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REPORT

OF THE

Commission of Fisheries

OF

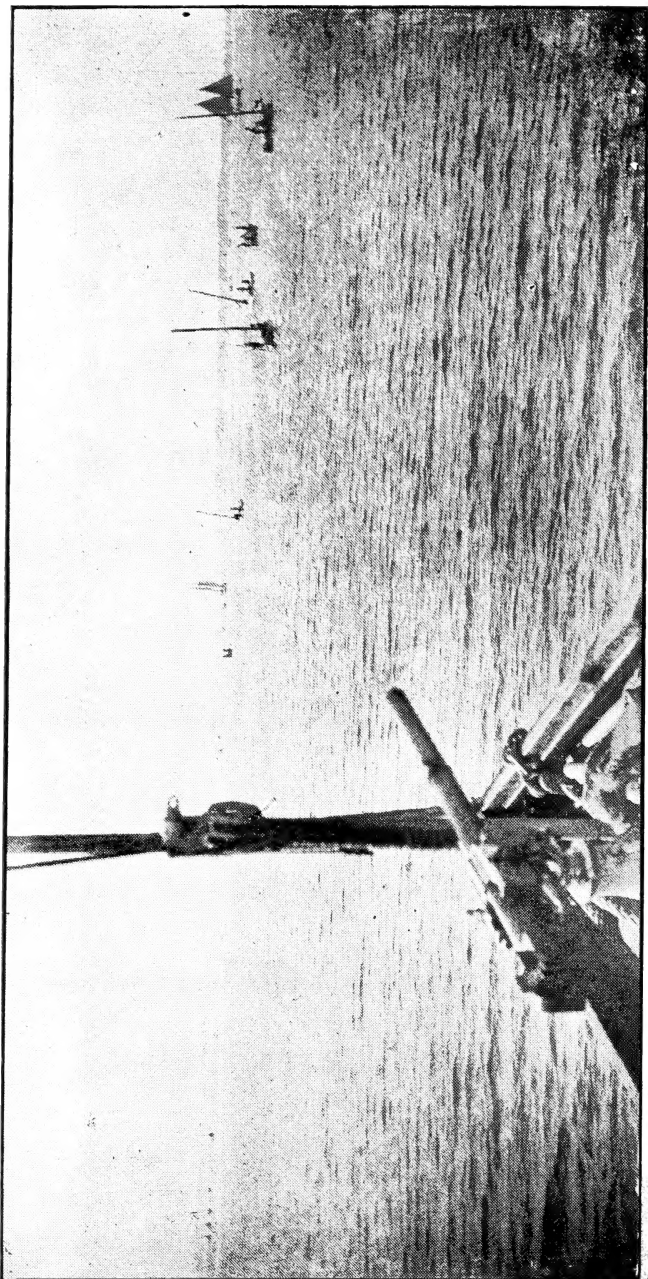
VIRGINIA

October 1, 1908, to October 1, 1909

RICHMOND:
DAVIS BOTTOM, SUPERINTENDENT OF PUBLIC PRINTING
1909

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Police Boat Overhauling Fleet of Tongers

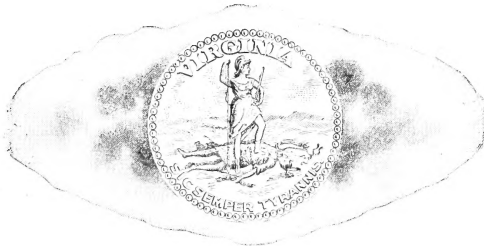
REPORT

OF THE

Commission of Fisheries

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REPORT

COMMONWEALTH OF VIRGINIA,
OFFICE OF THE COMMISSION OF FISHERIES,
HAMPTON, VA., November 15, 1909.

*To His Excellency, Governor CLAUDE A. SWANSON,
and to the General Assembly of Virginia:*

In conforming to the statute, we have the honor to submit to your Excellency and the General Assembly of Virginia this the twelfth annual report on the State's fish and oyster industries (it being the fourth report under the present administration), for the fiscal year ending September 30, 1909.

The Commission of Fisheries is not entrusted with the duty of collecting or accounting for the very considerable indirect revenues accruing from taxes on personal and realty values derived from dependencies of this vast industry, nor for some fines turned in by order of courts to the literary fund. If these were not segregated, and could be included in our reports, the direct revenues as at present reported by the Commission would appear but a pittance. As it is, this Commission collects and reports upon the direct revenues only—licenses, fines and tax on oysters and oyster bottoms.

For two years now conditions in the oyster region have been the most unsatisfactory in many years—the past year being the worst of the two. This was not due to any scarcity of oysters in Virginia. We have had a greater abundance than for years past. There has been little demand, and virtually "no market." The causes for this may not be definitely given, but they are in general what made other businesses stagnant, though they may be largely ascribed to the exorbitant rise in express rates, legislation secured by "patent carriers" and the lasting effects of the "polluted oyster" scare. Our State has not been alone in the depression, for States north of us all report distress. The Northern as well as the Gulf States have become formidable competitors to the Chesapeake Bay section within recent years. Prices and demand for oysters were unusually great in 1907, but the "slump" set in in the fall of that year.

The oyster trade is one of the first to feel a "panic," or season of financial distress, and one of the last to recover. The oyster might be styled a semi-luxury, and when times are "hard" this is one of the first viands to be cut out of bills of fare. In addition, the northern and western trades (which latter Virginia dealers are largely dependent upon) were seriously crippled by the "polluted oyster" scare, though, in justice, Virginia should not have come under the ban. There may be some truth as to danger from oysters that are cropped around great cities, and oysters shipped from there are usually labeled as coming from some cleaner sphere—the Chesapeake Bay, for instance. Hence, to the distant buyer, all oysters share the stigma. Illustrative of this we recite a story taken from the New York Sun:

The express man came in and dumped down the barrel of oysters in the restaurant. Then he went to the cashier to get the money due him. The skeptic was sitting near the cashier. He asked:

"What kind of oysters are those?"

The cashier, sweeping one hand about, pointed to the wall, where was the sign:

Fresh Lynnhaven Bays
Every Day.

"That's a fine bunk," said the skeptic. "Them ain't Lynnhavens."

"Oh, all right," sneered the cashier. "What is marked on the barrel, then?"

"What difference does it make what's on the barrel?" asked the skeptic. "Lynnhaven Bay's down in Virginia, ain't it?"

"Yes," said the cashier.

"Then how does it come that a Long Island Express Company man brings 'em in?" demanded the skeptic.

Then the cashier changed the subject.

One result of the depressed condition is that many tongers have sought other vocations for the time being, and many planters and buyers have held up—trying to "hold their own"—until better markets prevail. It should be borne in mind that an abundance of oysters and low prices in the oyster field affect the retail market but little. One cannot judge by the prices paid at cafes or at his home as to what the wholesale market is, as the many "middle men" must live, and a twenty-five per cent. falling off on the oyster grounds that depresses business here does not reduce the ultimate retail price five per cent. when passing through numerous hands. Why the price to the consumer should keep up to prices of three years or more ago, when the raw product was from 50 to 100 per cent. in advance of the present, we fail to understand. One illustration as to the present cost of oysters to the consumer on the water courses will show their cheapness—the cheapest diet today of all meats. A Colonial Meach caterer advertises in the town paper—

OYSTERS, 75 CENTS A GALLON.

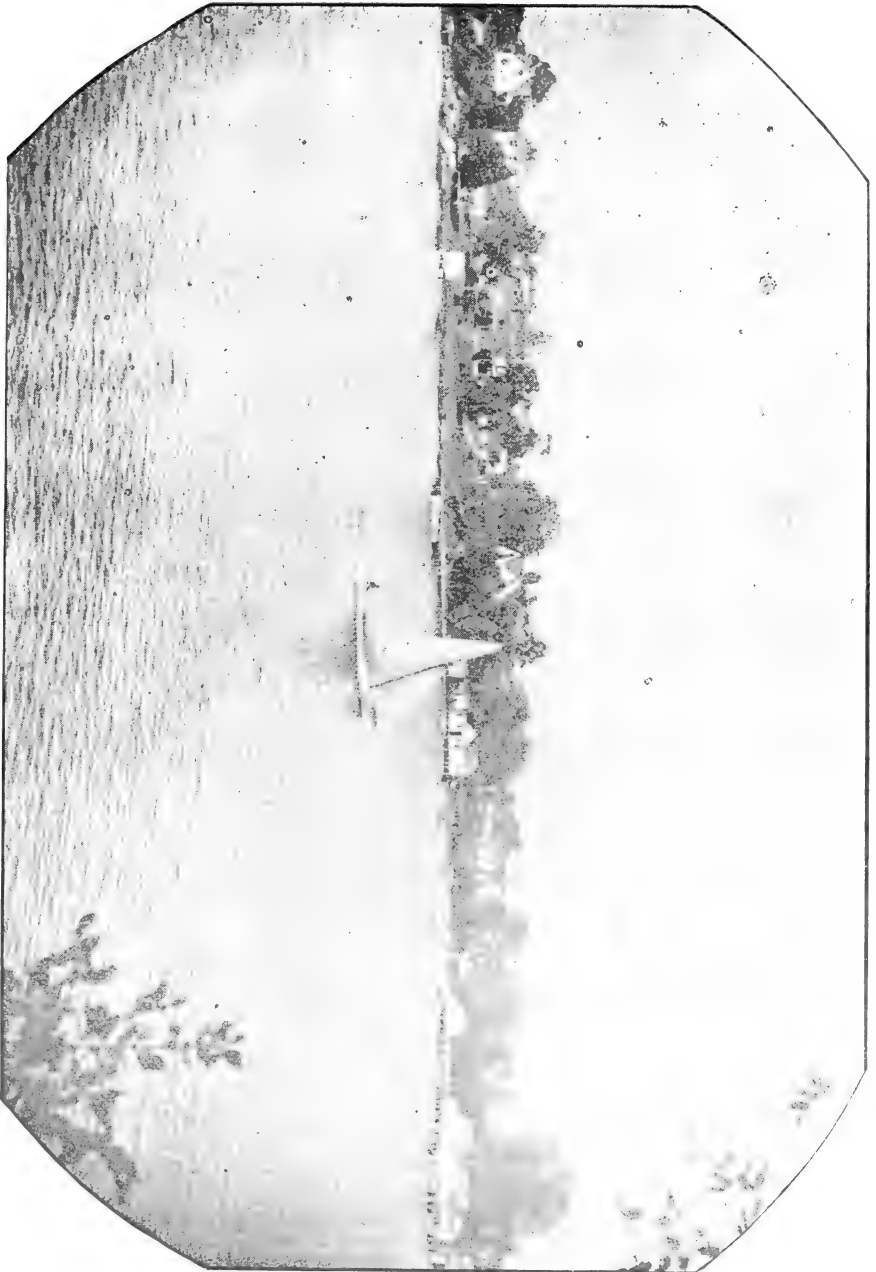
Come to ——'s old stand and get good fresh oysters at
75 cents a gallon.

Steamed or stewed, 15c.; two for 25c.

This gallon means dry measure (solid meats). The same gallon, marketed inland, would be watered, probably one-half, and if so vended at Colonial Beach would be valued at 40 to 60 cents. Twenty-five to fifty cents per dozen on the half shell in cities also means an exorbitant profit. The stationary price to the inland consumer is undoubtedly one cause of decline in the consumption of oysters, especially during depressed times. Yet, even at one dollar for a watered gallon, when weight and nutrition are considered, the oyster takes first place as an economical and healthful meat diet.

OYSTERS IN ABUNDANCE.

Your Commission of Fisheries has no control over any markets, wholesale or retail. Its labors are confined to preserving the small growth, promoting the output of marketable oysters, and protecting the interests of citizens engaged in the several branches. That this has been done, and that



TYPICAL OYSTER VILLAGE

Irvinton, on Carter's Creek, Lancaster county, where a Hundred Thou and Bushels of Oysters are Marketed Annually.

there is greater abundance of oysters in our waters to-day, must be admitted by all in Tidewater. Last month there appeared an article by Mr. Richard Armstrong, of Hampton, in one of the daily papers on the oyster situation for the season not a month old. From it we extract the following:

"Not for many seasons has this time of the year witnessed a better demand for full grown, cultivated oysters. They are moving off fast, and prices are being well held up, with a decided tendency to go higher for the finer grades. In fact, it looks at this time as if the supply of labor would be insufficient to handle the large crops that have accumulated during the past year.

"While it is safe to say that over 2,000 barrels of oysters in the shell left this locality last week and over 3,000 gallons of shucked oysters were also shipped, this will not be nearly the output when the weather gets a little more seasonable for the bivalves, provided men can be found in sufficient numbers to handle the work."

The quantity is still there, but the demand was short-lived, although for two months oysters from the public bottoms have been extraordinarily fat all throughout Virginia with the exception of the seaside. Planted oysters have not, in the main, been so fat, presumably from being overcrowded. But cooler weather should improve their condition. At the opening of the present season, by actual demonstration, one man could rake up on the seaside 50 to 75 bushels a day, but this seed was bringing only from 6 to 9 cents a bushel. On the James 15 to 20 bushels per man were being caught, an average of forty or fifty thousand bushels a day being the output on that river, worth from 20 to 25 cents per bushel.

