		20 yards.
Right tangent of Martin Point.....	52	30		4½ miles.
Center of Purnell Hammock.....	57	22		4½ miles.
Left tangent of point.....	61	07		¼ mile.
Guilbert windmill.....	83	26		1½ miles.

	°	'	"	
Chimney near end of house.....	118	37	--	1 mile.
To first of four points of land or line.....	189	54	--	100 yards.
Windmill on red tank.....	195	32	--	2 miles.
Center of thick woods.....	201	09	--	1 1/4 miles.
Right tangent of Kelleys Point.....	231	01	--	2 miles.
North Beach Life-Saving Station flagstaff....	279	42	20	6 1/4 miles.
Left tangent of pool.....	293	51	--	40 yards.
Left tangent of Robins marsh.....	329	25	--	3/4 mile.
"Beacon Clumps".....	332	26	25	3 3/4 miles.
Mouth of pool.....	340	26	--	30 yards.
Right tangent of Robins marsh.....	349	02	--	3/4 mile.

## MARYLAND-VIRGINIA LIFE-SAVING STATION BEACH).

*General locality.*—Atlantic coast near ocean beach, on boundary line between Maryland and Virginia and about 1/4 mile north-northeast of Pope Island Life-Saving Station. (See Chart No. 15.)

*Immediate locality.*—Observed station is on marsh and sand land about 230 yards northwest of high-water mark on beach, 75 yards west of top of sand dunes on inner edge of beach, and about 50 yards northwest of the Life-Saving Service telephone line which runs along the beach in midst of bushes at this point.

*Marks.*—Observed station is the center of an old granite monument (said to have been established many years ago) which marks the boundary between Maryland and Virginia. Top of monument is 6 by 6 inches square and projects 18 inches above the ground. The top is marked with an east-and-west line from corner to corner and the letters "M" and "V" to indicate the Maryland and Virginia sides of the boundary, respectively.

*References.*—

	°	'	"	
"Pope Island Life-Saving Station" S 20°	0	00	00	1/4 mile.
12' W).....	0	00	00	1/4 mile.
Left peak of barn roof.....	5	39	--	1/4 mile.
"Maryland-Virginia Boundary, Pope Island".....	63	55	--	3/4 mile.
Chimney on old house on Pope Island.....	68	41	--	3/4 mile.
Pine tree in cut toward "Mill".....	92	55	--	1/4 mile.
First telephone pole from end of bushes.....	195	52	--	190 yards.
Fifth telephone pole from end of bushes.....	205	25	--	110 yards.
Sixth telephone pole from end of bushes.....	263	06	--	52 yards.
Seventh telephone pole from end of bushes				
fourth from life-saving station).....	330	58	--	88 yards.
Eighth pole signal pole at life-saving station).....	357	03	--	1/4 mile.

## MARYLAND-VIRGINIA (POPE ISLAND).

*General locality.*—Western side of Pope Bay on eastern side of Pope Island, about 1/4 mile north-east of its southern extremity and on boundary between Maryland and Virginia. (See Chart No. 15.)

*Immediate locality.*—Observed station is on hard land 3 feet above high-water mark, about 10 yards west of shore, 85 yards south of an old house, and 10 yards east of bushes.

*Marks.*—Observed station is the center of an old granite monument projecting 18 inches above ground which marks the boundary between Maryland and Virginia. Top of monument is cut in a square 6 by 6 inches with an east-and-west line from corner to corner and the letters "M" and "V" to indicate the Maryland and Virginia sides of the boundary, respectively.

*References.*—

	°	'	"	
"Pope Island Life-Saving Station" (S 73° 45' E).....	0	00	00	1/4 mile.
Right tangent of shanty.....	15	32	--	3/4 mile.
Right tangent of boathouse.....	40	22	--	1/4 mile.
Center of small island.....	101	--	--	1/4 mile.
Tangent of Pope Island.....	113	38	--	1/4 mile.

## Survey of Oyster Bars, Worcester County, Md.

	o	'	"	
Two large pines.....	139	07	--	¼ mile.
Left of bushes.....	191	56	--	10 yards.
Near corner of old house.....	283	08	--	85 yards.
Point of land near life-saving station wharf.....	336	22	--	¼ mile.
Drill pole near life-saving station.....	355	29	--	½ mile.

## POPE ISLAND LIFE-SAVING STATION (VIRGINIA).

*General locality.*—Atlantic coast, on Pope Island Beach, about  $9\frac{3}{4}$  miles northeasterly from "Assateague Light." (See Chart No. 15.)

*Immediate locality.*—Observed station is on the main building of the Pope Island Life-Saving Station, which is a gable roofed  $1\frac{1}{2}$ -story wooden structure with a square lookout cupola. Pointed cap piece of cupola supports a weather vane in the form of a fish.

*Marks.*—Observed station is center of weather-vane spindle.

*References.*—None necessary.

## WILDCAT (VIRGINIA).

*General locality.*—Northerly end of Chincoteague Island, on westerly side of Assateague Bay. (See Chart No. 15.)

*Immediate locality.*—Observed station is on marsh land, about  $\frac{1}{4}$  mile south of upper end of island, known locally as Wildcat Point. It is inshore about 100 yards northwest of mouth of small marsh drain emptying into Assateague Bay. The marsh creek or drain makes a decided turn about 12 yards south of station.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	o	'	"	
"Assateague Light" (S $26^{\circ} 06'$ W).....	0	00	00	$5\frac{1}{4}$ miles.
Right tangent of woods.....	29	48	--	1 mile.
"Killick Shoal Light".....	30	37	40	$4\frac{1}{4}$ miles
First cedar.....	44	52	--	$1\frac{1}{2}$ miles.
Clump of cedars.....	66	--	--	$1\frac{1}{4}$ miles.
A marshy island.....	100	--	--	$1\frac{1}{4}$ miles.
Right tangent of marshy island.....	130	14	--	$1\frac{1}{4}$ miles.
Left tangent of Ragged Point.....	172	08	--	1 mile.
Shanty on Ragged Point.....	176	42	--	1 mile.
First tree on Ragged Point.....	209	11	--	1 mile.
Second tree on Ragged Point.....	210	41	--	1 mile.
Sand dune.....	259	--	--	1 mile.
Smith Hammock sand dune.....	323	--	--	$1\frac{1}{4}$ miles.
Middle of boathouse on beach.....	335	52	--	3 miles.
A marsh tump.....	340	--	--	$\frac{3}{4}$ mile.

## ASSATEAGUE LIGHT (VIRGINIA).

*General locality.*—Southerly part of Assateague Island, seacoast of Virginia, about  $2\frac{1}{2}$  miles from its southwesterly point. (See progress map.)

*Immediate locality.*—Red tower, 154 feet above sea level and 129 feet above its own base, known as Assateague Light-House.

*Marks.*—Observed station is center of black lantern.

*References.*—None necessary.

## KILLICK SHOAL LIGHT (VIRGINIA).

*General locality.*—Southerly end of Chincoteague Bay, on Killick Shoals, off entrance of Chincoteague Channel. (See progress map.)

*Immediate locality.*—Screw pile structure known as Killick Shoal Light-House.

*Marks.*—Observed station is center of black lantern.

*References.*—None necessary.



## CHESTER (VIRGINIA).

*General locality.*—Southern and western shores of Chincoteague Bay, about  $\frac{1}{2}$  mile south of shore of bay and  $\frac{1}{4}$  mile east of solid land known locally as Mosquito Point Farm. (See progress map.)

*Immediate locality.*—Observed station is on a mound of dry land surrounded by marsh, known locally as Fox Hill. It is on the highest point and near the apex of the mound, which is V-shaped and about 15 feet above high water at the station. The mound gradually falls off to the level of the marsh from the station to the ends of the V, which are both about 150 yards distant, and at the extreme apex, which is about 25 yards to the north. Reference station is 5.82 meters N  $80^{\circ} 51'$  W of the observed station.

*Marks.*—Observed station is center of tile pipe surrounded by cement with top flush with ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	o	'	"	
"Assateague Light" (S $59^{\circ} 59'$ E).....	0	00	00	5 $\frac{1}{4}$ miles.
Tower on Wallops Beach Life-Saving Station.....	60	44	--	5 $\frac{1}{2}$ miles.
Cupola of barn.....	135	53	--	$\frac{3}{4}$ mile.
REFERENCE STATION.....	159	08	10	5.82 meters.
"Grace M. E. Church".....	274	27	--	5 $\frac{1}{4}$ miles.
"Killick Shoal Light".....	333	30	--	3 $\frac{1}{2}$ miles.
West spire of Union Baptist Church at Chincoteague.....	348	15	--	4 miles.

## LONG POINT (VIRGINIA).

*General locality.*—Western shore of lower Chincoteague Bay, near Long Point, about  $\frac{1}{2}$  mile east of Franklin City. (See Chart No. 15.)

*Immediate locality.*—Observed station is on marsh land about 40 yards from end of point of mainland, 30 yards southwest of shore and 20 yards north of shore. A small marsh island is located about 200 yards east of the station, which was once a part of the mainland and known as Long Point. Reference station is 11.81 meters N  $42^{\circ} 37'$  W of the observed station.

*Marks.*—Observed station is center of tile pipe set in cement with top flush with the ground. Reference station is center point of triangle on standard cement monument.

<i>References.</i> —	o	'	"	
"Mill" (N $38^{\circ} 07'$ E).....	0	00	00	4 miles.
"Assateague Light".....	133	26	15	6 $\frac{3}{4}$ miles.
"Killick Shoal Light".....	144	32	25	4 $\frac{3}{4}$ miles.
End of wharf at Franklin City.....	222	33	--	$\frac{1}{2}$ mile.
M. P. Church.....	252	32	30	1 mile.
Grace M. E. Church (tall spire).....	259	07	30	$\frac{3}{4}$ mile.
Grace M. E. Church (short spire).....	259	38	35	$\frac{3}{4}$ mile.
REFERENCE STATION.....	279	16	00	11.81 meters.

## GRACE M. E. CHURCH (VIRGINIA).

*General locality.*—Western shore of lower Chincoteague Bay, about  $\frac{1}{2}$  mile northwest of railway wharf at Franklin City. (See Chart No. 15.)

*Immediate locality.*—Observed station is the taller of two towers on church known as Grace M. E. Church.

*Marks.*—Observed station is center of pointed tower or spire.

*References.*—None necessary.

## MONEY (VIRGINIA).

*General locality.*—Western shore of lower Chincoteague Bay, about 1 mile west-northwest of Long Point, on northern edge of town of Greenbackville, and just south of Maryland-Virginia boundary. (See Chart No. 15.)

## Survey of Oyster Bars, Worcester County, Md.

*Immediate locality.*—Observed station is about 70 yards northeast of railway on a sandy rise of ground about 15 feet above level of track. It is about 25 yards south of the Maryland-Virginia boundary and 30.43 meters S 38° 28' E of broken stone boundary monument. At the station, "Assateague Light" shows almost tangent to third house north of Grace M. E. Church.

*Marks.*—Observed station is center point of triangle on standard cement monument buried with top 30 inches below surface of ground

*References.*—

	°	'	"	
"Grace M. E. Church" (S 21° 23' E)-----	0	00	00	250 yards.
"Assateague Light"-----	7	46	49	7¼ miles.
M. P. Church-----	65	46	20	¼ mile.
Center chimney on square house-----	117	11	--	100 yards.
"Maryland-Virginia Railroad)" (boundary stone)-----	162	55	26	30.43 meters.
"Long Point"-----	324	45	43	1 mile.
Left chimney of two close together-----	330	48	--	150 yards.
Small tower Greenbackville Church-----	359	00	30	250 yards.

## MARYLAND-VIRGINIA (RAILROAD).

*General locality.*—Western shore of lower Chincoteague Bay, inland about 1 mile west-northwest of Long Point, on boundary line between Maryland and Virginia. (See Chart No. 15.)

*Immediate locality.*—Observed station is about 80 yards northeast of railroad on a sandy rise of ground about 15 feet above level of track. It is on the edge of an excavation in this sand hill and is likely to be undermined any time by the carting away of sand for building purposes. The standard cement monument marking triangulation station "Money" is buried with its top 30 inches below surface of ground 30.43 meters S 38° 28' E true from station.