Last season found us with more marketable stock, and in prime condition, than for ten years past, but the pollution scare and an advertised scarcity, in conjunction with the depressed times, compelled Virginia dealers and planters to carry over a large portion of their stock to the present time. Virginia, of all the Atlantic States, was the more peculiarly handicapped. What sales were made were forced ones, and so with this, the interest on investments and the deterioration of multiplied stock, Tidewater Virginia sustained a loss almost incalculable—certainly nothing short of a million and a half dollars. It was while under this depressed condition that the United States statistical census takers made report on our output of fish and oysters. Under normal conditions our crop exceeds in value that of any other American State, whereas, taken on a basis of last year, we are on a parity with New York and Connecticut.

To-day we have more oysters than we have had any season for the past fifteen or twenty years—due to nature's bounty, good policing and unsold stock. This is a positive condition, and no idle speculation. The planters are overstocked, and 80 per cent. of our rocks are in better condition than for many years. Examinations of rocks in most parts of the State have been made by the oyster officials, and the testimony of those living in the vicinities accord with the foregoing statements as to good condition. As has ever been the case, a few sore-heads, disgruntled tongers or dealers, and some that the law officers have had to keep "good," will doubtless be heard kicking and crying calamity and scarcity before the season closes.

What affects business must naturally affect the State's revenues, directly as well as indirectly, and your Commission of Fisheries, seeing this condition, frankly admits that it has striven harder than ever to make the best financial

showing possible. Some licensed tongers have dropped out, and there is a falling off in this item of revenue. Two years of poor markets has driven them into other vocations. It is by no means viewed as a calamity, or even a loss to the State's material interests, that a certain class has been "weeded out," and their labor gone to help other industries. The better class of tonger, and the planter, as well as the land operator, are both beneficiaries. There has also been some shortage in collections among the planters. It has been impossible to collect in full the rentals on planting ground. Many planters have carried over their stock for two seasons and could not, or would not, pay their rentals to the State. To have coerced them would have meant the driving out of business of many, and the abandonment of rented lands, in whole or in part, and we had no method of discriminating as to who was and who was not able to pay. These delinquents we expect to yet recover from, but deeming one of our cares to be the fostering of planting and shucking, as well as the other branches, we preferred falling a little short in collections rather than drive any number of men out of business.

Notwithstanding, we report for the year ending September 30, 1909, much larger collections than any previous year in the State's history—except the prosperous year of 1907, and within a fraction of our last year's collections. (Last year's would have been exceeded had Richmond county's inspector not failed to report promptly and before the Auditor's books closed.)

COLLECTIONS AND EXPENDITURES.

Receipts turned into Auditor of Public Accounts, year 1908-'09.....	\$76,693 76
Gross expenditures from the oyster fund (see itemized table).....	40,516 34

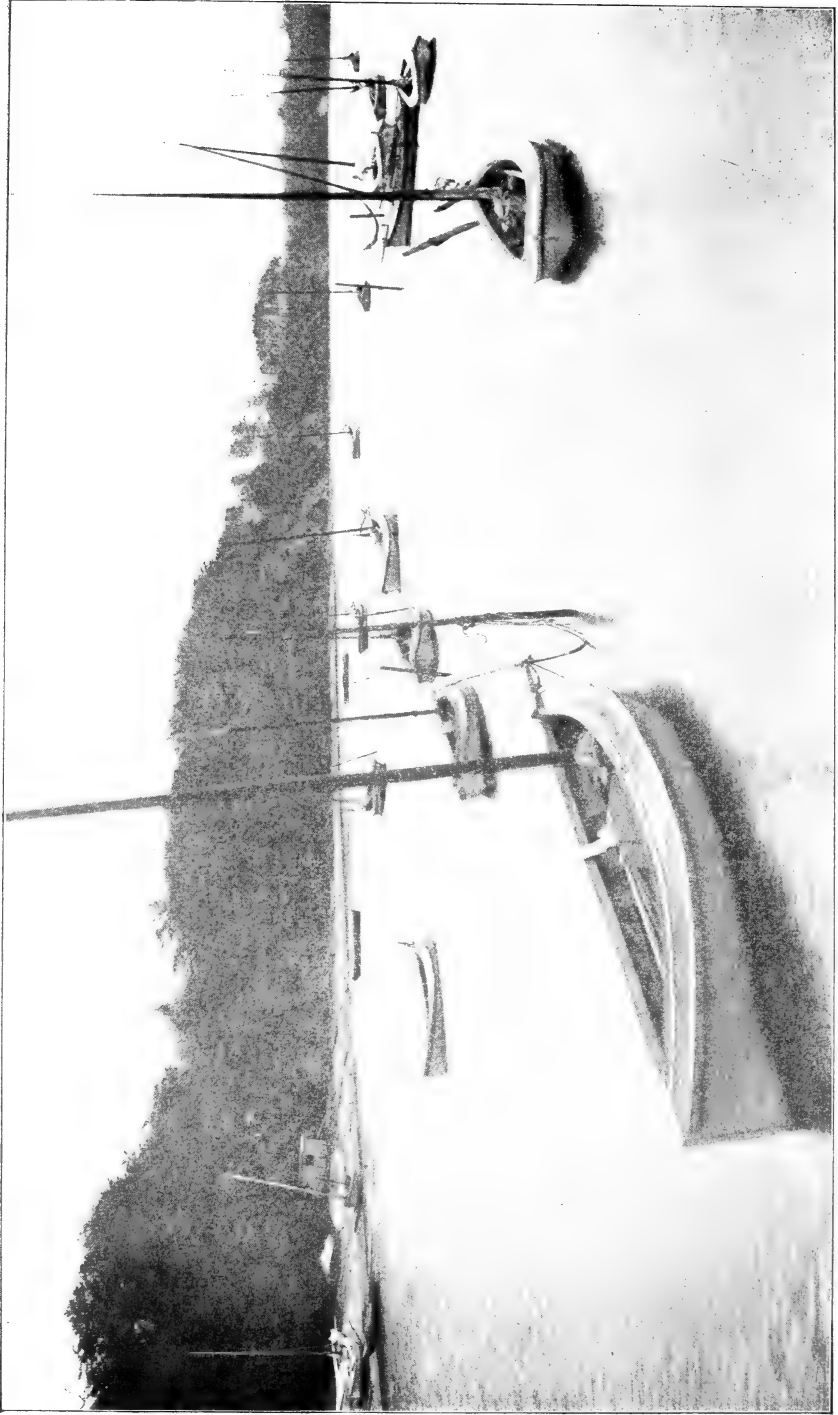
Net profit to the State.....	\$36,177 42
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Fund Available for Expenditures:

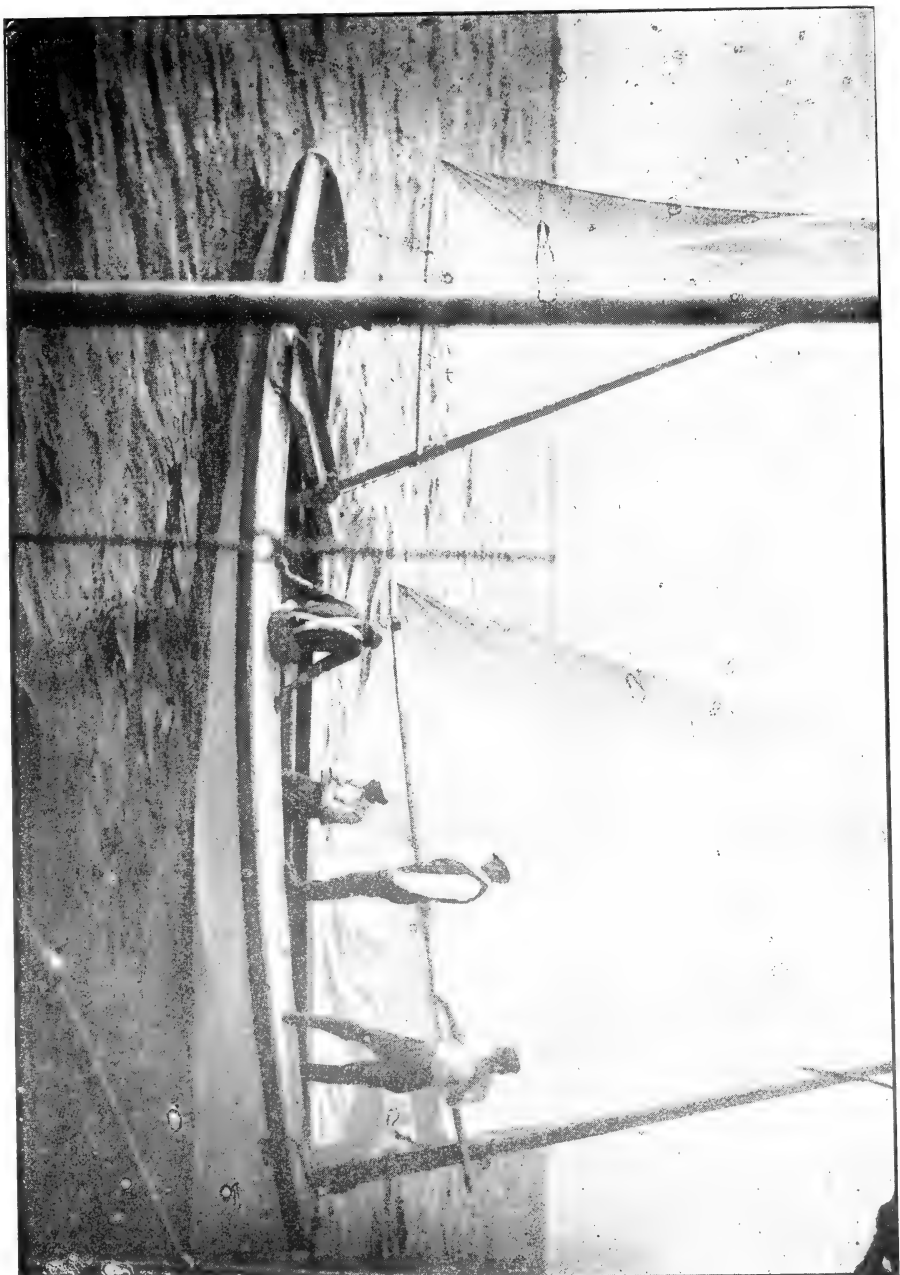
Annual appropriation	\$45,000 00
Sale of steamer Rappahannock.....	1,250 00
	<hr/>
	\$46,250 00
Less gross expenditures above reported.....	40,516 34
	<hr/>
Unexpended surplus for the year.....	\$ 5,733 66

With no untoward accident, your Commission of Fisheries expects to return to the State treasury next March about five thousand dollars unexpended appropriation, and one-half of the twenty thousand appropriated for the purchase of new boats. It believes the sum of \$45,000.00 ample annual appropriation for the work of the Commission during the next few years, unless resurveys and restoration of depleted beds on large scale should be deemed advisable, and provided for, by the General Assembly.

In addition to this not unfavorable financial showing, the State is richer each succeeding year from internal improvements and indirect taxes accruing from its fish and oyster industries. It should not be forgotten that Maryland and Connecticut, frequently referred to as examples to profit by, receive practically nothing from direct taxation of the oyster business. Maryland's administration shows a deficit year by year, while Connecticut seeks to get



Out of business. Passing of the Chesapeake Bay Sail Canoe, Supplanted by Motor Boats.



The Maury's second officer overhauling a summer-time scraper on the Potomac. Scene had been cut away and oysters thrown overboard when police steamer was sighted "Guilty," but evidence for conviction lacking.

annually only about five thousand dollars directly from her great industry. In two years, direct revenue from Connecticut's shell fisheries netted only \$9,218.34, including the sale of 1,500 acres of bottoms to private individuals. While not enabled to secure complete statistics, it looks as though Virginia derives a greater revenue from her oyster industry than all the States of the Atlantic seaboard combined, except Rhode Island, which State charges five and ten dollars per acre for oyster grounds, where we charge only one dollar.

Annual collections under the present Commission have been for the four years as reported by the Auditor and the Commission: 1906, \$74,623; 1907, \$99,982; 1908, \$77,761; 1909, \$76,693. Under former administrations the Auditor of Public Accounts reported these from forty to sixty-nine thousand yearly. The collections of four years under the present administration (and two of these in distressed times) have totaled \$329,061, with net profit to the State of \$197,554, the best four years since there has been a board of fisheries. (These comparisons are made solely to show the improvement in the revenues and industry under successive administrations, and not by way of any invidious contrast. Former administrations labored under disadvantages, as well as insufficient appropriations, which have been largely overcome in later years.)

Prior to the inauguration of a board of fisheries there was a constant deficit in direct revenue, to say nothing of the drain upon our prolific bottoms; now the State is getting a direct return of about two dollars for every dollar expended. The financial success of the administration of the fisheries department during its existence of nearly twelve years is shown by its returning a total net profit to the State of \$462,380.65, and at no outlay to the State. (N. B.—The appropriation to the fish and oyster fund is different from any other State appropriation—it must be collected, else not expended.)