*Marks.*—Observed station is the center of a square-top granite monument projecting 18 inches above ground which marks the boundary between Maryland and Virginia. Top of monument when visited in December, 1907, was broken loose and resting on the undisturbed part of the stone buried in the ground. This top was cut in a square 6 by 6 inches with an east-and-west line from side to side and the letters "M" and "V" to indicate the Maryland and Virginia side of the boundary, respectively

*References.*—None observed.

## MILL.

*General locality.*—Western shore of Chincoteague Bay, on the northern part of Mill Island. (See Chart No. 15.)

*Immediate locality.*—Observed station is the highest point of the island, on a hill about 20 feet above high water which is located about ½ mile southwest of the upper end of the island. It is about 40 yards east by south of an abandoned house and sheds and about ¼ mile north of another abandoned house.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Assateague Light" (S 8° 59' W)-----	0	00	00	10 miles
Right tangent of Chincoteague Island-----	11	54	--	10 miles.
Knoll on this island-----	15	--	--	¾ mile.
Tree (8 inches diameter)-----	21	46	--	40 yards.
Tree (8 inches diameter)-----	42	20	--	70 yards.
Tree (18 inches diameter)-----	54	27	--	39.30 meters.
Near corner of old house-----	62	43	40	36.88 meters.
Next corner of old house-----	70	28	--	37.64 meters.
Cupola on large house-----	138	25	--	1½ miles.
Chimneys on white house-----	139	11	--	2 miles.
Near end of large barn-----	186	47	--	4½ miles.
"Landlet" and right of trees at Purnell Hammock-----	195	10	--	3¾ miles.
Dead tree and 2 cedars-----	213	52	--	¼ mile.

	°	'	"	
Right tangent of Assacorkin Island.....	235	34	--	¾ mile.
Left of "Green Run" woods.....	238	40	--	6¾ miles.
"Pope Island Life-Saving Station".....	286	05	--	4¾ miles.
Left tangent of first building on Ragged Point.....	323	39	--	4½ miles.
Left tangent of Chincoteague Island.....	341	06	--	5 miles.
Chimney of old house.....	349	27	--	¼ mile.

• TIZZ.

*General locality.*—Western side of Chincoteague Bay on Tizzard Island. (See Chart No. 15.)

*Immediate locality.*—Observed station is on the highest point on the island, about 15 feet above high water, about ¼ mile from extreme southeastern point of island, and about 75 yards north of shore line of island.

*Marks.*—Observed station is center point of triangle on standard cement monument.

*References.*—

	°	'	"	
"Assateague Light" (S 6° 35' W).....	0	00	00	12 miles.
Right of woods at Chincoteague.....	10	38	--	15 miles.
Smoke pipe of shanty.....	18	52	--	3 miles.
Chimney on first house at Stockton.....	23	27	--	3¼ miles.
Church steeple at Franklin City.....	28	23	--	5¼ miles.
Church steeple, Greenbackville.....	30	02	30	5½ miles.
Two chimneys on gambrel roof.....	40	--	--	1¾ miles.
Near chimney of white house.....	101	25	--	2¼ miles.
Near chimney of another white house.....	106	53	--	2¼ miles.
Chimney on large unpainted barn.....	113	07	--	2 miles.
Two chimneys on large house.....	119	19	--	3 miles.
Chimney of yellow building.....	165	59	--	4 miles.
Large white barn.....	199	58	--	4 miles.
Purnell Hammock.....	213	--	--	3¼ miles.
Green Run Inlet Life-Saving Station flagstaff.....	256	55	20	7½ miles.
"Pope Island Life-Saving Station".....	299	34	50	5¾ miles.
Left tangent Assacorkin Island.....	316	14	--	1½ miles.
Left tangent of Mill Island.....	325	17	--	1½ miles.
Left of woods at Chincoteague.....	350	52	--	12 miles.

## BOUNDARIES OF OYSTER BARS.

### EXPLANATION.

The law of the United States authorizing the cooperation of the Department of Commerce and Labor in the survey of natural oyster bars of Maryland provides for the designation and employment by the Department of Commerce and Labor of such officers, experts, and other technically qualified persons "as may be necessary to cooperate with the Maryland State Board of Shell Fish Commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland." The oyster laws of Maryland provide that the Maryland Shell Fish Commissioners, with the aid of such persons as may be designated by the Government, shall proceed "to have laid out, surveyed, and designated on the said charts the natural beds and bars, and shall cause to be marked and defined as accurately as practicable the limits and boundaries of the natural beds, bars, and rocks as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars, and rocks, as shown by a delineation on the maps and charts." The oyster laws of Maryland also provide in another section that there shall "be made a true and accurate survey of the natural oyster beds, bars, and rocks \* \* \* with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey."

Under the provisions of the laws quoted above the State of Maryland, in cooperation with the Department of Commerce and Labor, must define the boundaries of the natural oyster bars "as accurately as practicable" and also "with reference to fixed and permanent objects on the shore, giving courses and distances." The requirement of "as accurately as practicable" is easily fulfilled by definition of the location of the corners of the oyster bars by latitude and longitude. In fact, this method is probably the most satisfactory and accurate one that could be used for all purposes of legal definition or for relocation of the oyster-bar boundaries by competent engineers. Therefore the additional requirement of "giving courses and distances" is superfluous and is only fulfilled in the published definitions on account of the specific provisions of the law making it compulsory. This part of the description of boundaries has involved an immense amount of extra computations in order to prevent technical discrepancies between the latitude and longitude of a corner of an oyster bar and its distance and bearing from objects on shore of known latitude and longitude without adding anything to the accuracy and very little to the convenience of practical use of the descriptions of the oyster-bar boundaries.

As provided by law the boundaries of the oyster bars are all straight lines, but in the work already completed they have inclosed areas of all shapes from triangles to complicated 14-sided figures, and of all sizes from 4 acres to 7,548 acres. The sides

have varied in length from 93 to 7,529 yards, and in some cases the corners of the boundaries have been practically at the triangulation stations from which they are located, while in other instances they were over 13,600 yards from the landmarks most available for the purpose of fixing their position.

The varied characteristics of the legal boundaries of the oyster bars indicated by the above statement, together with the complicated requirements of the law under which the survey has been made and the magnitude of the work with the consequent need of fixed and uniform methods, have made the problem of describing the boundaries one of considerable difficulty and great importance.

The boundaries of the oyster bars of Maryland, as established by the Shell Fish Commission and delineated on the Coast and Geodetic Survey charts and projections and on the leasing charts of the Commission, are technically defined and described by a method somewhat different from that used in other oyster surveys. But it is believed that the forms finally adopted will fulfill all needs of the survey for both the present and future.

#### METHOD OF DESCRIBING BOUNDARIES.

The descriptions have been arranged in tabular form, thus avoiding many hundred repetitions of the same words by making one explanation of the tables sufficient for all oyster bars in each county.

*Title.*—At the top of each tabular form is given the legal name of the oyster bar to be described, and the one by which it is known and designated in the published oyster records and on the oyster charts. The adopted name of the oyster bar is the one used locally, as nearly as could be ascertained by the hydrographic engineer of the Commission; and when there was no local name in common use a name was selected from one of the prominent features of the vicinity that would naturally suggest the section of the waters where the oyster bar was located.

Underneath the name, in parentheses, is given the general locality of the oyster bar and the serial number of the "Maryland Oyster Chart" on which its legal boundaries are shown.<sup>a</sup>

*First column.*—This column, under the heading of "Corner of bar," gives the number corresponding to the corner of the boundary as shown on the charts and to the number on the buoy marking the actual corner of the bar. The numbers of the corners have been assigned by naming the southernmost point No. 1, thence proceeding in a clockwise direction around the bar; but where a corner of one oyster bar is identical with the corner of the boundaries of one or more other oyster bars only the number of the corner of the oyster bar being described in the table is given in this column.

*Second and third columns.*—These two columns, under the headings of "Latitude" and "Longitude," give the geographic positions of the corners. These positions have been adopted by the Commission as the primary technical definition of the location of the corners, and should be considered as final in case of a dispute arising from discrepancies caused by other means of location. The latitudes and longitudes given in these columns are based on the United States standard datum of the Coast and Geodetic Survey, and the points thus defined can be relocated from distant triangulation stations

<sup>a</sup> These charts can be obtained by application to the Superintendent of the Coast and Geodetic Survey at Washington, D. C.

of the Survey, even though all the landmarks and buoys originally used for their location have been destroyed by natural or other causes.

*Fourth and fifth columns.*—These two columns, under the general heading of "True bearing"<sup>a</sup> and the specific headings "Forward" and "Back," give bearings measured from a true north-and-south line. The three "Forward" bearings are from the corner of the boundary designated in the first column to the triangulation stations named on the corresponding lines in the last column, and the three "Back" bearings are from these same stations in the last column to the corresponding corner of boundary in the first column. The difference in minutes of arc between the forward and back bearings shown in some cases is actual and not accidental, and is due to the fact that the computations took into account the spheroidal shape of the earth.

*Sixth column.*—This column, under the heading of "Distance," gives the three computed distances in yards from the corner of the bar noted in the first column to the three triangulation stations named on the corresponding lines in the last column, and vice versa.

*Seventh column.*—This column, under the heading of "U. S. C. & G. S. triangulation station,"<sup>b</sup> gives the names of the landmarks from which were computed the corresponding "Latitude," "Longitude," "True bearing," and "Distance" of the "Corner of the bar" designated in the first column. A full description of the location and markings of these triangulation stations is given in another part of this publication under the heading of "Descriptions of triangulation stations."

#### SURVEYING METHODS FOR RELOCATION OF BOUNDARIES.

There are a number of methods that can be used in the relocation of the actual boundaries of the natural oyster bars as technically described in this publication and delineated on the published charts of the Coast and Geodetic Survey and the leasing charts of the Shell Fish Commission.

The following brief descriptions of five of these more or less different methods assume a certain amount of experience and knowledge on the part of the engineer in the particular kind of surveying under consideration, and are only intended as reminders of ways and means that can be used.

There are two problems that are likely to present themselves to those interested in the boundaries of natural oyster bars: One, to determine whether the buoys marking the corners have been dragged or otherwise moved from their correct positions, and the other, to relocate or reestablish a buoy at the point from which it was removed. The different ways of solving these two problems partly depend upon the instruments possessed by the engineer and his assistants and partly on his training and experience.

(1) *Triangulation.*—This method is the one that will give the greatest accuracy, but on account of its requiring special data and instruments, and being an operation rarely used by engineers not engaged in geodetic surveying, it is recommended only for cases in dispute that can not be settled satisfactorily by some other method. An explanation of this class of work would be too long for a report of this sort, and those

<sup>a</sup> The mean magnetic variation for Worcester County was  $5^{\circ} 55'$  west of north in 1909 and increasing at the rate of  $3\frac{1}{2}'$  yearly.

<sup>b</sup> Geographic positions of these triangulation stations can be obtained by application to the Superintendent of the Coast and Geodetic Survey, Washington, D. C.

not familiar with this method are referred to the publications on the subject by the Coast and Geodetic Survey.

(2) *Hydrographic*.—This method is the most simple and satisfactory one that can be adopted if the surveyor can obtain the use of the necessary instruments and assistants. It is the one best suited for the work of the engineers of the Commission in relocating corners of boundaries, as it gives results of the accuracy ordinarily required and is rapid in execution. Besides, it has the advantage of being available whenever three triangulation stations of suitable relative positions are visible from the offshore points needing relocation.

Most navigators and others familiar with the use of a sextant are well acquainted with the graphic three-point method of fixing a position on water, and only a brief description of the operation will be stated.