Total expenditures of this Commission for three years past (including purchases of new boats) are:

1907	From Board of Fisheries fund.....	\$33,171 01	
	Purchase of new steamer.....	20,000 00	
			————— \$53,171 01
1908	From Commission of Fisheries fund.....	\$32,319 01	
	Purchase of new launches.....	8,016 82	
			————— \$40,335 83
1909	From Commission of Fisheries fund.....	\$40,516 34	
	Purchase of new launches.....	1,809 02	
			————— \$42,325 36

While included in disbursements, the money expended for new boats can hardly be charged as a disbursement against this department of government any more than officers or buildings belonging to the State are to be charged up to the department using them. The boats are property that can be realized upon at any time, and at a sum totaling the special appropriations, for they are kept in good condition and added to by use of funds appropriated to the Commission of Fisheries for operating expenses.

Such as the following, taken from one of them, has been the sentiment of leading Tidewater dailies for some years past:

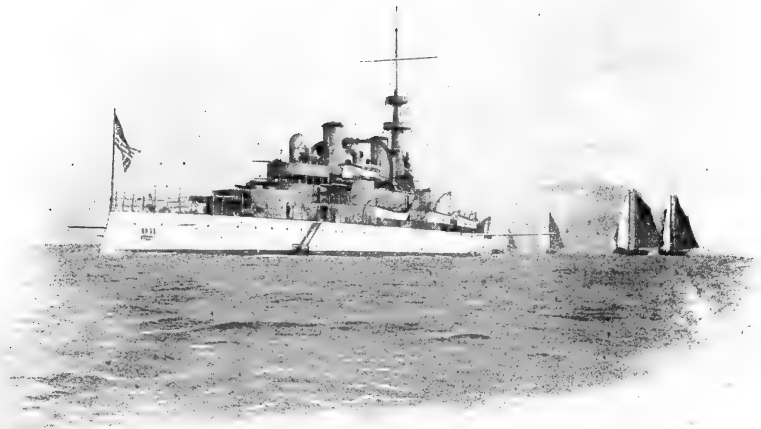
" * * * * All experts on the subject agree that the State could make a great deal more money out of its fisheries if it did not look for any direct returns in cash. If the State board were able to spend all its income on the work of policing the oyster waters, enforcing the protective laws, and generally fostering the fisheries of the State as an industry, the indirect returns in the way of increased prosperity and increased taxable values would be far in excess of anything it could ever collect directly in cash from the industry itself. * * *

"The obstacle to putting Virginia in the forefront of enlightening policy in the supervision of her fisheries has always been, and is now the difficulty of making the 'up-State' people see the point. * * * If they are not willing for the State's preserves to be self-supporting and the dividends applied to permanent improvement, do not exact three dollars for one; one hundred per cent. should satisfy any reasonable craving. * * * Virginia will starve the goose of the golden egg if she does not give her fisheries department more liberal financial support and help nature with a wise revision of the fisheries legislation. As to what the details of this revision should be, we can see no course so reasonable and promising as to follow the future recommendations of the present conspicuously competent State board."

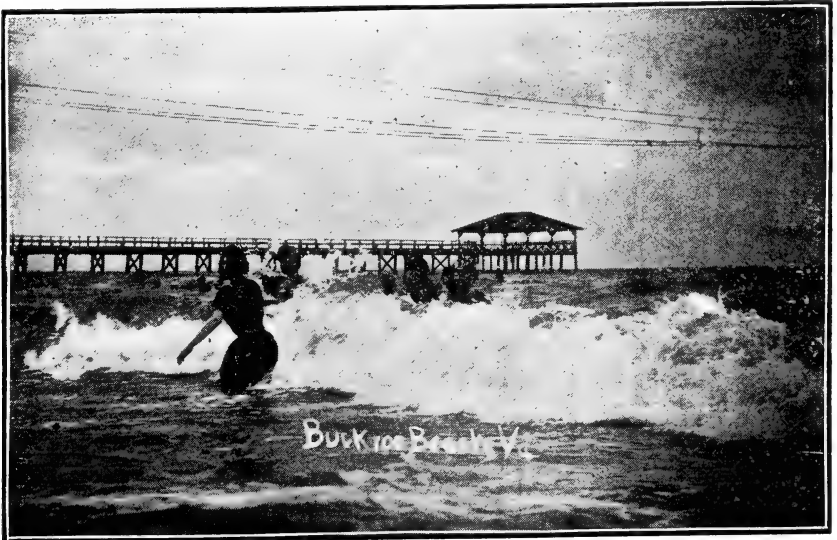
Acting upon this policy, and recommendations of oyster officials, the last General Assembly, though failing to give other statute relief, generously gave the Commission liberty to use more of the money collected in order to restore productiveness to the oyster bottoms, to meet expenses and salaries necessarily increased because of increased cost of living, to establish offices, increase the navy service, rerun lines, contest law cases, and in many ways advance a system which had suffered for means to properly conduct it. The crop in Virginia to-day shows how well this has been expended. This condition has been beyond criticism even by political opponents.

In accounting for expenditures it will be seen that no small portion of the outlay has been caused by litigation. Three cases—one involving the validity of the Baylor survey, and two the constitutionality of statutes by which encroachment upon the public bottoms could be resisted by oyster officials—have reached the State Court of Appeals, and all have been decided in favor of the State. One of these was a suit for damages, eight thousand dollars, against a member of this Commission for executing the law. And here is shown again the wisdom in enacting the Commission of Fisheries law by the last General Assembly. Under the Board of Fisheries act, members were liable to suit as individuals when in the proper execution of their duties. Other increased disbursements have been, as noted, from a proper raise in salaries to officers and seamen (prominently advocated when the increase in appropriation was pending), and the increase in boats, crews and special police. Still another has been for surveys.

Given the increased appropriation towards these ends, your Commission does not feel that excuse is needed in expending more than in previous years, especially when the good effects are apparent everywhere in Tidewater. As to conditions on the public bottoms, no critic has been found to gainsay the statement that not in years have they been in better condition and so prolific. Had there not been oysters in abundance in our State during the past two years there must necessarily have been an entire collapse of the industry. As it is, the abundance of oysters has enabled our people to eke along during the depressed times. They have been able to "keep heads above water," and in a measure compete with north and south that have done, as we are late in doing—preserving the oyster beds. Failing to have increased the oysters



Hampton Roads, the World's Best Harbor



Surf on the Beach

would have meant positive destruction to our trade at the recent low prices throughout America.

Your Commission fully realizes that no human agency is void of mistakes, but it has worked arduously for the State's welfare so far as it could see and was able. There will be critics—political and personal—at best, and doubtless these will take occasion to question the wisdom of the past year's expenditures and its net returns. The answer is here and now—that the Legislature was impressed with the wisdom of better care and conservation, and your Commission has given these, at the same time returning a surplus of the appropriation. Physical conditions throughout the oyster region amply justify the policy of our lawmakers and the claims of the Commission. In view of two years of depressed markets, collections, when compared with former years, could not reasonably have been expected to be better.

FOR A BROADER COMPREHENSION.

While revenues from oyster and fish sources have increased in the past four years, the cost of operation and supplies has also increased, the number of police boats and crews been enlarged, and troubles multiplied, the latter being produced chiefly by motor boats being now used where sail boats only were formerly known. Before retiring from office the former Board of Fisheries included this in a statement through the public press:

“Virginia's most valuable oyster rock and beds lie in her rivers, particularly in the James river, and it is in Virginia's own rivers and bays that the most damaging violations and depredations are made; hence, it is there that her police force is chiefly engaged. Virginia's oyster navy, as is well known, is utterly inadequate to protect her vast area of water—nor could this be done were the navy three or four times as large. Hence the board can only protect to the best of its ability, with its limited force, the most important sections.”

This has been overcome, and the James, the former hotbed of trouble, is “like Sunday,” not a violation of consequence being heard of during the summer just past. To do this, and keep it so, has cost no little of care and expense. Members of this Commission have held mass meetings and conducted a “campaign of education” in these parts, as in others, and the people so vitally interested are growing to respect the law and conserve their natural resources.

Among other acts of this Commission, members of the legislature and State officers have been taken, whenever convenient to do so, over the fish and oyster territory and given a practical insight as to the operation and management of these industries. By this means a broader and more intimate understanding has been gleaned by many who participate, indirectly it may be, in the management of these State preserves, and what has heretofore been a vague and troublous subject is being unraveled by inland representatives and people. We presented this phase to your honorable Assembly two years ago:

“One of three things must be done: (1) Give greater police protection and fuller scope to the board's discretion and powers; (2) lease the natural rocks, or (3) turn them over to an unbridled public. Even at the risk of being accused of personal interest, your board does not

hesitate to advise the first-named as being in line with advanced thought in Virginia and other States along the seaboard. It is a poor policy that will take much and give back little. This is not pursued in land cultivation, and should not be in oyster farming by the State. Connecticut, oft quoted as the most advanced of the States in oyster culture, does not attempt to get any great revenue directly from her industry—about five thousand dollars net annual profit; the great wealth from her industry is vested with her citizens, and taxable values are much enhanced. * * * Unless nature comes to the rescue with bounty prolific, assisted by the legislature, public tonging on the James, the ocean side and some other waters, will soon be a thing of the past for good and all. For the James, more than any other section, wise legislation and rigid surveillance are the only means of salvation.”

Recommendation (1) was adopted by the last General Assembly, so far as a generous use of funds was permitted, but our laws were practically untouched. All we ask to-day is to grant the badly needed changes in the statutes, as will be presented again to the legislature, compiled after much tedious work and consideration. Nature has assisted the officials in greatly replenishing the oyster bottoms. The James is this present season producing more and better oysters than for many years. Pocomoke Sound, whose citizens heretofore have had to go away to oyster, is now filling and even surpassing the most sanguine hopes of officials and residents, and its people are finding a good living in their own waters; while the Rappahannock and other places (with the possible exception of the seaside) have a greater abundance of oysters than for years past. Continued strict enforcement of the cull law will mean not only abundance, but also superior quality.

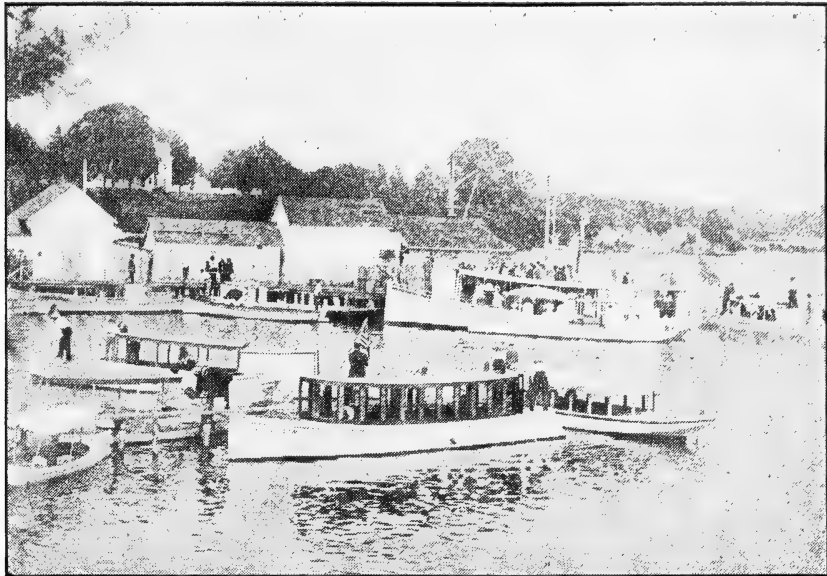
As the farmer in his department pays a tax for his protection, so the oysterman pays for this, and reasonably expects a fair proportion to be expended in his interest. When Virginia ceases to demand heavy direct returns her officials can do some “nature cultivating,” as suggested by newspaper writers. Public clamor, we feel satisfied, will not deter the State’s lawmakers from moving cautiously with an asset that is paying well and sure, and that might be wiped out by hasty acts.

FEWER AND MORE EFFECTIVE LAWS NEEDED.

Our courts are not uniform in construing the labyrinth of laws on fish and crustaceans. So confusing are some of these laws that the Attorney General of Virginia, in answering queries of oyster officials from time to time, pertinently and truthfully injects such as the following:

“The questions which you have recently submitted to me furnish additional reasons for a careful revision of the oyster and fish laws of the State. Your experience and observation must confirm my own as to the crying need for such revision, not only to supply palpable omissions in the law, but to make clear confused, and sometimes unintelligible, provisions and to reconcile contradictory requirements. * * * Indeed, there ought to be a careful and painstaking revision of all the statutes in reference to the oyster and fish interests of the Commonwealth.

“There is so much confusion and conflict in the laws as they are now expressed in the statutes of the State, and so many exceptions and qualifications, and special and local statutes, that it must be not only exceedingly difficult, but impossible for you and your board and your subordinates to intelligently and efficiently enforce and administer their provisions.”