In the case where there is only one engineer having a single sextant, the three-point method can be used if the two angles determining the position of a buoy are first derived from the "Forward" bearings given in the tabular forms describing the boundaries of the oyster bars. For example, take "South Point" bar, which is the first one described in this publication, and assume that "Corner No. 3," is to be examined as to its position. The angle between the two landmarks "Birch" and "Neck" as determined from right to left from the forward bearings from this corner is  $59^{\circ} 11'$  and the angle between "Neck" and "Newport" is  $49^{\circ} 44'$ . Having these two angles, the engineer proceeds to the buoy of doubtful location and measures the actual sextant angles between the landmarks for which the calculations were made. If the measured and calculated angles do not agree the buoy is not in its correct position and the boundary corner must be relocated. This is accomplished by moving the boat about until a point is reached where the angles do agree, and this point being the desired location, the buoy can be placed in its correct position.

If the engineer can obtain the use of both a sextant and a three-arm protractor ("position finder"), the availability of the hydrographic method is increased, as the use of the protractor is essential in case of the washing away or destruction of one or more of the landmarks originally used in describing the boundaries. Under these circumstances, any three landmarks of suitable relative position that are visible from the point to be located can be utilized. For example, the engineer can proceed to the buoy of doubtful position and measure the two adjacent sextant angles between the three landmarks selected. These two angles are set off on the three-arm protractor and the actual position of the buoy plotted on the chart by shifting the protractor about until the edge of each of the three arms passes through the center of the symbols on the chart marking the position of the three landmarks selected. The center of the hub of the protractor will indicate on the chart the actual position of the buoy, and if the point thus obtained does not coincide with the true position of the corner of the boundary as given on the chart, the surveyor can proceed to locate the buoy correctly by reversing the operation. This is done by placing the center point of the hub of the protractor over the corner of the boundary in question and measuring on the chart the two adjacent protractor angles between the three selected landmarks. One of the angles thus obtained is set on the sextant and the boat moved about until the two landmarks are shown by the sextant to subtend the same angle obtained from the

protractor. The second angle is then placed on the sextant and the same operation gone through, and so on, first using one angle on the sextant then the other until a point is reached where both observed sextant angles are practically identical with the protractor angles. The point thus located is the desired one and the buoy can be placed to mark the true position of the corner of the boundary in question.

If the engineer possesses two sextants and a protractor, this problem is far easier of solution, as the two angles can be set off on separate sextants and the observer can quickly find the desired point where they agree with the protractor angles by using one sextant after the other without the need of resetting either.

If there are two observers, two sextants, and a protractor, it can be seen that the best conditions for both rapid and accurate hydrographic locations of points are attained; in fact, this is the method by which the buoys at the corners of the boundaries were originally placed by the hydrographic engineer to the Commission.

(3) *Magnetic bearings from offshore.*—This method of fixing a position on water is a simple and well-known one in navigation. It is available to anyone having a boat compass and will be of special use to the State fishery force in investigating cases where buoys are supposed to have been moved for illegal purposes.

In the case where a buoy is supposed to have been moved from its true position the observer takes compass bearings to the three landmarks given in the last column of the tables opposite the boundary corner in question. These bearings are then corrected for the local declination,<sup>a</sup> and if the results agree with the published bearings the buoy is correctly located.

In the case where the buoy is not in its correct position, or has disappeared altogether, the desired point can be determined by maneuvering the vessel until the corrected bearings agree with the ones in the tabular descriptions, when the buoy can be anchored in its proper location.

In the case where the landmarks for which the bearings are published have been destroyed or washed away, any landmarks whose positions are indicated on the charts can be used by getting their bearings directly from the chart by parallel rulers or a protractor and then applying them in the same manner as the ones published in the tables.

(4) *Magnetic bearings from shore.*—This method will be of special value to engineers having an ordinary surveyor's compass. The compass can be set over the point marking a "triangulation station" on shore, the name of which is given in the last column opposite the "corner" in question. The instrument is then set at the corresponding "back" bearing (corrected for local magnetic declination) given in the fourth column of the tables opposite the "corner" in question, and the direction thus determined will give one range on which the desired point must be located. The compass can then be moved to a second triangulation station and another range located in a similar manner. The intersection of these two range lines will give the desired point; but in general it should be checked by an additional range line determined from a third station.

(5) *Horizontal angles measured at landmarks.*—This process is a modification of the triangulation method, and will be useful to engineers who have a transit and desire considerable accuracy.

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<sup>a</sup> The mean magnetic variation for Worcester County is 5° 55' west of north in 1909 and increasing at the rate of 3½' yearly.



The instrument is placed over a "triangulation station," the name of which appears in the last column of the tabular description opposite the "corner" in question. The telescope is then pointed to the landmark indicated in the "Descriptions of landmarks" as having a direction of  $0^{\circ} 00' 00''$  from the triangulation station being occupied by the transit. The tabular description of the boundaries is next examined and the "back" bearing of the questionable boundary "corner" from the landmark being occupied is taken out. The angle calculated from this "back" bearing and the bearing given in parentheses alongside the zero landmark in the "Descriptions of landmarks" is then set off on the transit, and a range line established on which the desired point must be located. A similar process is then carried on at a second station, and so on until the position of the buoy is satisfactorily fixed.

BOUNDARIES OF NATURAL OYSTER BARS.

SOUTH POINT.

(Newport Bay—Charts Nos. 13 and 14.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			$^{\circ}$ $'$ $''$	$^{\circ}$ $'$ $''$		
1	38 12 03.48	75 13 05.54	N 53 17 E	S 53 18 W	Yards.	Birch. Neck. Handys Hammock.
			N 19 15 E	S 19 16 W	2683	
			N 71 48 W	S 71 49 E	4408 3082	
2	38 12 26.10	75 13 18.36	N 71 22 E	S 71 23 W	2628	Birch. Neck. Handys Hammock.
			N 27 50 E	S 27 50 W	3844	
			N 85 34 W	S 85 35 E	2595	
3	38 12 48.39	75 13 04.82	N 87 38 E	S 87 38 W	2133	Birch. Neck. Newport.
			N 28 27 E	S 28 27 W	3011	
			N 21 17 W	S 21 18 E	3024	
4	38 12 34.39	75 12 47.18	N 71 22 E	S 71 23 W	1753	Birch. Neck. Newport.
			N 17 12 E	S 17 12 W	3265	
			N 25 28 W	S 25 29 E	3644	

HANDYS HAMMOCK.

(Newport Bay—Charts Nos. 13 and 14.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			$^{\circ}$ $'$ $''$	$^{\circ}$ $'$ $''$		
1	38 12 06.72	75 14 10.98	N 69 00 E	S 69 01 W	Yards.	Birch. Newport. Handys Hammock.
			N 8 54 E	S 8 55 W	4168	
			N 54 17 W	S 54 17 E	4275 1462	
2	38 12 08.22	75 14 20.24	N 70 45 E	S 70 47 W	4381	Birch. Newport. Handys Hammock.
			N 12 17 E	S 12 17 W	4270	
			N 49 31 W	S 49 31 E	1236	
3	38 12 23.50	75 14 26.40	N 77 49 E	S 77 51 W	4400	Birch. Newport. Handys Hammock.
			N 16 20 E	S 16 21 W	3811	
			N 69 41 W	S 69 41 E	828	
4	38 12 23.64	75 14 13.18	N 76 48 E	S 76 50 W	4046	Birch. Newport. Handys Hammock.
			N 11 09 E	S 11 10 W	3723	
			N 75 56 W	S 75 56 E	1164	

## Survey of Oyster Bars, Worcester County, Md.

## NEWPORT.

(Newport Bay—Charts Nos. 13 and 14.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 11 48.98	75 13 32.00	N 53 46 E	S 53 47 W	Yards.	Birch. Newport. Handys Hammock.
			N 4 27 W	S 4 27 E	3538	
			N 56 52 W	S 56 53 E	4836	
2	38 11 50.08	75 13 52.90	N 58 55 E	S 58 57 W	3981	Birch. Newport. Handys Hammock.
			N 2 10 E	S 2 10 W	4788	
			N 49 42 W	S 49 43 E	2187	
3	38 12 06.38	75 13 44.00	N 64 37 E	S 64 38 W	3512	Birch. Newport. Handys Hammock.
			N 0 45 W	S 0 45 E	4234	
			N 65 34 W	S 65 35 E	2092	
4	38 12 11.78	75 13 23.40	N 63 15 E	S 63 16 W	2938	Birch. Newport. Handys Hammock.
			N 8 28 W	S 8 29 E	4097	
			N 74 26 W	S 74 27 E	2546	

## LAMBERTSON LANDING.

(Upper Chincoteague Bay—Chart No. 14.)

1	38 11 19.54	75 14 54.94	N 58 38 E	S 58 40 W	Yards.	Birch. Handys Hammock. Ricks.
			N 80 24 W	S 80 24 E	5926	
			S 26 23 W	N 26 22 E	2445	
2	38 11 48.19	75 15 08.00	S 16 02 W	N 16 02 E	4127	Ricks. Birch. Handys Hammock.
			N 68 36 E	S 68 38 W	5808	
			N 12 35 E	S 12 36 W	1515	
3	38 11 58.98	75 14 53.63	S 19 28 W	N 19 28 E	4593	Ricks. Birch. Handys Hammock.
			N 70 44 E	S 70 46 W	5324	
			N 2 41 W	S 2 41 E	1115	
4	38 11 46.83	75 14 34.34	N 64 22 E	S 64 24 W	5004	Birch. Handys Hammock. Ricks.
			N 20 21 W	S 20 21 E	1625	
			S 27 27 W	N 27 26 E	4418	
5	38 11 38.04	75 14 41.03	N 62 18 E	S 62 20 W	5296	Birch. Handys Hammock. Ricks.
			N 12 01 W	S 12 01 E	1861	
			S 27 09 W	N 27 08 E	4073	

## ENNIS.

(Upper Chincoteague Bay—Chart No. 14.)

1	38 11 13.38	75 14 17.68	N 51 01 E	S 51 03 W	Yards.	Birch. Handys Hammock. Ricks.
			N 20 49 W	S 20 50 E	5234	
			S 41 37 W	N 41 36 E	2837	
2	38 11 38.04	75 14 41.03	N 62 18 E	S 62 20 W	5296	Birch. Handys Hammock. Ricks.
			N 12 01 W	S 12 01 E	1861	
			S 27 09 W	N 27 08 E	4073	

ENNIS—Continued.

(Upper Chincoteague Bay—Chart No. 14)—Continued.

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
3	38 11 46.83	75 14 34.34	N 64 22 E	S 64 24 W	Yards. 5004 1625 4418	Birch. Handys Hammock. Ricks.
			N 20 21 W	S 20 21 E		
			S 27 27 W	N 27 26 E		
4	38 11 24.96	75 13 59.52	N 51 01 E	S 51 02 W	4613 2709 4349	Birch. Handys Hammock. Ricks.
			N 33 25 W	S 33 25 E		
			S 42 57 W	N 42 56 E		

TURPIN.

(Upper Chincoteague Bay—Chart No. 14.)

1	38 10 21.84	75 14 43.82	N 43 26 E	S 43 28 W	Yards. 6029 4401 2072	Birch. Handys Hammock Ricks.
			N 4 05 W	S 4 05 E		
			S 59 25 W	N 59 24 E		
2	38 10 34.30	75 14 45.38	N 46 11 E	S 46 13 W	6660 3978 2283	Birch. Handys Hammock. Ricks.
			N 3 55 W	S 3 55 E		
			S 49 46 W	N 49 45 E		
3	38 10 26.78	75 14 27.84	N 41 44 E	S 41 46 W	6518 4288 2525	Birch. Handys Hammock. Ricks.
			N 9 57 W	S 9 57 E		
			S 61 04 W	N 61 03 E		

SANDY POINT.

(Upper Chincoteague Bay—Chart No. 14.)

1	38 09 51.26	75 14 32.04	N 6 36 W	S 6 36 E	Yards. 5457 2099 4828	Handys Hammock. Ricks. Beacon Clumps.
			S 89 11 W	N 89 10 E		
			S 46 14 E	N 46 13 W		
2	38 09 56.78	75 14 40.00	N 4 32 W	S 4 32 E	5251 1897 5105	Handys Hammock. Ricks. Beacon Clumps.
			S 83 39 W	N 83 39 E		
			S 46 26 E	N 46 24 W		
3	38 10 08.48	75 14 36.78	N 5 54 W	S 5 54 E	4867 2063 5325	Handys Hammock. Ricks. Beacon Clumps.
			S 72 58 W	N 72 57 E		
			S 42 43 E	N 42 42 W		
4	38 10 05.78	75 14 22.98	N 9 59 W	S 9 59 E	5008 2395 5014	Handys Hammock. Ricks. Beacon Clumps.
			S 77 38 W	N 77 37 E		
			S 40 20 E	N 40 22 W		

## Survey of Oyster Bars, Worcester County, Md.

## ROBINS MARSH.

(Upper Chincoteague Bay—Chart No. 14.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 09 06.48	75 15 35.79	N 15 05 W S 83 42 W S 35 48 W	S 15 06 E N 83 41 E N 35 46 E	1539 2630 5328	Ricks. Guilberts Cupola. Landlet.
2	38 09 22.32	75 15 53.78	N 4 42 E S 68 56 W S 28 35 W	S 4 42 W N 68 55 E N 28 34 E	955 2287 5536	Ricks. Guilberts Cupola. Landlet.
3	38 09 35.39	75 15 42.96	N 22 19 W S 62 28 W S 62 31 E	S 22 19 E N 62 27 E N 62 29 W	552 2733 6060	Ricks. Guilberts Cupola. Beacon Clumps.
4	38 09 40.61	75 14 49.94	N 78 19 W S 69 26 W S 53 08 E	S 78 20 E N 69 25 E N 53 06 W	1656 4096 4955	Ricks. Guilberts Cupola. Beacon Clumps.
5	38 09 29.59	75 14 46.23	N 67 39 W S 74 50 W S 56 03 E	S 67 40 E N 74 48 E N 56 02 W	1860 4076 4659	Ricks. Guilberts Cupola. Beacon Clumps.
6	38 09 27.20	75 15 03.23	N 58 09 W S 74 11 W S 59 43 E	S 58 10 E N 74 09 E N 59 41 W	1493 3619 5000	Ricks. Guilberts Cupola. Beacon Clumps.
7	38 09 14.54	75 15 08.41	N 42 56 W S 80 30 W S 64 50 E	S 42 56 E N 80 28 E N 64 48 W	1658 3390 4923	Ricks. Guilberts Cupola. Beacon Clumps.

## SCARBORO CREEK.

(Upper Chincoteague Bay—Chart No. 14.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 08 40.78	75 16 00.00	N 5 55 E N 73 38 W S 35 34 W	S 5 55 W S 73 37 E N 35 33 E	2365 2053 4249	Ricks. Guilberts Cupola. Landlet.
2	38 09 04.47	75 16 08.42	N 16 46 E S 82 48 W S 27 50 W	S 16 46 W N 82 49 E N 27 50 E	1623 1760 4812	Ricks. Guilberts Cupola. Landlet.
3	38 09 22.32	75 15 53.78	N 4 42 E S 68 56 W S 28 35 W	S 4 42 W N 68 55 E N 28 34 E	955 2287 5536	Ricks. Guilberts Cupola. Landlet.
4	38 09 06.48	75 15 35.79	N 15 05 W S 83 42 W S 35 48 W	S 15 06 E N 83 41 E N 35 46 E	1539 2630 5328	Ricks. Guilberts Cupola. Landlet.

SOUTHWEST.

(Upper Chincoteague Bay—Chart No. 14.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 08 32.04	75 15 26.63	N 13 41 W	S 13 41 E	Yards. 2724 2988 4613	Ricks. Guilberts Cupola. Landlet.
			N 73 01 W	S 73 02 E		
			S 46 45 W	N 46 44 E		
2	38 08 32.11	75 15 38.94	N 6 50 W	S 6 50 E	2664 2676 4382	Ricks. Guilberts Cupola. Landlet.
			N 71 01 W	S 71 02 E		
			S 43 47 W	N 43 46 E		
3	38 08 47.04	75 15 30.98	N 13 52 W	S 13 52 E	2206 2767 4902	Ricks. Guilberts Cupola. Landlet.
			N 82 22 W	S 82 23 E		
			S 41 26 W	N 41 25 E		

PURNELL HAMMOCK.

(Middle Chincoteague Bay—Chart No. 14.)

Corner of bar	Latitude	Longitude	True bearing		Distance	Remarks
			Forward	Back		
1	38 06 06.82	75 16 59.60	S 77 09 E	N 77 07 W	Yards. 5797 1947 5879	Turnagain. Landlet. Tizz.
			N 26 59 W	S 27 00 E		
			S 53 51 W	N 53 49 E		
2	38 06 11.34	75 17 15.40	S 76 39 E	N 76 37 W	6242 1649 5641	Turnagain. Landlet. Tizz.
			N 16 18 W	S 16 18 E		
			S 50 04 W	N 50 02 E		
3	38 06 15.60	75 17 13.42	S 75 15 E	N 75 13 W	6226 1528 5774	Turnagain. Landlet. Tizz.
			N 19 40 W	S 19 40 E		
			S 49 19 W	N 49 17 E		

BEEF CREEK.

(Middle Chincoteague Bay—Charts Nos. 14 and 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	Remarks
			Forward	Back		
1	38 05 51.48	75 17 52.41	N 13 05 E	S 13 05 W	Yards. 2312 4455 6045	Landlet. Tizz. Mill.
			S 48 32 W	N 48 31 E		
			S 28 23 W	N 28 23 E		
2	38 05 54.26	75 17 54.88	N 15 16 E	S 15 16 W	2238 4471 6098	Landlet. Tizz. Mill.
			S 47 04 W	N 47 02 E		
			S 27 26 W	N 27 25 E		
3	38 05 56.94	75 17 42.48	N 7 08 E	S 7 08 W	2084 4777 6334	Landlet. Tizz. Mill.
			S 48 58 W	N 48 57 E		
			S 29 42 W	N 29 41 E		
4	38 05 52.72	75 17 44.78	N 8 14 E	S 8 14 W	2233 4638 6180	Landlet. Tizz. Mill.
			S 49 48 W	N 49 47 E		
			S 29 52 W	N 29 51 E		
5	38 05 53.78	75 17 48.02	N 10 35 E	S 10 35 W	2212 4595 6169	Landlet. Tizz. Mill.
			S 48 46 W	N 48 45 E		
			S 29 00 W	N 28 59 E		

## Survey of Oyster Bars, Worcester County, Md.

## RATTLESNAKE.

(Middle Chincoteague Bay—Charts Nos. 14 and 15.)

Corner of Bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 05 38.00	75 18 03.18	N 16 40 E	S 16 40 W	Yards.	Landlet. Tizz. Mill.
			S 50 43 W	N 50 41 E	2826	
			S 28 01 W	N 28 00 E	3944	
2	38 05 43.19	75 18 26.62	N 29 32 E	S 29 33 W	2910	Landlet. Tizz. Mill.
			S 42 15 W	N 42 14 E	3610	
			S 21 17 W	N 21 16 E	5409	
3	38 05 44.86	75 18 26.26	N 29 56 E	S 29 56 W	2856	Landlet. Tizz. Mill.
			S 41 46 W	N 41 45 E	3658	
			S 21 09 W	N 21 09 E	5354	
4	38 05 45.06	75 18 05.24	N 19 19 E	S 19 19 W	2616	Landlet. Tizz. Mill.
			S 47 37 W	N 47 35 E	4057	
			S 26 24 W	N 26 23 E	5695	

## MARTIN POINT.

(Middle Chincoteague Bay—Charts Nos. 14 and 15.)

Corner of Bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 05 14.44	75 17 53.44	N 8 56 E	S 8 56 W	Yards.	Landlet. Tizz. Mill.
			S 62 47 W	N 62 46 E	3544	
			S 34 59 W	N 34 58 E	3724	
2	38 05 37.54	75 17 56.64	N 13 09 E	S 13 09 W	2795	Landlet Tizz. Mill.
			S 52 26 W	N 52 25 E	4070	
			S 29 37 W	N 29 36 E	5576	
3	38 05 41.75	75 17 47.56	N 8 41 E	S 8 41 W	2601	Landlet. Tizz. Mill.
			S 52 54 W	N 52 52 E	4348	
			S 30 59 W	N 30 58 E	5834	
4	38 05 25.42	75 17 34.24	N 0 43 E	S 0 43 W	3132	Landlet. Tizz. Mill.
			S 61 32 W	N 61 31 E	4349	
			S 37 07 W	N 37 05 E	5568	

## DIAMOND.

(Middle Chincoteague Bay—Charts Nos. 14 and 15.)

Corner of Bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 05 35.23	75 16 45.20	S 87 34 E	N 87 32 W	Yards.	Turnagain. Landlet. Tizz.
			N 24 21 W	S 24 21 E	5273	
			S 64 54 W	N 64 52 E	3071	
2	38 05 47.16	75 16 57.82	S 83 38 E	N 83 36 W	5640	Turnagain. Landlet. Tizz.
			N 21 13 W	S 21 14 E	2572	
			S 59 40 W	N 59 38 E	5554	
3	38 05 42.50	75 16 40.28	S 84 47 E	N 84 45 W	5159	Turnagain. Landlet. Tizz.
			N 28 41 W	S 28 42 E	2912	
			S 63 17 W	N 63 15 E	5890	

## SHEEP.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 04 03.59	75 19 09.02	N 23 31 E N 62 08 W S 26 20 W	S 23 32 W S 62 09 E N 26 20 E	6425 1466 1876	Landlet. Tizz. Mill.
2	38 04 19.44	75 19 20.58	N 28 12 E N 81 19 W S 13 19 W	S 28 13 W S 81 19 E N 13 19 E	6077 1000 2277	Landlet. Tizz. Mill.
3	38 04 16.94	75 19 05.45	N 24 24 E N 80 24 W S 23 31 W	S 24 26 W S 80 25 E N 23 30 E	5974 1412 2324	Landlet. Tizz. Mill.
4	38 04 11.44	75 18 58.79	N 22 10 E N 74 59 W S 29 35 W	S 22 11 W S 75 00 E N 29 35 E	6075 1625 2238	Landlet. Tizz. Mill.

## MINK TUMP.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 04 12.42	75 18 51.98	N 20 40 E N 77 29 W S 33 02 W	S 20 41 W S 77 30 E N 33 01 E	5978 1794 2360	Landlet. Tizz. Mill.
2	38 04 21.76	75 18 50.49	N 21 25 E N 87 40 W S 30 02 W	S 21 26 W S 87 41 E N 30 01 E	5668 1792 2649	Landlet. Tizz. Mill.
3	38 04 19.78	75 18 44.38	N 19 39 E N 85 55 W S 33 46 W	S 19 39 W S 85 56 E N 33 45 E	5675 1959 2678	Landlet. Tizz. Mill.

## EASTER COVE.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
	° ' "	° ' "	° ' "	° ' "	Yards.	
1	38 04 22.64	75 18 40.08	N 18 52 E N 88 48 W S 34 37 W	S 18 53 W S 88 49 E N 34 36 E	5546 2069 2823	Landlet. Tizz. Mill.
2	38 04 26.58	75 18 45.34	N 20 42 E S 87 20 W S 30 47 W	S 20 43 W N 87 19 E N 30 47 E	5468 1930 2859	Landlet. Tizz. Mill.
3	38 04 31.64	75 18 32.15	N 17 44 E S 83 30 W S 34 38 W	S 17 45 W N 83 29 E N 34 38 E	5190 2294 3193	Landlet. Tizz. Mill.