Fourth of July with the Watermen



Iron Hull of the Maury Exposed. An Ideal Boat-bottom

Your Commission has from time to time made memoranda of what it deems imperfections in the laws, and also of those laws which should be repealed, and statutes that are needed. It has further undertaken to compile and in a measure codify the fish and oyster laws, with suggested changes and an effort to reduce the number of statutes, which will be submitted to the next General Assembly for consideration, with the hope that they may be enacted as a whole and with as few modifications as that body may be pleased to make. The last legislature gave the Commission means for better policing, and we have rigidly done it. We were given fuller scope, but practically no improved laws, and thus much of our effort has fallen through. Had the codified and amended laws, of forty-eight printed pages, which the board of fisheries devoted six months' work upon, not died in the House and in the Senate Committee on Fish and Game, but had become laws, Virginia would have seen two years' advance in intelligent oyster culture and administration, in addition to being spared much expense in litigation. The law makes it a felony to use steam power for dredging, but it never contemplated gasoline and electricity. These have come, and unless soon checked will produce devastation on the dredging grounds. Under existing statutes, officials are powerless in the premises. Inhibition against fishing or dredging within rivers is another serious proposition. No two persons of opposing interests will agree in defining the mouth of our broad rivers, and the courts shy from it. For the interests involved and purposes of such laws, the Commission could easily adjust these differences if it were empowered to designate equitable bounds. And so on, as will be enumerated in recommendations later.

BAYLOR LINES AND DEPLETION DISCUSSED.

An oyster rock is seldom or never in reality *rock*. It is such bottom that the young can adhere to and thrive upon, sometimes composed of hard sand, sticky, hard mud, or, best of all, shelly bottom created by centuries of deposit from deceased mollusks. Only a small portion of our three thousand miles of salt water bottom is suited to the growth of oysters. Shifting sand and soft mud are barren; oysters cannot live in such, though clams in spots may be found occasionally in abundance there.

In our waters oysters are thought to spawn, more or less, the year round, but the greatest abundance is from June to December. Only during this period is the spawn effective, and at this time the waters fairly teem with countless millions of the molecules. One oyster will reproduce several millions of its kind, but hardly one in a million germinates and survives. If the water is too cool, none of the spat lives; if favorable, the milky spawn floats about until it meets with the male melt, and then gradually settles to the bottom unless it strikes some obstruction. If this obstruction is suited to its growth it will adhere to it and thrive, whether it be a stick, an old boot or a boat's hull. If the bottom is hard, coated with shells, oysters, pebbles or some such stable substance, the embryonic oyster fastens itself to this cultch and at once begins to grow a shell.

Some areas of former natural rock now barren will never recuperate unaided, but the larger portion of our barren bottoms will recover and become prolific if given rest. In localities shell rocks have been carried away bodily in years past to make private planting beds. This process obtained more largely in the James and Potomac rivers than elsewhere, but during the past three seasons "roughing" and "shoveling by" have practically been checked.

Dr. Caswell Grave, member of the Maryland Shellfish Commission, two or three years ago, made public some startling figures, showing the decrease in the acreage of the productive oyster rocks of that portion of Pocomoke Sound within Maryland, which has been surveyed and plotted by his commission. In 1880, when the sound was surveyed by Lieutenant Winslow, it had about 7,360 acres of natural oyster beds. In 1891 there was another survey, when the acreage had decreased to about 5,120. The last survey shows a productive acreage of only 1,408. While this was equally true at one time of those portions of Tangier and Pocomoke sounds lying within Virginia, it is not so to-day. Your Commission has indisputable evidence, by actual examination and testimony, that the natural rocks there are fast recuperating through strict enforcement of the cull law. Pocomoke Sound (almost wholly within Virginia) was a few years back practically depleted of oysters. The people of Saxis Island and the upper part of Accomac every season went to the James or other distant waters to make a living during the oyster season. To-day they are staying at home, and their word for it is that they can make about five dollars a day any good oystering day. Broad Rock, in Hampton Roads, was, up to two or three years ago, kept denuded by unlawful dredging, mostly at night, and no tongers' boats were to be seen upon this splendid oyster ground. In contrast to this, at the opening of the present season as many as eighty tongers' boats were to be seen working there any good day. These are but fair samples of the efficiency of your Commission's policies. Virginia is forcing the "pirates" out and at the same time preserving her great wealth of natural beds.

According to the Baylor survey Virginia has 226,000 acres of natural rock and 400,000 acres suitable for planting purposes. These figures do not hold good to-day. The productive acreage of natural rock has diminished materially, largely from depletion and unlawful holdings. In the 400,000 acres of planting ground there was some bottom embraced that was not suited to planting, but this is offset to-day, probably, by areas of depleted natural rock. Not a fourth part of this 400,000 acres has been taken up by planters. Statistics show that Virginia has 26,767,680 acres of land within her borders, and only 10,094,805 of these acres are improved. Naturally it is to be expected a greater variance will obtain with her water areas.

To the uninitiated it would be difficult to explain the state of things existing ever since the Baylor survey was made. No marks that may be called permanent were established at the time, it being presumed by those in charge of the work that the State would later mark and buoy the lines of the geodetic survey. To-day they are mere tracings upon charts, and lines of perennial stakes placed by renters almost wheresoever they chose. To put these renters back on their proper bounds is but a primal cost. To keep them there is almost beyond human possibility, with no fixed and permanent corners or bounds to go by. The State suffers by loss of taxes and the oyster tonger suffers from loss of public reservation. It is almost a waste of money to rerun lines under present conditions, but unless it be occasionally done the depredating planter will acquire much of the public ground, and without return to the State. Only the past year, with increased funds, has the Commission been enabled to contest these encroachments, and wherever practicable it has inaugurated a system of permanently marking the old Baylor lines. This policy is one long desired by our predecessors as well as our-

selves, but not until this time have officials been able to carry it out. It should be the purpose of future Commissions, as of this one, to rerun, by degrees, the entire Baylor survey and permanently mark its principal corners.

While your Commission is unalterably opposed to abolishing the Baylor survey, or to leasing out any part of the producing "rocks," it does believe that in some localities (the James, for instance) it would be wise—in fact, it is demanded—to rearrange the Baylor lines, taking in some grounds omitted and throwing out some that should not be included therein. This should be done only by careful and tedious examination and by easy stages, at the hands of expert and unbiased men. Some immediate action is urgently needed. The seaside and Mobjack Bay might also be considered to the advantage of State and citizens, as they are much in need of examination and action along these lines. The seed producers of the seaside should have ground on which to scatter their seed. An unsatisfactory condition exists there now. Tongers and riparian claimants are in constant clash. What appears to be an erroneous position is being of late taken by landowners in claiming to "low-water mark" the bottoms that ebb bare stretching to sea in places for miles beyond the property owners' heretofore recognized shore lines. Unless means are devised for defining the low-water mark and legislative enactment settles once for all these difficulties, the Commission will be powerless to remedy conditions existing there, and the courts of the Eastern Shore can never clear their dockets of suits, civil and criminal. In James river zigzag lines prevent effective policing. Unless the lines are straightened there, to permit easy guarding by means of watch-houses or watch-boats, the State must incur great and ever-increasing expense in patrolling this river. In Mobjack Bay, and the rivers of Mathews and Gloucester bordering on the Mobjack, the clam is beginning to take precedence over the oyster. In fact, the latter is nearly extinct there, but the bottoms could be made productive again if in the hands of the best citizens of that community. Under present conditions few of these whites can afford to waste time on their rocks. They are left for the most part to an element that is badly needed in the cornfields, the larger number of tongers going to other waters of the State.

TWO CLASSES OF CITIZENS—DESIRABLE AND UNDESIRABLE.

Many parts of the oyster country are afflicted with a worthless class, who go north as waiters and hostlers in summer and return to take the cream from the oyster bottoms in winter. If possible, this vagrant class should be kept from the public rocks; any that had been absent for the four months next preceding the opening of the oyster-tonging season should be denied license to work on the rocks. This may be rather bold advice, but the good of the agricultural as well as the water interests are crying for some such restrictions. Some of the more worthless have been kept ashore the present season by strict enforcement of the cull-laws; they will not work unless there is ample opportunity to steal the small oysters while tonging the large ones. Chiefly for this reason the number of licenses has decreased—not a deplorable thing by any means, since the rocks are given a better chance, and it means that the farmer can procure more "help." But enforcing the law in the way it now has to be done will not altogether weed out this

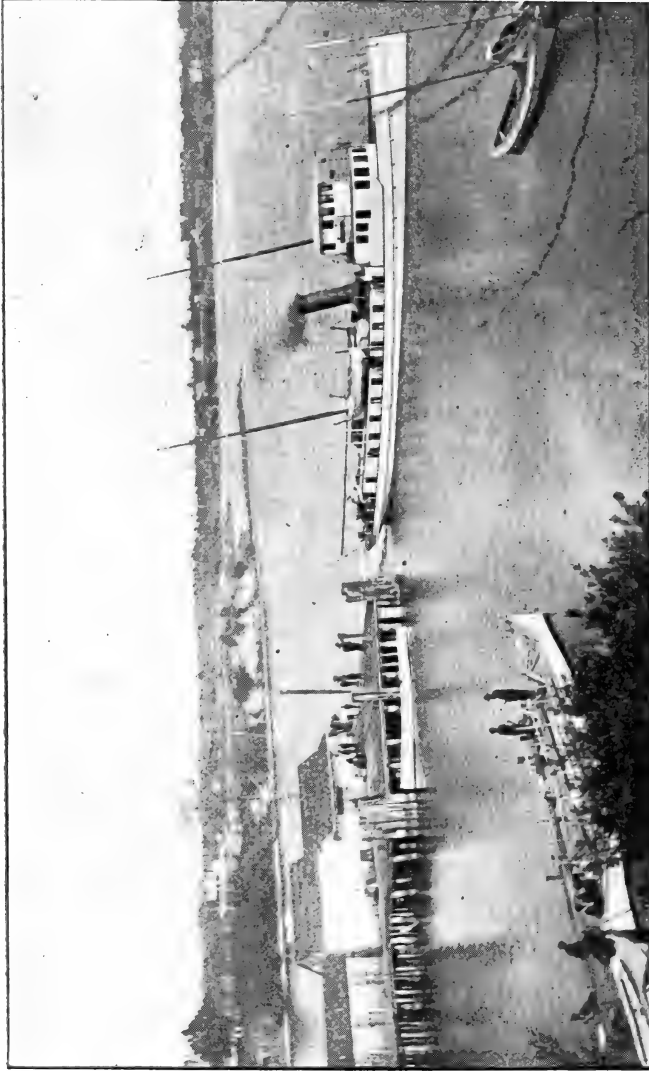
class. To entirely prevent violations would require an inspector to almost every tonger of such character. The prerequisite above noted is the only feasible suggestion presenting itself.

The State owes it to the farmer, the general employer and housewife, and to society, in some way to keep from the public grounds this element that is handicapping these and other interests. Lawless instincts have been engendered for generations in a certain element of watermen. They believe that all oysters on the bottoms belong of right to whoever may take them, and they glory in their smartness if they can be taken without being apprehended. Happily this element is comparatively few in numbers, for some of the colored and a large majority of the white oystermen are a good, stable class, owning comfortable homes that pay rather high realty taxation, and rearing good families and educating them. Many of the whites are scions of the best families in Tidewater, and are the sinew of the community, the best kind of citizens and observers of our laws. From such the oyster officials have received much encouragement and help. This class should not be deprived of their present rights, but should be protected to the fullest. It is, as will be readily seen, a difficult proposition to weed out the vagrant and lawless without hurting the good. Our newspapers are doing a good work in urging upon the better class each to become an officer and report his neighbor if the latter does not observe the oyster laws. To report the law-breakers would be the good citizen's best protection and save to him rights that are threatened with restriction. A campaign of education is needed along these lines, and your Commission is doing its best to create such a sentiment, and is meeting with gratifying success in numerous localities. In this connection we quote again from last year's report:

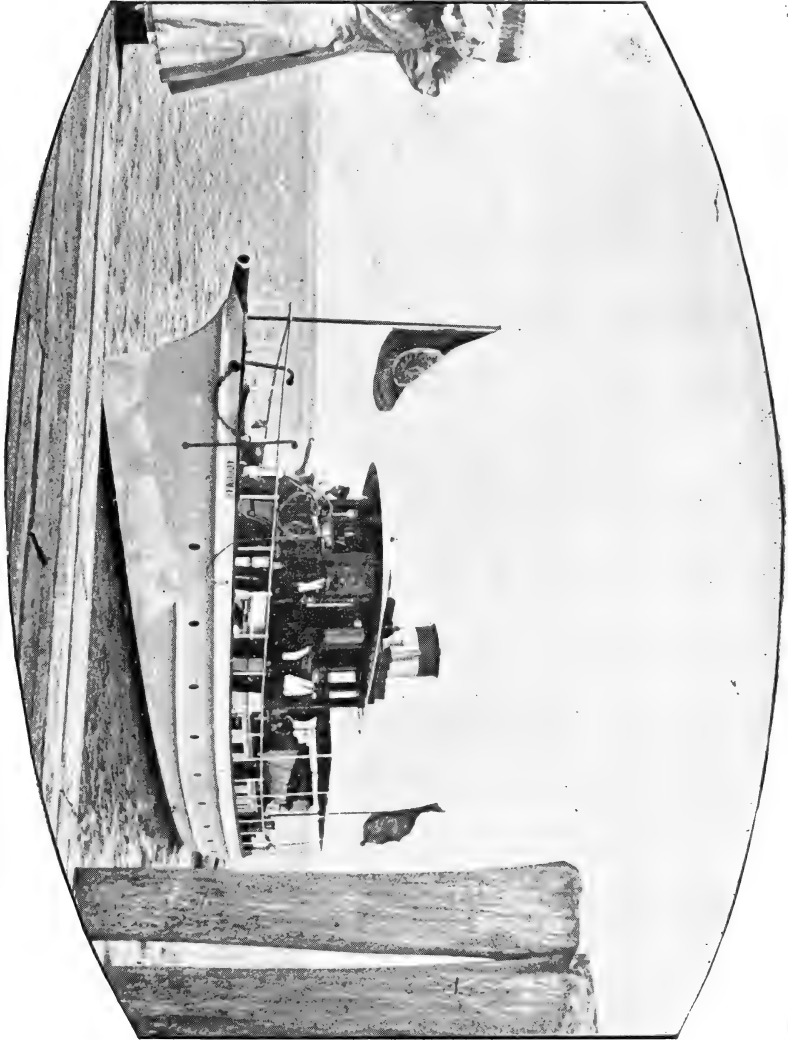
"The better class of tonger is a substantial citizen, pays well to the State in direct or indirect taxation for his privilege and holdings. The productive rocks should be preserved to him without question. It would be disastrous to thousands of citizens, to realty values and business generally throughout Tidewater, to deprive him of any portion of the productive rocks. Not only is its preservation as public ground essential to the welfare of a large portion of the State, but the natural rock is necessary to the dissemination of spawn. It is also a bar to monopoly. From the rocks the independent and small dealer or shucker can get stock without the market's being 'bulled.' Were there no public ground, and all rented by planters, the market could be largely controlled to suit their purposes and the many small men forced out." (This is the condition to-day in Connecticut, where one man largely controls the output.)