## Survey of Oyster Bars, Worcester County, Md.

## BIG BAY POINT.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 04 14.08	75 17 22.42	N 2 51 W	S 2 51 E	5543	Landlet. Tizz. Mill.
			S 85 24 W	N 85 26 E	4150	
			S 61 02 W	N 61 01 E	4199	
2	38 04 22.96	75 17 34.93	N 0 38 E	S 0 38 W	5238	Landlet. Tizz. Mill.
			N 89 30 W	S 89 32 E	3804	
			S 55 04 W	N 55 03 E	4075	
3	38 04 29.15	75 17 27.00	N 1 45 W	S 1 45 E	5031	Landlet Tizz. Mill.
			S 87 30 W	N 87 28 E	4019	
			S 54 25 W	N 54 23 E	4368	
4	38 04 20.42	75 17 14.93	N 5 06 W	S 5 06 E	5344	Landlet. Tizz. Mill.
			N 88 26 W	S 88 27 E	4338	
			S 59 53 W	N 59 51 E	4478	

## KENNEL.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	
			Forward	Back		
1	38 04 12.60	75 16 55.22	N 10 12 W	S 10 12 E	5676	Landlet. Tizz. Mill.
			N 85 30 W	S 85 32 E	4879	
			S 65 44 W	N 65 42 E	4826	
2	38 04 34.50	75 17 01.40	N 9 47 W	S 9 47 E	4919	Landlet. Tizz. Mill.
			S 85 40 W	N 85 39 E	4712	
			S 57 16 W	N 57 14 E	5034	
3	38 04 36.62	75 16 41.80	N 15 52 W	S 15 53 E	4966	Landlet. Tizz. Mill.
			S 85 20 W	N 85 19 E	5238	
			S 59 35 W	N 59 32 E	5516	
4	38 04 20.50	75 16 38.19	N 15 19 W	S 15 20 E	5503	Landlet. Tizz. Mill.
			N 88 44 W	S 88 46 E	5318	
			S 65 08 W	N 65 06 E	5349	

## DRUM.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Yards.	
			Forward	Back		
1	38 04 16.77	75 16 09.80	N 87 42 W	S 87 45 E	6078	Tizz. Mill. Pope Island L. S. S.
			S 69 16 W	N 69 14 E	5998	
			S 20 02 E	N 20 01 W	6100	
2	38 04 30.80	75 16 24.88	S 87 40 W	N 87 38 E	5677	Tizz. Mill. Pope Island L. S. S.
			S 63 30 W	N 63 32 E	5820	
			S 21 53 E	N 21 52 W	6686	
3	38 04 26.84	75 15 56.74	S 89 09 W	N 89 06 E	6423	Tizz. Mill. Pope Island L. S. S.
			S 67 33 W	N 67 30 E	6448	
			S 16 00 E	N 15 58 W	6316	



TOBY.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38° 03' 53".19	75° 17' 41".43	N 74° 04' W	S 74° 05' E	Yards. 3776 3435 6702	Tizz. Mill. Pope Island L. S. S.
			S 67° 14' W	N 67° 13' E		
			S 42° 34' E	N 42° 33' W		
2	38° 04' 18".79	75° 17' 52".86	N 87° 01' W	S 87° 02' E	3331 3606 7552	Tizz. Mill. Pope Island L. S. S.
			S 52° 33' W	N 52° 32' E		
			S 39° 50' E	N 39° 48' W		
3	38° 04' 12".21	75° 17' 35".28	N 84° 03' W	S 84° 05' E	3816 3870 7084	Tizz. Mill. Pope Island L. S. S.
			S 59° 23' W	N 59° 22' E		
			S 38° 04' E	N 38° 04' W		
4	38° 03' 55".12	75° 17' 30".78	N 76° 04' W	S 76° 05' E	4034 3723 6562	Tizz. Mill. Pope Island L. S. S.
			S 68° 00' W	N 67° 59' E		
			S 40° 21' E	N 40° 19' W		

DEEP WATER.

(Middle Chincoteague Bay—Chart No. 15.)

1	38° 03' 46".83	75° 17' 09".71	N 74° 23' W	S 74° 25' E	Yards. 4649 4164 5991	Tizz. Mill. Pope Island L. S. S.
			S 74° 29' W	N 74° 27' E		
			S 37° 59' E	N 37° 58' W		
2	38° 03' 56".42	75° 17' 04".20	N 78° 39' W	S 78° 40' E	4717 4402 6164	Tizz. Mill. Pope Island L. S. S.
			S 70° 56' W	N 70° 54' E		
			S 35° 03' E	N 35° 02' W		
3	38° 03' 51".90	75° 16' 59".53	N 77° 10' W	S 77° 12' E	4870 4473 5967	Tizz. Mill. Pope Island L. S. S.
			S 73° 18' W	N 73° 16' E		
			S 34° 55' E	N 34° 54' W		

STRIKING MARSH.

(Middle Chincoteague Bay—Chart No. 15.)

1	38° 03' 34".77	75° 16' 44".41	N 72° 09' W	S 72° 11' E	Yards. 5412 4741 5262	Tizz. Mill. Pope Island L. S. S.
			S 81° 25' W	N 81° 23' E		
			S 34° 55' E	N 34° 54' W		
2	38° 03' 57".94	75° 16' 21".85	N 81° 20' W	S 81° 21' E	5819 5494 5639	Tizz. Mill. Pope Island L. S. S.
			S 74° 17' W	N 74° 15' E		
			S 25° 19' E	N 25° 18' W		
3	38° 03' 39".24	75° 16' 13".66	N 75° 49' W	S 75° 52' E	6159 5574 4975	Tizz. Mill. Pope Island L. S. S.
			S 81° 09' W	N 81° 07' E		
			S 26° 08' E	N 26° 07' W		

## Survey of Oyster Bars, Worcester County, Md.

## LEVIN TUMP.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 03 30.84	75 16 09.40	N 73 36 W	S 73 38 E	Yards. 6343 5651 4671	Tizz. Mill. Pope Island L. S. S.
			S 84 10 W	N 84 07 E		
			S 26 25 E	N 26 22 W		
2	38 03 52.17	75 15 52.18	N 80 41 W	S 80 44 E	6630 6216 5163	Tizz. Mill. Pope Island L. S. S.
			S 77 59 W	N 77 57 E		
			S 18 16 E	N 18 16 W		
3	38 03 31.68	75 15 54.96	N 74 45 W	S 74 47 E	6699 6037 4540	Tizz. Mill. Pope Island L. S. S.
			S 84 16 W	N 84 14 E		
			S 21 44 E	N 21 43 W		

## WHITE ROCK.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 02 56.80	75 17 24.72	N 54 13 W	S 54 15 E	Yards. 5025 3658 5101	Tizz. Mill. Pope Island L. S. S.
			N 81 00 W	S 81 02 E		
			S 53 24 E	N 53 23 W		
2	38 03 34.64	75 17 56.02	N 62 52 W	S 62 53 E	3645 2866 6542	Tizz. Mill. Pope Island L. S. S.
			S 75 46 W	N 75 45 E		
			S 48 48 E	N 48 46 W		
3	38 03 48.58	75 17 39.85	N 72 01 W	S 72 03 E	3863 3418 6559	Tizz. Mill. Pope Island L. S. S.
			S 69 54 W	N 69 53 E		
			S 43 13 E	N 43 11 W		
4	38 03 34.38	75 17 08.04	N 69 43 W	S 69 44 E	4821 4116 5636	Tizz. Mill. Pope Island L. S. S.
			S 80 17 W	N 80 15 E		
			S 40 15 E	N 40 14 W		
5	38 03 09.81	75 17 02.78	N 61 48 W	S 61 49 E	5290 4199 4933	Tizz. Mill. Pope Island L. S. S.
			N 88 11 W	S 88 12 E		
			S 45 14 E	N 45 12 W		

## HORSEHEAD NORTH.

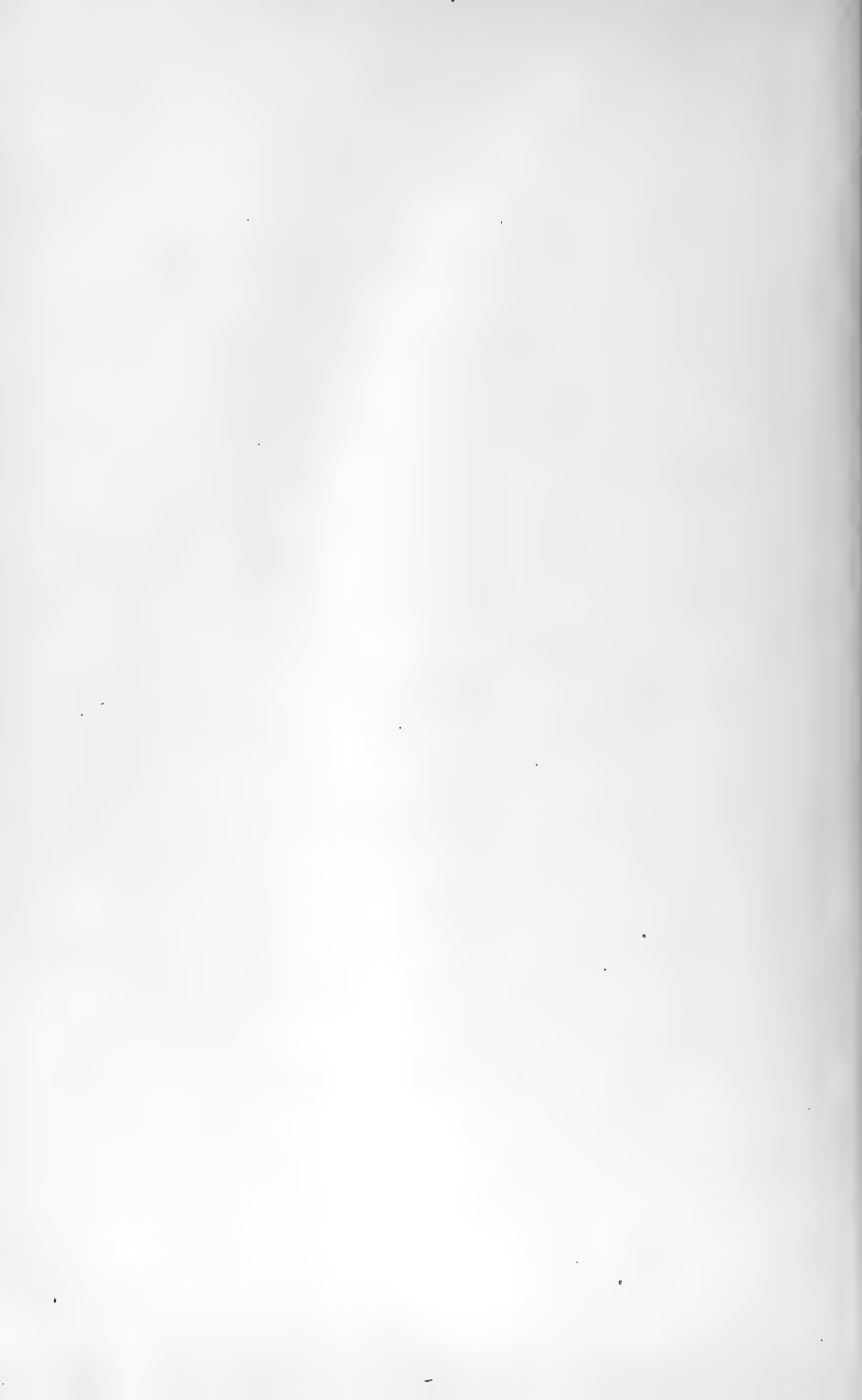
(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
			° ' "	° ' "		
1	38 02 51.57	75 15 49.34	N 83 03 W	S 83 06 E	Yards. 6202 2698 3249	Mill. Md.-Va. (Pope Island.) Pope Island L. S. S.
			S 14 46 E	N 14 46 W		
			S 28 21 E	N 28 21 W		
2	38 02 56.14	75 15 59.71	N 84 13 W	S 84 15 E	5910 2926 3520	Mill. Md.-Va. (Pope Island.) Pope Island L. S. S.
			S 19 14 E	N 19 14 W		
			S 31 08 E	N 31 07 W		
3	38 02 59.21	75 15 49.61	N 85 26 W	S 85 28 E	6168 2951 3481	Mill. Md.-Va. (Pope Island.) Pope Island L. S. S.
			S 13 37 E	N 13 37 W		
			S 26 27 E	N 26 26 W		
4	38 02 55.20	75 15 40.38	N 84 24 W	S 84 26 E	6426 2768 3255	Mill. Md.-Va. (Pope Island.) Pope Island L. S. S.
			S 9 20 E	N 9 19 W		
			S 23 37 E	N 23 37 W		

HORSEHEAD SOUTH.

(Middle Chincoteague Bay—Chart No. 15.)

Corner of bar	Latitude	Longitude	True bearing		Distance	U. S. C. & G. S. triangulation station
			Forward	Back		
1	38 02 34.50	75 16 07.00	N 76 53 W	S 76 55 E	Yards. 5838 2340 3045	Mill. Md.-Va. (Pope Island.) Pope Island L. S. S.
			S 29 40 E	N 29 40 W		
			S 41 25 E	N 41 24 W		
2	38 02 42.51	75 16 17.94	N 78 56 W	S 78 58 E	5495 2723 3440	Mill. Md.-Va. (Pope Island.) Pope Island L. S. S.
			S 32 12 E	N 32 11 W		
			S 42 05 E	N 42 04 W		
3	38 02 46.34	75 15 57.02	N 81 09 W	S 81 12 E	6022 2592 3202	Mill. Md.-Va. (Pope Island.) Pope Island L. S. S.
			S 20 09 E	N 20 08 W		
			S 33 05 E	N 33 05 W		
4	38 02 38.46	75 15 56.34	N 78 43 W	S 78 45 E	6087 2337 2972	Mill. Md.-Va. (Pope Island.) Pope Island L. S. S.
			S 21 59 E	N 21 59 W		
			S 35 36 E	N 35 36 W		



## APPENDIXES.

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### APPENDIX A.—LAWS RELATING TO THE COOPERATION OF THE COAST AND GEODETIC SURVEY AND BUREAU OF FISHERIES WITH THE MARYLAND SHELL FISH COMMISSION.

The work of the Coast and Geodetic Survey and of the Bureau of Fisheries, in cooperation with the Maryland Shell Fish Commission, in surveying the oyster bars, establishing permanent landmarks at triangulation stations, and preparing for publication the necessary charts and technical and legal descriptions of boundaries and landmarks shown on these charts, has been executed in compliance with a request from the governor of the State of Maryland to the Secretary of Commerce and Labor, and by the authority of the following laws of the United States and Maryland:

[Act of Congress approved May 26, 1906.]

AN ACT To authorize the Secretary of Commerce and Labor to cooperate, through the Bureau of the Coast and Geodetic Survey and the Bureau of Fisheries, with the shellfish commissioners of the State of Maryland in making surveys of the natural oyster beds, bars, and rocks in the waters within the State of Maryland.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of Commerce and Labor be, and he is hereby, authorized and directed, upon the request of the governor of the State of Maryland, to designate such officers, experts, and employees of the Bureau of the Coast and Geodetic Survey and of the Bureau of Fisheries as may be necessary to cooperate with the Maryland State board of shellfish commissioners in making a survey of and locating the natural oyster beds, bars, and rocks in the waters within the State of Maryland; and the Secretary of Commerce and Labor is hereby authorized and directed to furnish to the officers, experts, and employees of said Bureaus so detailed as aforesaid such instruments, appliances, and steam launches as may be necessary to make the survey aforesaid; and the Secretary of Commerce and Labor is hereby authorized to have made in the Bureau of the Coast and Geodetic Survey all the plats necessary to show the results of the aforesaid survey and the locations of the said natural oyster beds, bars, and rocks in the waters within the State of Maryland, and to furnish to the board of shellfish commissioners of the State of Maryland such copies as may be necessary, and for this purpose to employ, in the District of Columbia and elsewhere, such technically qualified persons as may be necessary to carry out the purpose of this act.

SEC. 2. That the Secretary of Commerce and Labor is hereby further authorized to have erected or constructed by the officers so detailed as aforesaid, while making such survey, such structures as may be necessary to mark the points of triangulation, so that the same may be used for such future work of the Coast and Geodetic Survey as the said Bureau may be hereafter required to perform in prosecuting the Government coast survey of the navigable waters of the United States located within the State of Maryland.

\* \* \* \* \*

SEC. 4. That this act shall take effect from the date of its passage.

*Survey of Oyster Bars, Worcester County, Md.*

[Act of Congress approved June 30, 1906.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and seven, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and seven, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including the expenditures authorized under Public Act Numbered One hundred and eighty-one, approved May twenty-sixth, nineteen hundred and six, and contingent expenses incident thereto, five thousand dollars, together with the unexpended balance under this appropriation for nineteen hundred and six and prior years which is hereby reappropriated and made available on this account for the fiscal year nineteen hundred and seven. \* \* \*

[Act of Congress approved March 4, 1907.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and eight, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and eight, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, to be immediately available and to continue available until expended, twenty-five thousand dollars. \* \* \*

[Act of Congress approved May 27, 1908.]

AN ACT Making appropriations for sundry civil expenses of the Government for the fiscal year ending June thirtieth, nineteen hundred and nine, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the following sums be, and the same are hereby, appropriated, for the objects hereinafter expressed, for the fiscal year ending June thirtieth, nineteen hundred and nine, namely: \* \* \*

COAST AND GEODETIC SURVEY: \* \* \* For any special surveys \* \* \* including expenses of surveys in aid of the shellfish commission of the State of Maryland, which expenses, including cost of plats and charts, shall not exceed fifteen thousand dollars in any one year, to be immediately available, twenty thousand dollars.

[Act of the legislature of Maryland approved April 2, 1906.]

AN ACT To establish and promote the industry of oyster culture in Maryland, to define and mark natural oyster beds, bars and rocks lying under the waters of this State, to prescribe penalties for the infringement of the provisions of this Act, and \* \* \*

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That the following sections be, and they are hereby, added to Article 72 of the Code of Public General Laws, title "Oysters." \* \* \*

SEC. 86. The Board of Shell Fish Commissioners shall, as soon as practicable after the passage of this Act, cause to be made a true and accurate survey of the natural oyster beds, bars and rocks of this State, said survey to be made with reference to fixed and permanent objects on the shore, giving courses and distances, to be fully described and set out in a written report of said survey, as hereinafter required. A true and accurate delineation of the same shall be made on copies of published maps and charts of the United States coast and geodetic survey, which said copies shall be filed in the office of the said commissioners in the city of Annapolis; and the said commissioners shall further cause to be

delineated upon copies of the published maps and charts of the United States coast and geodetic survey, of the largest scale, one copy for each of the counties of this State in the waters of which there are natural oyster beds, bars and rocks, all natural beds, bars and rocks lying within the waters of such county, which maps shall be filed in the offices of the clerks of the Circuit Court for the respective counties wherein the grounds so designated may lie. \* \* \*

SEC. 87. The Governor of this State is hereby requested to ask the assistance of the United States coast and geodetic survey, and of the United States Fish Commissioner, to aid in the carrying out of the provisions of the preceding section.

\* \* \* \* \*

SEC. 89. As soon as practicable after the first day of April, 1906, the said commissioners shall organize, and shall at once proceed, with the assistance of such person or persons as may be detailed by the United States coast and geodetic survey, and the United States Fish Commissioner, to aid them in their work, and of such persons as may be appointed under the preceding section, to have laid out, surveyed and designated on the said charts, the natural beds and bars, and shall cause to be marked and defined as accurately as practicable, the limits and boundaries of the natural beds, bars and rocks, as established by said survey, and they shall take true and accurate notes of said survey in writing, and make an accurate report of said survey, setting forth such a description of landmarks as may be necessary to enable the said board, or their successors, to find and ascertain the boundary lines of the said natural oyster beds, bars and rocks, as shown by a delineation on the maps and charts provided in this Act; said report shall be completed and filed in the office of the board in the city of Annapolis within ninety days after the completion of the survey of any county. Said commissioners shall cause the same to be published in pamphlet form, and transmit copies of the same to the clerks of the Circuit Court for the respective counties, where the charts have been filed or directed to be filed as hereinafter provided; the said report to be filed by the clerks of the several counties in a book kept for that purpose. And the said survey and report, when filed, subject to the right of appeal hereafter provided for in this Act, shall be taken in all of the courts of this State as conclusive evidence of the boundaries and limits of all natural oyster beds, bars and rocks, lying within the waters of the county wherein such survey and report are filed, and shall be construed to mean in all of the said courts that there are no natural oyster beds, bars or rocks lying within the waters of the counties wherein such report and survey are filed, other than those embraced in the survey authorized by this Act, and that all areas of the Chesapeake Bay and its tributaries within the State of Maryland, not shown in the survey to be natural oyster beds, bars or rocks shall be construed in all the courts of the State to be barren bottoms, and open for disposal by the State for the purpose of private planting or propagation of oysters thereon under the provisions of this Act; provided, that the said survey and report shall not be construed as to affect in any manner the holdings by citizens of this State in any lot which may have been appropriated or taken up under the laws of this State prior to the approval of this Act.

The law of the State of Maryland, passed March 9, 1842, authorizing officers of the United States Coast and Geodetic Survey to enter upon the lands within the State limits for the purposes of the Survey, is as follows:

AN ACT Concerning the Survey of the Coast of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland*, That it shall and may be lawful for any person or persons employed under and by virtue of an act of the Congress of the United States, \* \* \* at any time hereafter to enter upon lands within this State for the purpose of exploring, surveying, triangulating, or levelling, or doing any other matter or thing which may be necessary to effect the objects of said act, and to erect any works, stations, buildings, or appendages requisite for that purpose, doing no unnecessary injury to private or other property.

SEC. 2.<sup>a</sup> *And be it enacted*, That in case the person or persons employed under the act of Congress aforesaid, can not agree with the owners or possessors of the land so entered upon and used as to the

<sup>a</sup> Under the rulings of the Comptroller of the Treasury no damages can be collected except through the United States Court of Claims unless an agreement has been made in advance.

amount of damage done thereto by reason of the removal of fences, cutting of trees or injury to the crop or crops growing on the same, it shall and may be lawful for the said parties or either of them to apply to the chief justice for the time being or one of the associate judges of the judicial district in which such land may be situated, who shall thereupon appoint three disinterested and judicious freeholders, residents of the same judicial district, to proceed with as much despatch as possible to the examination of the matter in question, and the faithful assessment of the damages sustained by the owners or possessors aforesaid, and the said freeholders or a majority of them, having first taken and subscribed an oath or affirmation before the chief or associate justice aforesaid or other person duly authorized to administer the same, that they will well and truly examine and assess as aforesaid, and having given five days' notice to both parties of the time of their meeting, shall proceed to the spot, and then and there upon their own view and if required, upon the evidence of witnesses, (to be by them sworn or affirmed and examined) shall assess the said damages, and shall afterward make report thereof and of their proceedings in writing under their hands and seals and file the same within five days thereafter in the office of the clerk of the county in which the land aforesaid is situated, subject to an appeal by either party to the county court of the said county within ten days after filing as aforesaid, and the said report so made as aforesaid, if no appeal as aforesaid be taken, shall be held to be final and conclusive as between the said parties, and the amount so assessed and reported shall be paid to the said owners or possessors of the land so damaged within twenty days after the filing of said report, and the said chief or associate justice as aforesaid, shall have authority to tax and allow upon the filing of said report, such costs, fees and expenses to the said freeholders for the performance of their duty as he shall think equitable and just, which allowance shall be paid by the person or persons employed under the act of congress aforesaid, within the time last above limited, but if an appeal as aforesaid be taken, the case shall be set down for hearing at the first term of county court aforesaid, ensuing upon and after appeal, and it shall be lawful for either party immediately after the entry of such appeal, to take out summons for such witnesses as may be necessary to be examined upon the hearing aforesaid, and the said court shall have power in its discretion to award costs against which ever the final judgment shall be entered, and such appeal at the option of either party may and shall be heard before and the damage assessed by a jury of twelve men to be taken from the regular panel and elected as in other cases.