"The relocation of the Baylor geodetic survey in nearly every section of Virginia is sadly needed, and *permanent marks should be placed when this is done*. It cannot be done in a year, or two years, with any degree of accuracy or permanency. It should be done by degrees. It will be expensive, though paying handsomely in return. This is one of the crying needs just now throughout Tidewater, and is demanded in order to secure to honest tongers their just privileges and for the State an increased rental, which she is now being deprived of to a large extent.

"Should the time come, as is commonly predicted, for the renting of barren bottoms within the Baylor survey, it is to be hoped that greatest discretion and good judgment will be used in seeing that the best class of tongers are given holdings. Already many provident tongers are small planters. It is essential to their welfare that they have such ground as each can profitably utilize for planting shells and seed and for laying down the catch from the rocks so as not to be forced



Iron Police Steamer "Commodore Maury" (Flageship) Leaving dock at Irvington for a Cruise of the Potomac River



Police Steamer "Accomac," Second in the Fleet

prematurely to market them. Under no other consideration could your Commission for a moment view with favor the leasing of any 'barren' grounds embraced within the Baylor survey."

Oyster rocks cannot be rehabilitated in two years, nor old habits of generations eradicated in a short time, but we feel satisfied that we are turning over to our successors in office a condition creditable to the State, the Executive, and legislature, that reinforced our hands, having materially advanced the work so nobly begun by the late and lamented Senator George W. LeCato.

THE BOATS—STEAM, SAIL AND GASOLINE.

The fleet of a year or two ago consisted of the Commodore Maury, Accomac, Rappahannock (out of commission)—all steam; schooner Pocomoke; launches Greyhound, James River (then being converted to gasoline), and three yawls—all gasoline. In addition to these, the Commission last year added the gasoline launches Viola (\$1,500), Great Wicomico (\$1,300), Saxis (\$1,400), Northampton (\$600), Chincoteague (\$450); converted the steamer James River to gasoline (\$1,800), and put several engines into smaller craft, spending less than half the \$20,000 appropriation for new boats. With no mishap to the navy boats, the Commission thinks the present fleet reasonably sufficient to operate with advantage and profit to the State. The present oyster navy is the largest and best the State has ever owned. The boats are in good shape, and no serious accident has so far befallen any of them, due largely to the efficiency and care of subordinates. Fisheries officials for years have felt it a duty to the State to employ competent men to man the boats, to care for the property, and execute the laws as police patrol. Their wages are now in keeping with the salaries of other seamen, and the State no longer expects trustworthy men to serve for small pay. Through the increased appropriation by the last legislature we were enabled not only to raise the wages of officers and crews, something that in equity should have been done long before, but have also been enabled to open offices (as required by the statute) at Hampton and Irvington, to prosecute violators more aggressively, to police more rigidly, and in many ways advance the administration of fish and oyster affairs and promote the interests of the State and people. The State is now quite "well-to-do" in boat property. By wise investments, exchanging and preservation, our floating property is probably of value to-day in excess of all special appropriations for the purchase of boats made since the days of the old "Chesapeake." The little steamer Rappahannock, becoming unserviceable, was sold.

The Commodore Maury has cost comparatively little in the way of machine work and running repairs, being in first class condition in every respect. Expenses of operating her were some fifteen hundred dollars less this year than last. The dredging troubles on the Virginia-Maryland border and the serious problem of Marylanders crabbing within our waters called for a quick-going and seaworthy boat, such as the navy did not possess before. For \$14,000 cash your Commission purchased in New York an iron yacht, of ample dimensions and speed, and of the desired shallow draft. Without entering into tiresome details, the Commission is satisfied that, with its furnishings and equipments, including electric lights and searchlight, the Commodore Maury could not to-day be duplicated for \$40,000. This is the opinion

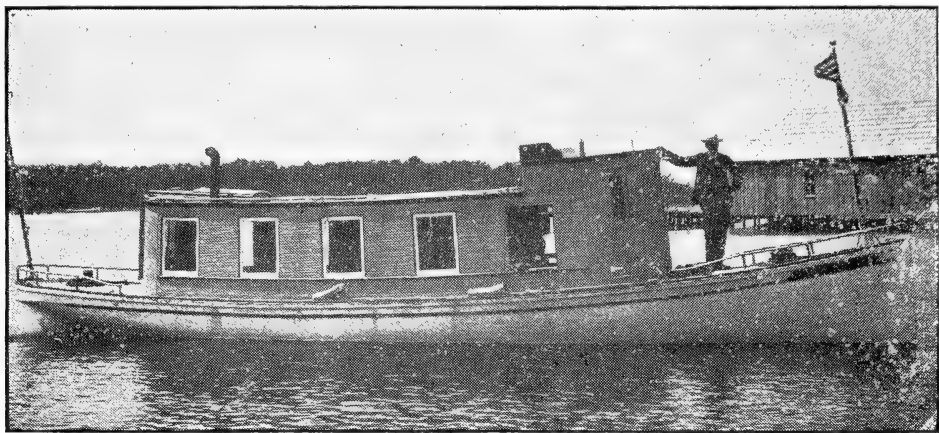
of experts and inspectors who have had occasion to examine the new boat. The Maury represents a monetary value of more than double our remaining fleet combined, and is the only boat we have that can cruise in weather that some dredgers work in. With her searchlight she has been a great deterrent to violations, almost entirely ridding our waters of the lawless class; the collections in fines (gradually decreasing year by year) being one evidence of this.

It may not be out of place to note that Maryland, with whom we necessarily co-operate on the border, has several boats of the efficiency of the Maury, in addition to a large sail fleet, which she maintains at much expense. Maryland's police force consists of two fine steamboats, and some twenty-odd sailboats and gasoline launches, while Virginia's consists of one large and one small steamer, one sailboat and seven gasoline launches. In comparison, Virginia's navy appeared diminutive, and the running expenses inconsiderable. Maryland's area to protect is smaller than Virginia's; still Maryland's service is maintained at a heavy annual loss to the State, while Virginia's is conducted at a handsome net profit.

A fair estimate of values of Virginia's police craft follows:

Steamer Commodore Maury (worth \$40,000).....	\$20,000 00
Steamer Accomac	2,500 00
James River (converted to gasoline).....	2,000 00
Schooner Pocomoke	1,500 00
Motor launch Greyhound.....	1,000 00
Motor launch Viola	1,500 00
Motor launch Saxis	1,400 00
Motor launch Great Wicomico.....	1,300 00
Motor launch Northampton.....	800 00
Motor launch Chincoteague.....	450 00
Four gasoline yawls (attending steamers and sailboats).....	1,200 00

Small, speedy gasoline boats have lately been added to the service, and are found to be efficient and economical. In advocating two years ago a liberal use of these little fellows, your Commission argued that "the State's interests would be advanced by at once having them, and they would pay for themselves in less than two years." This has been fulfilled, even beyond expectations. A like prediction was made when advocating the purchase of the Maury. She paid for herself in less than eighteen months. We do not mean to say that the boat has collected these sums herself; but the fact is we had virtually no navy without her, and her incessant patrolling and assisting inspectors has stimulated the sources of revenue, while her ability and equipment have been great deterrents, putting many of the troublesome characters out of business and saving in expense of policing. Prior to her purchase, fisheries affairs had reached a condition when without rehabilitation of the navy there could have been no further increasing of revenues or adequate protection of the industry. With a comparatively small fleet the policy of the officials has been to make the most of a showing of force. One day the Maury would overhaul the workers on the Potomac, that night steal out and in the morning show up on the James (or vice versa), keeping the oystermen guessing as to her whereabouts. This is hard on the crew, but



The "Great Wicomico" Type of Smaller Gasoline Patrol



WASTE PLACES BUILT UP BY OYSTER TRADE
The fifty thousand bushels of shells will be sowed to catch spawn

must be done, as none of the other boats can be counted upon in winter on the bleak Chesapeake Bay.

Your Commission has made it a policy to purchase equipment and have repairing done within the State whenever it could be, though occasionally this is rather costly. A humorous phase sometimes confronts us when doing so, and an expensive one. On more than one occasion, when a price has been set on certain work, once it is discovered that it is for the State the bid goes up, accompanied by the remark that the State is well able to pay more. Whenever possible, we have dealt by competitive bidding, and in this way saved considerable. Several hundred dollars is annually saved in purchasing coal by early contract in bulk.

The fisheries service was never under a better system. With the present appropriation, and given the needed legislation, still further improvement may be expected.

JAMES RIVER.

This river is more largely in the public eye, for patent reasons, than any other tidal section. It has been brought by publicity into undue prominence and importance. Out of a total of 230,000 acres in the entire State, the natural oyster grounds of the James number but 26,740 acres. Of this the seed beds are but one-half, or about one-twentieth of the natural beds of Virginia. True, the small area of seed ground is more valuable than an equal area in many other places, and it is also less valuable than some. The rapidity of growth in this river, under favorable circumstances, is shown by a cluster of oysters taken from a grating in the hull of the United States Bureau of Fisheries steamer "Fishhawk," when docked after eight weeks' of survey work this summer in the James. The spat voluntarily caught on the ship's bottom, and some of the two months' old oysters measured two and one-half inches in length. Government officials were so struck by this evidence of prolificness and rapid growth that the specimens were sent to Washington for preservation and display.

As to the 13,721 acres of James river public seed grounds we venture the assertion that not ten thousand of them are being legitimately utilized, a good proportion being held unlawfully by encroaching planters, the zigzag lines established by law requiring physical impossibilities to maintain. Because of a lawless disposition, inbred for many years, this Commission of Fisheries has had to devote unwarranted time and means to that territory. (The same, to a large extent, was true of our predecessors.) In fact, about one-fourth of the navy and our expenditures are devoted to the James. In contrast with this, the Potomac, with many times greater area and output; the Rappahannock, with 35,000 acres (35 per cent. greater natural area than the entire James); the Pocomoke Sound (with one rock alone that all the James' seed bottom might be hidden in); the ocean side (ten times as prolific of seed, and many times the area); Gwynns Island and the little Piankintank (with area nearly equal to the James), to say nothing of the York, Great Wicomico, Elizabeth, Hampton Roads, Mobjack Bay, Tangier Sound—all told, some 3,500 square miles of patrolling—have all been deprived of their deserved share of policing because of the James. The State might be well rid of the James trouble and expense by either prohibiting planting above the seed line, or else turning the entire thing over to planters. This

latter desire, we may say, is the chief cause of all the uncalled-for notoriety over this mite of a field.

Some months prior to the convening of the last General Assembly a representative gathering of oyster people along the James met at Hampton and memorialized the State Board of Fisheries as follows:

Whereas, The supply of seed oysters has been steadily and continually diminishing year by year, until now there are practically none to be had, even at a price that is almost prohibitive, we would offer the following suggestions to the "Board of Fisheries" for their consideration, believing that if they are carried into effect the supply will be increased and the oyster rocks preserved:

First. That the oyster season in James river—which is the seed producing river of the State—above a straight line drawn from the Drydock to Fishing Point, be shortened to three months, opening March 15th and closing June 15th.

Second. That as it has been proven, and is well known to all, that the present method of protecting the rocks from depredation is inadequate, and it would be useless to shorten the season, unless the grounds were to be properly protected, and that such protection entails too great an expense with the present *irregular, unknown* lines of the Baylor survey, that the lines be straightened as shown by the Baylor survey map accompanying these suggestions.