SEC. 3. *And be it enacted*, That if any person or persons shall wilfully injure or deface or remove any signal, monument or building or any appendage thereto, erected, used or constructed under and by virtue of the act of congress aforesaid, such person or persons so offending shall severally forfeit and pay the sum of fifty dollars with costs of suit to be sued for and recovered by any person who shall first prosecute the same before any justice of the peace of the county where the person so offending may reside, and shall also be liable to pay the amount of damages thereby sustained, to be recovered with costs of suit in an action on the case, in the name and for the use of the United States of America, in any court of competent jurisdiction.

#### APPENDIX B.—THE HAMAN OYSTER CULTURE LAW.

[Extract from Second Report of Shell Fish Commission.]

##### OBJECT.

"The legislature in placing chapter 711 of the acts of 1906, better known as the Haman Oyster Culture Law, upon the statute books of Maryland had a twofold object in view:

1. To encourage an industry in oyster culture upon the *barren bottoms* beneath the tidewaters of the State.

2. To prevent the leasing of *natural oyster bars* for the purpose of oyster culture."

##### SURVEY.

"To make the leasing of barren bottoms possible and the leasing of natural bars impossible, provision was made for a survey of the natural bars for the purpose of accurately locating and marking the same. It was definitely provided that no barren bottoms should be leased in any part of the State until the natural bars of that region had been surveyed, charted, and marked with buoys."



## DEFINITION OF A NATURAL OYSTER BAR.

## NATURAL BAR NOT DEFINED.

"The Shell Fish Commission is instructed by section 90 of the Haman Oyster Culture Law to exercise its judgment liberally in favor of the natural bars when surveying, charting and buoying them, but other than this the Commission is uninstructed in this important matter. The responsibility of defining a natural bar is placed upon the Commission."

## DIVERSITY OF OPINION.

"No definition of a natural oyster bar could be formulated by any man or body of men which would meet with the approval of all parties concerned. Oystermen, as a rule, hold that all bottoms where oysters grow or have grown naturally even though now practically barren of oysters should be considered natural bars. Other citizens of the State who are not directly interested in the oyster business, but interested in the oyster industry from the standpoint of revenue, hold, as a rule, that no bottoms should be excluded from leasing for oyster culture which, by methods known to oyster culturists, may be made to yield a greater number of oysters than they now produce."

"It should be evident to every one that neither of these definitions could be adopted by the Commission as a working basis for determining which of the grounds surveyed are natural oyster bars."

## THE GOLDSBOROUGH DEFINITION.

The definition of a natural oyster bar which very nearly approaches a reasonable and satisfactory compromise between the views of the subject held by *oystermen* on one hand and by *oyster culturists* on the other is that contained in an opinion rendered by Judge Charles F. Goldsborough in the circuit court for Dorchester County in the July term, 1881, in the case of William T. Windsor and George R. Todd v. Job T. Moore.

This definition has been adopted by the Shell Fish Commission as the basis for the determination of the status of the various oyster bottoms surveyed and is as follows:

What then is a natural bar or bed of oysters? It would be a palpable absurdity for the State to attempt to promote the propagation and growth of oysters and to encourage its citizens, by a grant of land, to engage in their culture, if the lands authorized to be taken up were only those upon which oysters do not and can not be made to grow. That there may be lands covered by water in the State where no oysters can be found, but where, if planted, they could be cultivated successfully, may be possible, but, if so, I imagine that their extent must be too limited for them to be of much practical, general advantage for the purposes of such a law as the one under discussion; but there are thousands of acres of hard and shifting sands where oysters not only are not found, but where it would be folly to plant them; and these latter it can not be supposed that the State intended to offer to give away, for the simple reason that the State could not help knowing that nobody would have them.

Upon the other hand there are large and numerous tracts where oysters of natural growth may be found in moderate numbers, but not in quantities sufficient to make it profitable to catch them, and yet where oysters may be successfully planted and propagated. In my opinion these can not be called natural bars or beds of oysters, within the meaning of the Act of Assembly, and it is just such lands as these that the State meant to allow to be taken up under the provisions of the above-mentioned section of the Act.

But there is still another class of lands where oysters grow naturally and in large quantities and to which the public are now and have been for many years in the habit of resorting with a view to earning a livelihood by catching this natural growth, and here, I think, is the true test of the whole question. Land can not be said to be a natural oyster bar or bed merely because oysters are scattered here and there upon it, and because if planted they will readily live and thrive there; but whenever the natural growth is so thick and abundant that the public resort to it for a livelihood, it is a natural oyster bar or bed and comes within the above-quoted restriction in the law, and can not be located or appropriated by any individual.

## APPLICATION OF DEFINITION.

Before this definition may be of use in determining, accurately and scientifically, the status of an oyster ground, its central idea, "livelihood," must be expanded into accurately determinable factors, and these factors must be combined into a practical scheme of investigating the condition of the ground under consideration.

Stated briefly, a *livelihood* is represented by a *sum of money* obtained from the sale, at a fixed *price*, of a certain *quantity of oysters* gathered in a given *time* from an allotted *area* of ground.

Knowing the value of each of these factors it becomes possible to calculate the number of oysters an oyster ground must produce per square yard in order that oystermen may secure a livelihood by working upon it.

NOTE.—The factors into which the Commission resolved the livelihood problem, the value assigned to each factor, and the scheme devised for practical use in examining and applying the definition to oyster bottoms are given in outline in their Second Report under the heading of the preceding extract, and in detail in their First Report on pages 32 to 69.

APPENDIX C.—SUMMARY OF THE PARTICULAR SURVEYING OPERATIONS WHICH CONSTITUTE AN "OYSTER SURVEY" AS NOW BEING CARRIED ON IN MARYLAND.

*Explanation.*—A brief account of the particular surveying operations which constitute an "oyster survey" as now being carried on in Maryland will assist in the interpretation of records contained in the technical part of this report, and will be of interest to many who may not understand the necessity for the great amount of work being done or its complicated character.

To those familiar with methods used in surveying and charting the characteristic features of large bodies of water there is an evident necessity for the various operations performed, especially when it is known that the boundaries of the public oyster bars and of the private lots leased for purposes of oyster culture must be surveyed and charted with the greatest practical accuracy. To others it will be sufficient to state that the actual experience gained from oyster surveys in other States has proven that in order to avoid endless dissatisfaction and litigation it is necessary to accurately locate and permanently establish oyster boundaries as is now being done in Maryland.

*Triangulation survey.*—Such refinement of survey work as that demanded by the conditions of an oyster survey when carried on at considerable distances offshore can only be obtained by the use of a system of triangulation as a frame work or foundation. Therefore, a triangulation survey including the permanent marking of the positions of landmarks with monuments and a record of the descriptions of their locations for future recovery is a necessary operation of a complete oyster survey.

*Topographic survey.*—The technical records which establish the relation between the offshore oyster boundaries and triangulation landmarks are sufficient for the requirements of engineers in making resurveys, but do not supply the needs of others who are interested in the same boundaries by reason of their occupation as oystermen concerned as to the public oyster bars, or oyster culturists concerned as to the leaseable bottoms. For these it is necessary to have the charts of the survey show the relation of the shore line and other topographic features to the boundaries of the public oyster bars and private oyster farms. Therefore, a topographic survey is a necessary operation of a complete oyster survey.

*Hydrographic survey.*—In the settlement of the important question of what is, or what is not, a natural oyster bar, and in the consideration of bottoms to be selected for purposes of oyster culture, information as to the depth of water and the character of the bottom is required. Therefore, a hydrographic survey is a necessary operation of a complete oyster survey.

*Necessary foundation for an oyster survey.*—Consequently, the necessary components of a satisfactory foundation for a complete oyster survey are the three classes of survey operations technically named triangulation, topography, and hydrography, or, stated in another way, the foundation of a practical oyster survey includes the surveying operations usually followed by the Coast and Geodetic Survey leading up to the preparation and publication of nautical charts.

*Special surveys and investigations pertaining to oysters.*—Having obtained this cartographic survey for a foundation, partly by new work and partly from records of previous work of the Government, the combined operations<sup>a</sup> making up an "oyster survey" are completed by superimposing on this foundation special surveys and investigations pertaining particularly to oysters or other shell fish.

The special surveys pertaining to oysters furnish information as to the location and outline of oyster-shell bottoms, and are carried on by the sounding boat party in addition to the usual hydrographic work.<sup>b</sup> This operation consists of the observation and record of the character of vibration of a wire and chain apparatus which is dragged over the bottom, the vibrations or lack of vibrations indicating the presence and quantity of shells or absence of shells.

<sup>a</sup> See Appendix D of this publication for "Statistics of results of combined operations of the Government and State."

<sup>b</sup> See pages 104 to 123 of "First Annual Report of Maryland Shell Fish Commission."

The special oyster investigations<sup>a</sup> consist of the actual determination of the kind and quantity of oysters on the bottom, and such economic and biological studies of the supply of oyster food, density of water, character of the bottom, and other important matters as affect the growth of oysters. In this work the oyster investigation stations are located and buoyed by the hydrographic party while engaged in the survey of the oyster-shell limits. They are selected with the view of obtaining characteristic data which can be used for the interpretation of the recorded vibrations of the chain apparatus at all other points covered by the survey.

*Preparation of results.*—The actual surveying operations and oyster investigations having been completed for any one county, there still remains technical work of nearly equal magnitude to that described.<sup>b</sup> This work consists of the preparation of charts and technical descriptions of boundaries and landmarks for publication by the Government, the preparation of that part of the annual report of the Commission covering the special oyster surveys and investigations, the making of the leasing charts and finished projections, and finally the filing of the oyster charts and records with the courts and the Commission, thus opening a county for oyster culture.

*Summary.*—From the foregoing account it can be seen that a complete oyster survey properly conducted so as to answer all practical requirements of the present and permanency of results for the future is a very complicated affair, involving many lines of surveying and other scientific work, and requiring the professional services of experts in the various operations of cartographic surveying and shell-fish investigations.

APPENDIX D.—STATISTICS OF RESULTS OF THE COMBINED OYSTER SURVEY OPERATIONS OF THE GOVERNMENT AND STATE.<sup>c</sup>

Operations	Anne Arundel County <sup>d</sup>	Somerset County <sup>d</sup>	Wicomico County <sup>d</sup>	Worcester County <sup>d</sup>	Total
Natural oyster bars surveyed and delineated	91	37	15	28	171
Acres of natural oyster bars	33,666	27,566	2,038	1,655	64,925
Crab bottoms surveyed and delineated		54			54
Acres of crab bottoms		32,108			32,108
Clam beds surveyed and delineated		3			3
Acres of clam beds		506			506
Boundary buoys located and planted	362	154	53	108	677
Triangulation landmarks established	123	86	30	48	287
Miles of shore line covered by triangulation	110	125	46	95	360
Square miles of water covered by triangulation	220	375	44	110	730
Miles of examination of shell bottom with chain apparatus	369	296	58	63	786
Oyster investigation stations occupied	440	679	162	147	1,428
Tide stations established	4	3	1	1	9
Number of soundings over shell bottoms	37,049	17,904	3,387	3,649	61,989
Square miles covered by soundings and chain apparatus	58	47	3	3	111
Projections prepared and plotted	9	13	2	5	28
Leasing charts prepared	13	12	2	3	30
Oyster charts published	4	6	2	3	15
Reports published	2	2	2	2	8
Progress maps published	2	2	2	2	8

<sup>a</sup> See pages 30 to 67 and 129 to 199 of "First Annual Report of Maryland Shell Fish Commission."

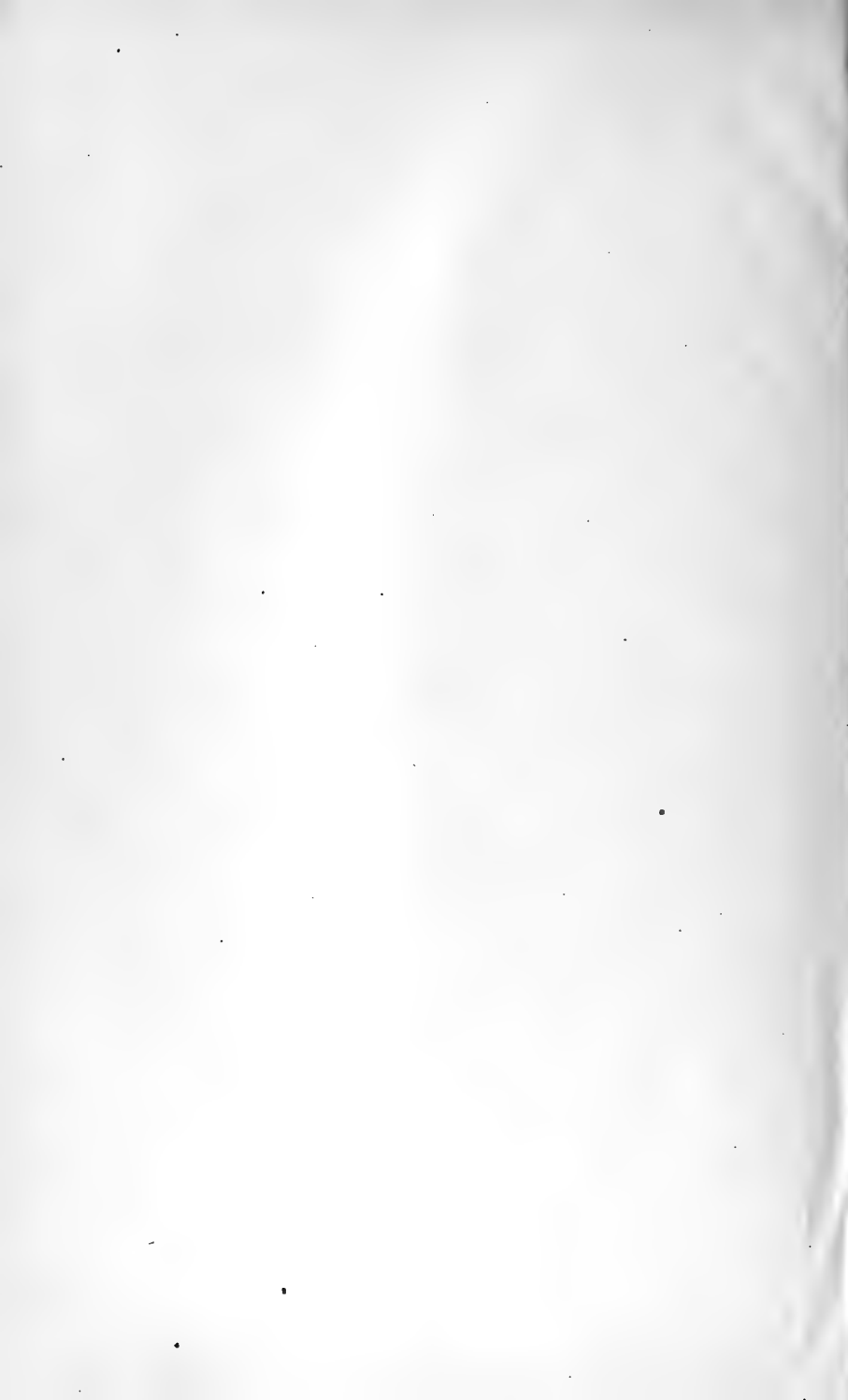
<sup>b</sup> No mention is made here of the large amount of administrative work of the Commission, which is greatly complicated and increased by the effect of the oyster-survey operations on many thousands of people whose interests are more or less involved; or of the large amount of survey work involved in the survey and record of the boundaries of oyster lots leased from the State by private individuals for the purposes of oyster culture.

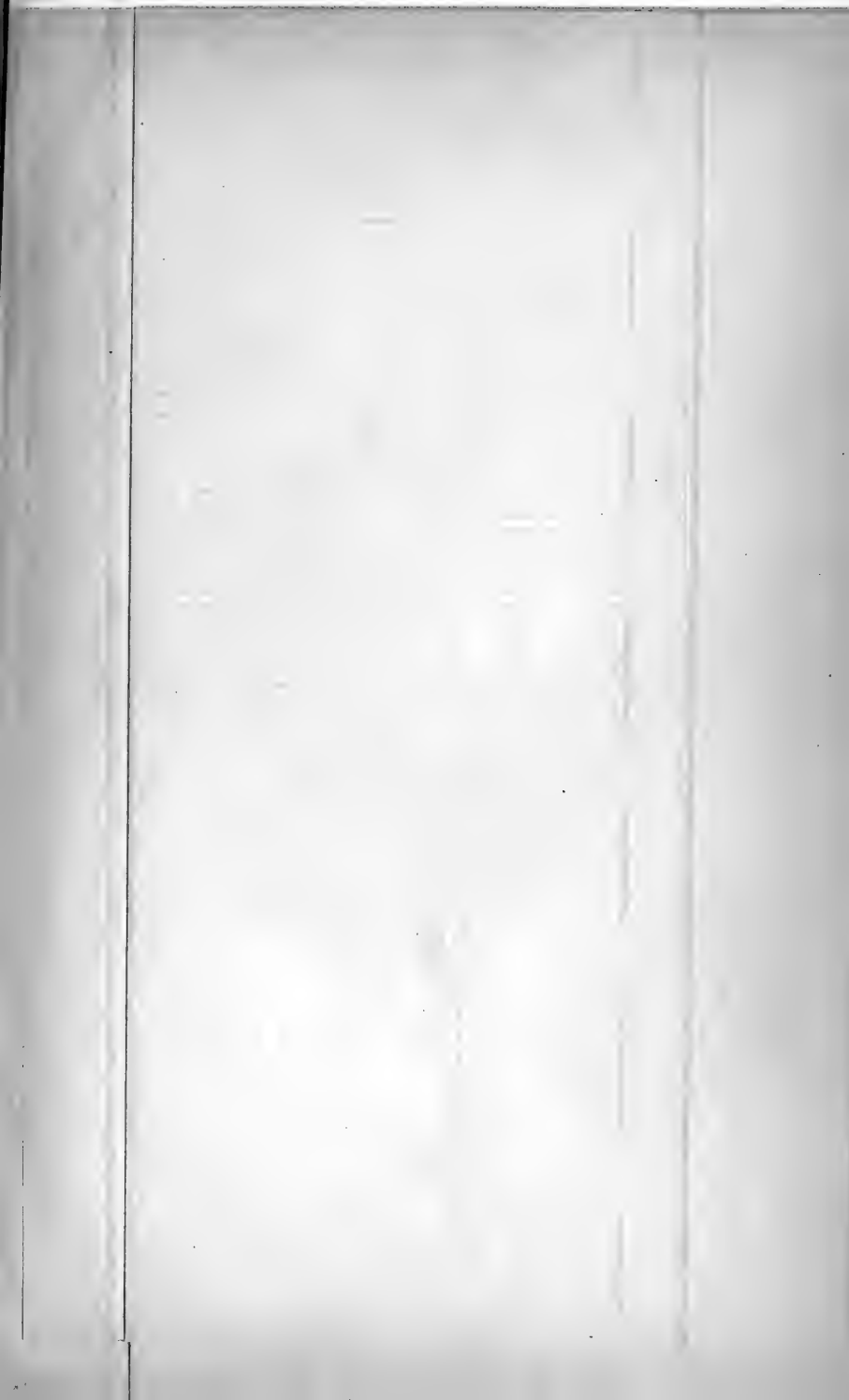
<sup>c</sup> These statistics do not include the large amount of triangulation, topography, and hydrography resulting from previous work of the Coast and Geodetic Survey which was utilized in the preparation of the published oyster charts and records.

<sup>d</sup> Work in Calvert, St. Marys, and Charles counties has been finished, but final statistics of results will not be published until these counties are opened for oyster culture.

<sup>e</sup> Total area of natural oyster bars of Connecticut is 5,770 acres.

<sup>f</sup> Less quantities covered by statistics of more than one county.







COAST AND GEODETIC SURVEY  
**PROGRESS MAP**  
 WORCESTER COUNTY  
 MARYLAND

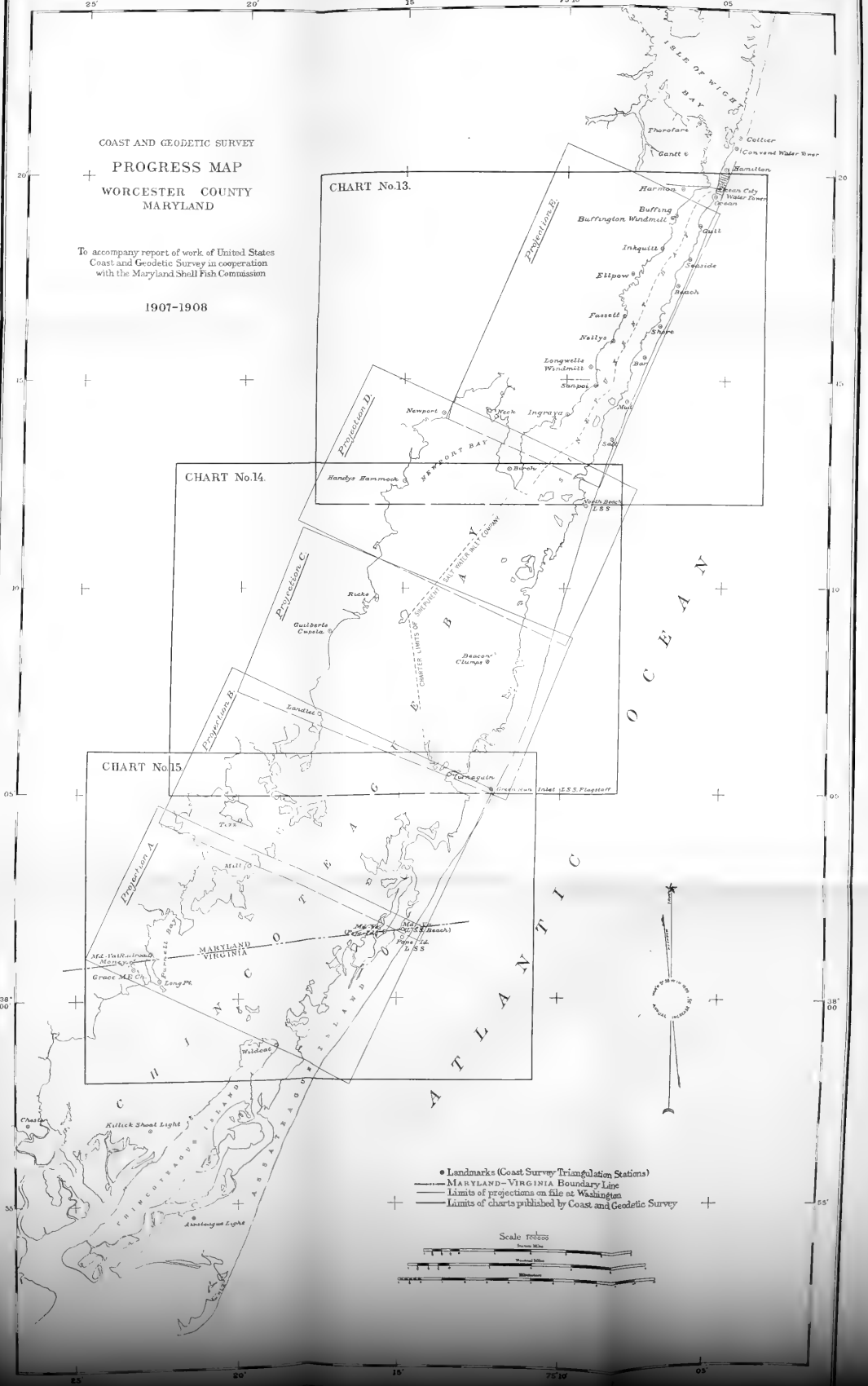
To accompany report of work of United States  
 Coast and Geodetic Survey in cooperation  
 with the Maryland Shell Fish Commission

1907-1908

CHART No.13.

CHART No.14.

CHART No.15.



- Landmarks (Coast Survey Triangulation Stations)
- MARYLAND-VIRGINIA Boundary Line
- Limits of projections as published by the U.S. Coast and Geodetic Survey
- Limits of charts published by Coast and Geodetic Survey

Scale bars