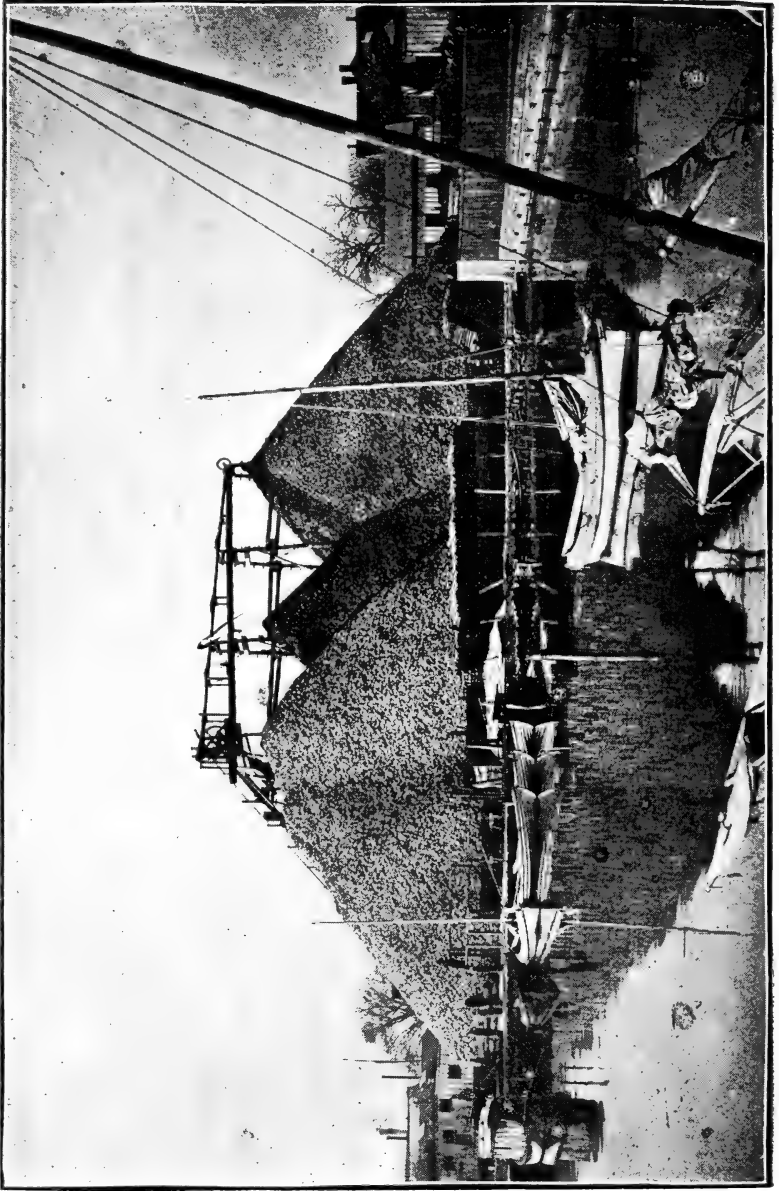
Third. That after the lines have been so straightened that four or more watch-houses be built and located on the corners of the grounds, thereby marking permanently the lines, and from which houses the rocks can be properly watched, as is the case with private grounds.

Fourth. That the renting of any grounds thrown out by the necessity of straightening the lines, shall be left to the discretion of the "Board of Fisheries," to assign to planters in proportion to their present oyster taxes, and to those who they know will use the grounds to the best advantage for seed production. The holder of such ground so assigned shall be required to build a substantial watch-house on the line of rock, and to maintain the same, keeping a watchman the entire year. Any holder of such ground found guilty of taking oysters from the rocks during the closed season shall forfeit the grounds so assigned and all oysters and shells thereon.

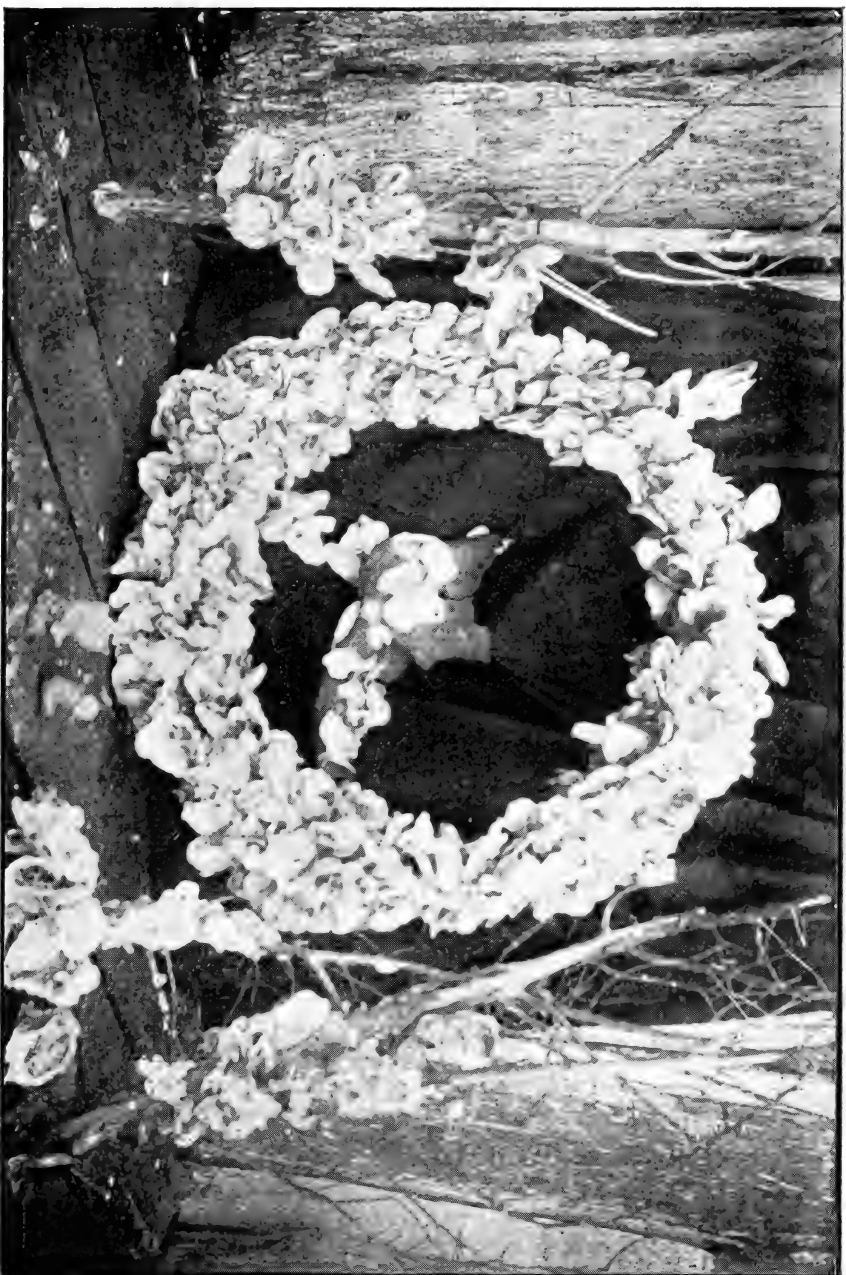
Members of the board undertook a personal examination of the James river beds at intervals from August to Christmas of that year; had exhaustive interviews with the workers, and watched the progress in growth of the young oysters. It is interesting to note that young set caught on the beds as late as the first week in December that year. Acting upon this practical insight into conditions there, the Board of Fisheries did not hesitate to recommend in its revised laws that the season in the James be shortened (though not curtailed as much as petitioned). Also that the Baylor lines there be straightened. The text of this bill follows:

A Bill

Directing the Board of Fisheries or Commission of Fisheries to rearrange the lines of the Baylor Geodetic Survey in James river, embraced within Warwick county, under designation of public ground No. 1, public ground No. 1 (addition), public ground No. 2, and public ground No. 3; to lease any grounds that may be thrown out thereby, and to require of the Board of Fisheries or Commission of Fisheries in its regular reports to the General Assembly to definitely describe and delineate barren areas that to its knowledge may be found within the Baylor Geodetic Survey and any natural rock left out which should be embraced in such survey.



Hampton's Giant Oyster Shell Pile—Packing Plant of J. S. Darling & Son,



Prolific "strike" on seaside in eighteen months. The wreath is an iron barrel-hoop and contains (approximately) 10,000 oysters, from the size of a pea to 2½ inches in length. In the center is an old rubber shoe. On each side branches from a duck blind—all admirable catch.

Whereas by the report of the State Board of Fisheries and the statements of the members thereof, and by the statements of citizens residing along the river, necessity appears for the rearrangement of the lines of the natural oyster rock of public ground No. 1, public ground No. 1 (addition), public ground No. 2, and public ground No. 3 in Warwick county; and that the State is attempting at great cost and without satisfactory success to protect the seed bed; and

Whereas a large part of the area embraced within the geodetic survey in Warwick county is held by planters without authority of law and at no profit to the State, and the tongers are thereby deprived of the use of such bottoms, and other bottoms adjoining are depleted by depredations of said planters; and,

Whereas by the adoption of said recommendations by the Board of Fisheries, supported by a plat of the proposed rearrangement of said lines, will save about five thousand dollars annually in expenses of guarding to the State, and will bring in an additional revenue from leased grounds of about four thousand dollars per annum, and will enable the remaining area of about fourteen thousand acres to be effectually protected and preserved for the tongers, as it cannot now be; therefore,

Be it enacted by the General Assembly of Virginia,

1. That public ground No. 1, public ground No. 1 (addition), public ground No. 2, and public ground No. 3, of the State Geodetic Survey in Warwick county be rearranged and made to run as follows, to-wit:

(Here follows description of new boundaries as proposed.)

2. All of the beds and bottoms of James river within Warwick county not comprehended within the lines aforesaid are hereby defined, declared and determined not to be natural oyster rocks, beds or shoals, and such portions of the beds and bottoms of James river within said county and not comprehended within the lines aforesaid, and not heretofore assigned, are hereby declared to be assignable.

3. The Board of Fisheries or the Commission of Fisheries be, and they are hereby, authorized and empowered to rent such unassigned beds and bottoms not within the said lines at the price of not less than one dollar per acre per year to residents of this Commonwealth, in parcels not exceeding two hundred and fifty acres each, with such rules, regulations and restrictions as will best protect and advance the oyster industry of this Commonwealth.

4. It shall be the duty of the Board of Fisheries or the Commission of Fisheries in its regular reports to the General Assembly to designate and accurately define any barren oyster bottom which the Board or Commission shall know to be within the State Geodetic Survey, and which may be available for planting purposes without jeopardy to the natural rocks, beds or shoals. Said Board or Commission shall also designate and accurately define any productive or recuperating natural oyster beds, rocks or shoals without the lines of the State Geodetic Survey, and which is not taken up for planting purposes or upon which the lease will expire within two years, and which, in the opinion of such Board or Commission, it would be advisable to embrace within the said geodetic survey. Whenever it shall come to the knowledge of the Board or Commission of Fisheries that any part of the said geodetic survey is being depleted, said Board or Commission shall be empowered, after thirty days' notice by publication in the nearest newspaper, to mark off such depleted rock, bed or shoal, or any portion thereof, and prohibit the taking of oysters therefrom for a period of two years, or less, in the discretion of the Board or Commission, in order to determine whether such depleted bottom will recuperate. Any person taking oysters from such bottom, so marked off, shall be subject to the same penalty provided for taking or catching oysters from the natural rocks, beds or shoals in the prohibited season.

This bill passed the Senate unanimously, but failed of passage in the House by a vote of 34 to 34. Had the bill become a law, matters would have been in still better shape on the upper James for both planter and tonger, the State would have derived greater revenue, and the oyster officials been spared much unnecessary waste of time and care. Of the 13,721 acres on the seed grounds, we repeat that not ten thousand are available for the public, or in any way profitable. This is because the policy of the State in permitting a planter to take up ground in shoestring style has been greatly abused in the James. One man there holds a strip a mile long and not ten yards wide in places. Stakes creep out and possess the public beds, and from this private coign of vantage irresponsible hirelings have been encouraged to poach in season and out of season on the public grounds, thus keeping depleted much of the public area. Within the past two years the police patrol has been doubled on the James river, and violations kept down to a minimum, the best that could be done under present geodetic lines. Laws and police do not prohibit murder—nor do they stop stealing. The best to be hoped for is to keep the crimes at a low ebb.

Periodically the James, as do all headwater streams, presents freshets, mud and other phases inimical to the propagation and growth of the oyster. Every third year or so, and sometimes two years in succession, this condition prevails. It occurred during the summer of 1908, not only on the James, but also on the Potomac, and in Maryland rivers and the upper Chesapeake Bay. Oysters died, and spawn failed to take hold there, but was swept in abundance greater than any year since the war to the lower rivers and bay. These things are beyond the control of man, and are far more vital to the seed grounds than are the heralded depredations. While the output of the James that year was less than we would like to see, there was nothing alarming in it. The past summer nature and good policing replenished the bottoms, and to-day they are very prolific. Your Commission is of the firm conviction that tonging in the James should not begin earlier than October 15th, and should extend to June 1st. This would give the young growth in the fall better opportunity to develop a hard shell, and by late spring working the shells and bottoms will be freed of silt, and the culch put in condition to catch the first spawn.

There being no regulation as to the size of oysters to be taken on the upper James, the history of this river is that boats from all over the State rush there the first few weeks of the season, clean it up and decamp for other places where a cull law prevails and will furnish work through the remainder of the season. Close investigation the present season indicates fully that there will be ample work for James river citizens long after Christmas. This small area produces as lavishly as nature warrants, and could be but little bettered by artificial cultivation. The entire crop is taken in a short time, and dispersed by many hands throughout the State—the many, and not a favored few, deriving the benefit. The small seed area cannot be expected to keep pace with the growing demands of the increasing number of planters. The virtue of permitting small oysters, freed from the shells, to be taken from the seed beds of the upper James and Potomac is in the fact that the oyster there does not mature, and if not taken small would go to waste, probably destroyed by the next season's freshets and mud. Nature is looked to each succeeding year to supply a fresh seed crop in this little field.

Conditions in the seed regions might be greatly alleviated if suggestions of your oyster officials be followed by the legislature. To ascertain the true condition and nature of the James river bottoms, the United States Bureau of Fisheries, at the request of your Excellency and the Commission of Fisheries, has just completed a survey and examination of the beds in the entire river. This, it is promised, will be submitted in chart form to Virginia's Executive before the end of the year. When it can be duly considered, specific recommendations as to legislative treatment of the James will be submitted to the General Assembly.

POTOMAC RIVER.

The failure of Maryland's legislature to pass the concurrent bill agreed upon in Richmond last session by the joint committee from the two States, and passed by our legislature, left the Potomac situation in bad shape. It has been exhaustively treated in previous annual reports, and will not be taken up now, further than to say because of lack of legislation (particularly as to shortening the season and establishing a seed line), conditions there are going from bad to worse. Twice the Virginia legislature has passed a statute permitting the taking of seed oysters free of shells (like in the James) from the upper Potomac, but each time it has failed of passage by the Maryland legislature. (Concurrent laws are required for the Potomac.) Under these circumstances and conditions enforcement of the law by both Maryland and Virginia has never been as rigid here as elsewhere. Rigid enforcement here would but prevent the using of seed that otherwise would certainly be destroyed by freshets.

Statistics for the Potomac, compiled by Maryland some years back, show that State to have derived about \$200,000 annually from the Potomac bottoms, while twice that value was secured by Virginia. Conditions there to-day demand immediate attention by the legislatures of the two States having concurrent jurisdiction.

·IN OTHER WATERS.

In all the waters of our State—exclusive of the seaside—conditions are exceedingly satisfactory. Not in years have the Rappahannock, the two sounds and other localities seen such a profuse output—all because what nature gave in infancy has been preserved to maturity, and no freshets or mud to interfere. On the whole, there are from thirty to fifty per cent. more available oysters in Virginia to-day than a year ago, and considerably more than that over previous years. Two years ago dealers cried scarcity, and high prices prevailed because of limited output and great demand. To-day there is abundance. In the light of conditions to-day the following from our report of two years ago seems almost prophetic:

“Last season the catcher was deterred throughout Virginia from taking those of unlawful size, and the same result is hoped for in the present oyster season. This naturally restricts to some extent the output on the market, and not until another season (fall of 1908) is there assurance of greater abundance. Virginia has oyster bottoms enough, if guarded and cultivated, to supply a demand such as at present exists in the entire Union.”

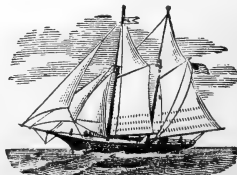
The oyster police have guarded Virginia beds so strictly that the old policy of robbing the rocks of their shell coatings to build up private beds has been abandoned, and the harvest of young growth, beginning two years ago, has been fostered so effectually that mature oysters are now found in abundance. It should not be forgotten that one year, or even two, can make little showing on oyster bottoms, but the past two or three years' administration of our fisheries affairs is producing most flattering results in the preservation of the oyster. Markets and weather we must all bend to; they are not under our control.

MOTOR BOATS AND ENCROACHING PLANTERS.

The motor boat craze has struck all our oyster people. These boats first came into service on the oyster grounds four or five years ago, and are increasing in numbers with each succeeding year. Until the new appropriation became available, it was absolutely impossible to properly enforce the laws and protect the industry. The revised laws presented to the last legislature sought to reasonably restrict these. Failing in enactment, the myriads of saucy little things are here, there and everywhere, in many cases commanded by lawless persons that had been driven from our waters before gasoline propulsion became general. Until the legislature does something with Baylor lines in the James and the gasoline boat proposition there will be unending trouble, and it is hoped, for our successors in office and the good of the industry, that your honorable body will not delay the suggested legislation, particularly on these two points. Officials who try to carry out the laws have no bed of roses. Such jobs are easy berths only for those willing to let things slide as they will, for that pleases a very large class of people.

Vigorous action forced the "pirate" element to a large extent from our waters, but lack of laws to keep pace with the times makes it uphill work. No efficacious legislation of any consequence has been enacted for a number of years save the acts creating the Board of Fisheries and the Commission of Fisheries. These were wise moves, as shown by the development of the industry and a constant net surplus being derived where formerly was annual deficits. But these measures, and the officials created by them, must be reinforced by proper laws or they will fail in their efforts.

There has been no end of litigation with us the past two years. In seeking to eject numerous planters who have pre-empted bottoms they are not entitled to, particularly on the James, the Commission of Fisheries is constantly in hot water. A case carried to the Court of Appeals from Nansemond county cost the State more than a thousand dollars, and damage suits against members of the Commission and its officers for executing the law by pulling stakes of encroaching planters on the James, have cost another like sum.





Single cluster, containing about a thousand young oysters (hundreds no larger than a pea), gathered on the ocean side
December, 1908 Age range, from two weeks to eighteen months.





Various Branches of the Industry.

As briefly as possible, and with little argument, your Commission will review phases of the industry, submitting conditions and opinions gleaned by careful investigation.

From a review of reports from States along the Atlantic and Gulf coasts one finds that the Chesapeake Bay is in a class to itself, and must be dealt with somewhat different from the other tidal areas. No oysters, as a rule, stand higher on the markets of this country or England than those of Chesapeake Bay and our seaside. They have been free from attack by reputable scientists when examined for disease germs. No cities that may be termed large pour pollution into our waters, and the broad expanse at the capes permits of free passage of ocean's tidal waters. Norfolk and Newport News are just without the line where oysters to any extent are harvested; Washington still further, and Richmond yet further. Any pollution from these centres finds lodgment before the oyster beds are reached. In fact, no State on the Atlantic offers a purer output or one of so diversified flavor. The oysters of our seaside are salt as any one desires; the Chesapeake is of medium saline flavor and finds general favor, while up our rivers a fresh fat oyster is raised that meets the preference of some epicures.

Star-fish and dog-fish, the great scourges of eastern growers, are not found here, and borers are to be found only on our seaside, but in less alarming quantities than in other waters of the coast. Only the mussel in James river and the crab near the capes and on the seaside give us any appreciable trouble. In New York and Connecticut waters the star-fish is so destructive—as is the dog-fish throughout New England waters—that a great expense and some bounty legislation are necessary. But for these drawbacks to the northern planter, southern growers could not compete in the market, owing to more efficient laws and the more advanced methods of culture at the north. In addition to these scourges, New York and Connecticut beds are uncertain as to strike. Sometimes for two or three years in succession no young take hold, and it is during a succession of these periods that Virginia and Maryland largely monopolize the output. During the year just passed no young strike is to be found in the waters of Long Island Sound, and the seasons of 1910-'11-'12 will find those States with a scarcity of marketable oysters. They, too, are afflicted with oyster wars, and just at present Connecticut planters and tongers are in physical clash, the largest oyster planting combine in the world being the object of indignation meetings and prosecutions. In New Jersey the press report many violations and prosecutions at the beginning of this season.

Usually it takes a young oyster two years to attain a marketable or lawful size. The rocks throughout our entire State are now literally covered with these little fellows, which the police are day and night endeavoring to see kept undisturbed or returned to their beds when tonged up with the larger ones. If the officials can continue the policies begun, there is no reason why there should not be plenty of oysters here in coming years to supply all demands.

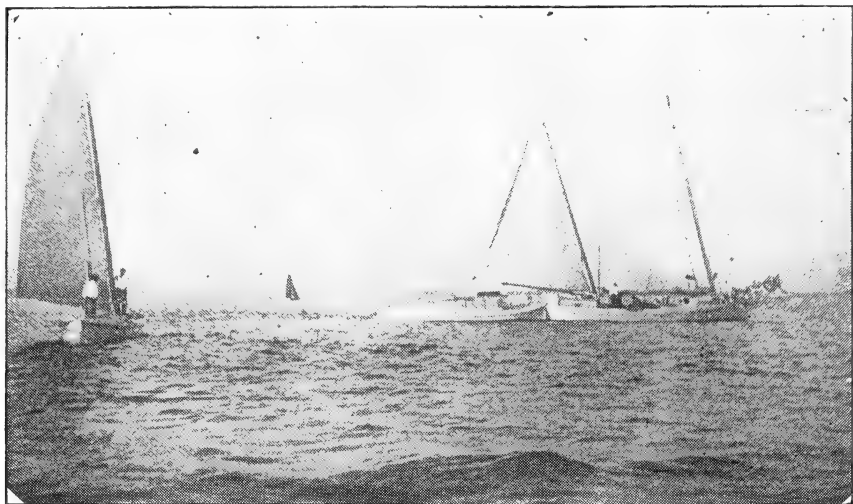
TONGING.

The number of tongers on the public rocks is not as great this season, just opened, as last year, and likely will not be at any time during the

season, chiefly for reasons previously assigned—a better class and sufficient in numbers, however, for the good of the rocks and the interests ashore. The tonger is doing well, catching great quantities, though getting smaller prices than ever before at this stage of the season. Fertile rocks abound in young growth from the Potomac to the James, and because of this a greater number of special police and watch-boats, and increased activity on the part of the regular oyster police and inspectors, have been necessary all this year.

Unfortunately for the State—and equally so for the tonger, could he but see it so—the greater part of our expenditure is required to keep him from taking what would do him much more good in the future if permitted to remain. We are glad to note, however, that the day of this is fast passing. In all branches of business will be found some unscrupulous men. Some planters urge the lawless class of tongers to catch unlawful sized oysters, for the two-fold purpose of procuring cheap seed and of depleting rocks that he hopes may some day be rented out as barren bottoms. It must be borne in mind that a large percentage of bottom made bare by tonging will recover and become prolific if let alone, and all depleted ground can easily be reseeded by the planting of shells. Hence the desire to get such bottoms at one dollar an acre rental per year. If the mass of tongers could but see these ends, and not be so eager for “what is in sight” (both perhaps futile hopes), the State with the money expended keeping them within bounds could put every line-stake back on its proper boundary and keep the planter within his legitimate sphere. As it is, a large excess of acreage is held to-day by planters on which they pay no tax, much of it taken from the tonger.

The white tonger (numbering slightly over one-half the whole) complains that the hardy negro works alongside him on the in-shore rocks early in the season and then goes to the unmolested deep-water rocks where few white men are willing or able to work with ordinary tongs. Also, that the negro, being as independent as he, so soon as large enough goes to work for himself, and thus makes it almost impossible to procure him as a cull-boy or helper. Many of the whites are unable to pay man's wages (which the negro, big and little, demands) for cull-boys, and are forced to keep their own children from school from September to April to do the culling. So a considerable portion of our youths are growing up without education. Your Commission has offered the only solution it knows for the elimination of the undesirable class of negro oystermen. It is not a difference in dollars to him that such a policy would produce; he can to-day, for \$30 a month hire, make as much as he does from the rocks. His custom is to work two or three days on the rocks and devote the balance of the week to spending his sales. So the suggestion to restrict them in licenses is not a radical or prejudicial one. The average negro tonger, who is the personification of independence, would rather make \$15 a month off the public grounds than to accept \$30 a month as helper from a white oysterman or fisherman. His pride revolts at the thought of servitude and the gibes of his race. These suggestions and conditions are not applicable to the ocean side and in Accomac on the bayside, nor do they pertain to a very large extent above Mobjack Bay on the western shore. On the eastern shore there are few negro tongers; above Mobjack on the western shore white and black are about equally divided, while in most of the remaining oyster territory the blacks predominate.



Tonging Canoe

Bugeye, Buying from Gasline Tonger



Oyster Tonging in Hampton Roads—A Fleet of Gasline Craft now, where once all was Sail

The season for tonging in the James should be shortened, beginning not earlier than October 15th, and in other waters October 1st, for a number of reasons. Interests ashore require the tonger's attention in the early fall, profitable alike to him and the agricultural and other pursuits; the oystermen would not suffer, as they will catch the same oysters prior to Christmas, at better prices and of larger growth. Oysters do not make any appreciable growth until cool weather, say the month of September; in most parts the August spat is the heaviest and best, and to cut off all of September will give the tender little ones time to grow a shell hard enough to withstand the tonging.

PLANTING.

The planting industry, we regret to say, has not advanced of late because of a scarcity in the supply of seed oysters. The co-operation of planters and tongers, particularly on our ocean side, for protection of the public ground and to prevent stealing from the planting ground, has been urged by your Commission, with some results. The police patrol on the seaside has also been largely added to under this Commission. There has been a marked increase in shell-planting on the seaside, and that section offers greater promise for the propagation of seed than any other in the State.

Hand in hand with tonging should be the planting interest, but we regret to say, what is generally known—that the two classes are in continuous conflict. The *interests* are not, but the classes have made the breach, ever since the first acre was rented many years back. To prosper most, each interest must in great degree depend on the other. The public rocks need and profit by the spawn and melt (fertilizing) from plants, as much so as the opposite is true. The planter multiplies the growth by fostering and scattering and by placing of cultch (usually shells) for catching spawn that would otherwise probably perish. It is said that not a millionth part of the female spawn meets with the melt and cultch, and that a large portion of the infant strike is destroyed by fishes, crabs and other water life and much by the early disturbing of the beds by man. To offset this latter is one of the reasons for shortening the season for tonging, particularly in the late spawning grounds.

Were it not for the greed of some planters and the prejudice of some tongers the two interests could co-operate and be of vast benefit to each other, but human nature must undergo a change before these feelings are eradicated. All that the officials can do—and the State should provide for that much—is to keep each interest intact and distinctly draw the lines of demarcation between them, forcing each to live up to legal and equitable requirements. Planters in James river have been induced by this Commission to abolish the pernicious "permit" system which formerly prevailed, and we are indebted to many of the people there, as elsewhere, for aid in enforcing the laws and encouraging a better morale among planters and tongers. The planting interest in general must be encouraged by the State. If the public tonger is permitted to destroy his own means of livelihood, aided by certain planters, the hope of the Virginia oyster would be largely in its cultivation. The planter must have seed, which latter means oysters for shucking and shells for the reseeding of bottoms.

Oyster beds are of various qualities. One kind will be good for catching the set and raising the little or seed oysters. Another kind is good for

holding the oysters until it is time to shift them to fattening beds or to market them. Another kind will tend to make the oysters grow a uniform and shapely shell, which are particularly good for "half-shell" trade to hotels and cafes. Heavy storms will sometimes stir up the beds so as to "sand" the oysters, killing thousands of bushels. Some oyster farmers have been wiped out of business by these storms. It has been truly said that the price of success in oyster farming is eternal vigilance.

It would appear now that Virginia erred in not surveying off her planting grounds instead of her natural rocks. Some States north of us have their plant beds surveyed in square plats, taking in good, bad and indifferent grounds and the renter has to take no less than a square (paying from \$5 to \$10 per acre rental per year). There is growing confusion in Virginia because of the irregular lines of plant beds and the overlapping of one holder upon another, to say nothing of vacant areas between that are appropriated by the adjoining holder without rent to the State. We can see no solution of this trouble, growing into magnitude, other than a systematic resurveying and plotting by counties, requiring all subsequent assignments to be plotted on the county's maps.

Deep water (bay) planting has not fulfilled the promise which induced some to enter into it. A very small fraction of deep water is suitable to oyster growth. For the most part, the bottoms of our bay are soft mud, unsuited to the growth of the oyster. Then, too, the Virginia oyster is not of the deep-water breed. Few are found at forty feet depth, and fewer still at sixty. On our ocean side oysters do not grow where the bottom does not ebb bare. Some earnestly contested propositions, involving desires and rights as to planting oysters, fishing and crabbing, under "the deep-water act" have been before your Commission. In this as in other matters where practical judgment as to the best interests for the greater number concerned should govern, the officials should have freer hand. In urging these powers for the Commission it cannot be said any personal end is to be secured, as the present Commission's term of office expires February 28, 1910. In commenting upon these decisions—the hearing of which engaged the Board of Fisheries nearly a week, an array of able counsel representing the several conflicting interests—the Newport News Times-Herald had this to say:

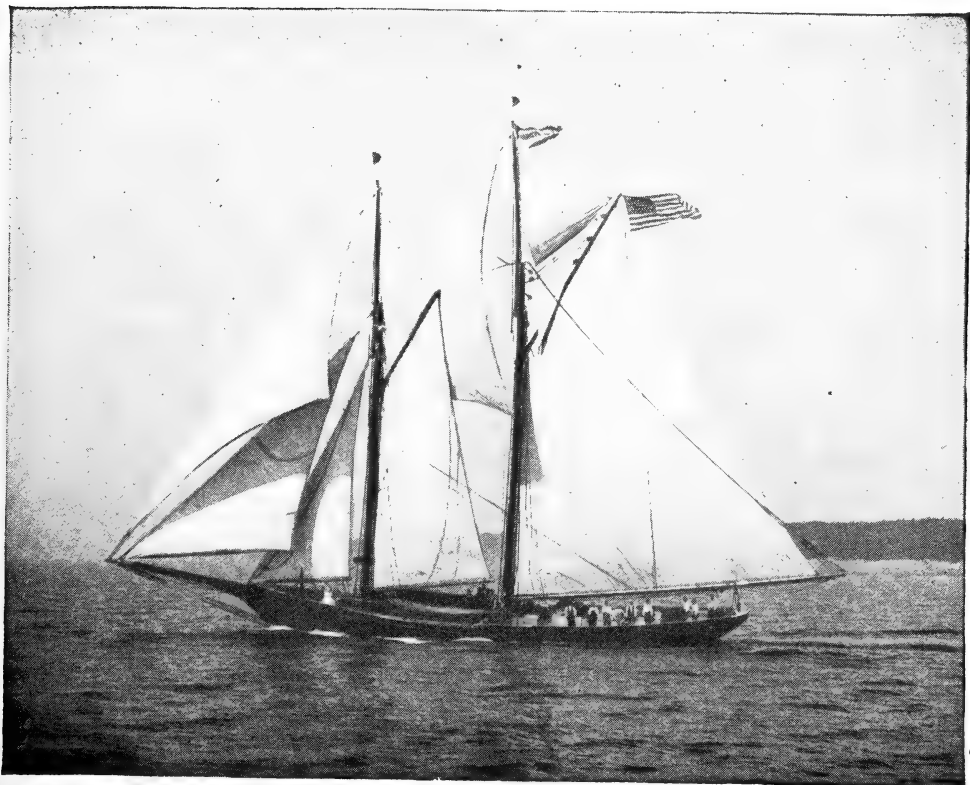
"In a number of instances since its formation the present State Board of Fisheries has demonstrated excellent judgment in matters of great importance to the industries over which they are placed, but few decisions of the board are more commendable than the one announced yesterday, refusing, at present, to grant deep water oyster planting bottoms to the Norfolk applicants. The board in its decision stated that it could not grant the petitions at present, intimating that perhaps they might be granted later on. In fact, it was stated that it was intended to grant the rights at a future date. There are certain laws, however, which will be passed by the legislature in the meantime, and when they are enacted it is possible that there will not be such a vigorous rush for deep-water bottoms.

"The present Board of Fisheries is unquestionably one of the best bodies of the kind that the State of Virginia has ever had, and the State should feel proud of it. Aside from the great financial strides made under the board, by which the State's revenues have been greatly increased, many wise policies have from time to time been adopted and much good has been accomplished.

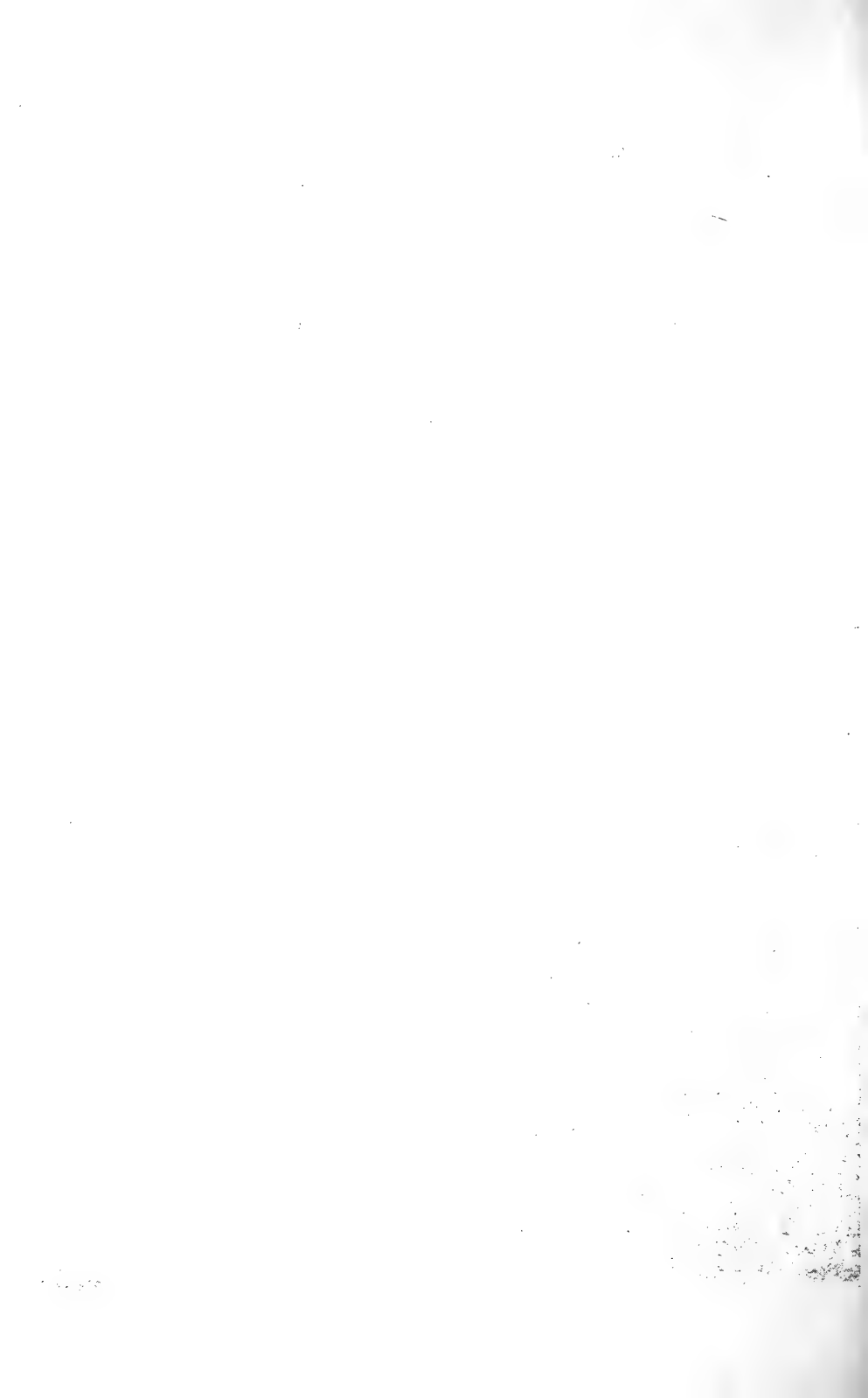
"The present board devised a plan of guarding the State's oyster grounds during the closed season by the use of lay boats with the



TYPE OF BUGEYE, FLEET AND SEAWORTHY
Used for fishing the pounds, carrying oysters and other freight



Type of Sail Menhaden Fisher, passing out of use



greatest success, and it is generally acknowledged there was less oyster pirating last summer than ever before in the history of the State. In fact, so efficient and well organized was the patrol that the pirates were practically put out of commission and stealing was almost unknown.

"Mr. Lee has been in close touch with the oyster situation for many years, long before he was appointed to the executive head of the State's protective organization, and what he says relative to the future's prospect is well worth the attention of all who are interested in oystering."

Some inquiries and applications for planting ground by residents of other States north and south of us have been received by the Commission, and in all instances we have replied that our statutes do not permit non-residents to become interested in the fish and oyster industries here. This inhibition should not be relaxed by any means, for reasons appearing good to your Commission.

THE SEED PROBLEM.

Something must be speedily done to check the rapaciousness of the riparian claimant, and also to furnish reasonable areas for the transplanting of the abundance of seed on our seaside. An evidence of the vast prolificness there is in the possession of the Commission. A large iron hoop (see illustration) was thrown overboard by one of our seaside inspectors to demonstrate the catch of spawn. In little over a year the hoop was completely hidden and a wreath formed of probably ten thousand oysters—ranging in size from a pea to a silver dollar. Such is the "strike" there. But if these young oysters are not broken apart and scattered they will perish. There is no difficulty in securing a strike of spat, but bottoms for distributing them are greatly needed. This seed is said not to thrive when transplanted to the Chesapeake Bay or the brackish waters of its tributaries. To fully test this the Commission two years ago was furnished a vessel load of ocean side seed by Mr. Darling, of Hampton, who planted them in deep waters of the bay off Buckroe. Nothing can be found of them today.

With 400,000 acres denominated "planting" ground by the Baylor survey, and less than a fourth of that taken up by rentals, there is much argument against breaking the Baylor survey and leasing out the 230,000 acres of natural rock or any productive portion thereof. The friends of the Baylor survey use this not without effect. But there are two sides to the question, which we may review dispassionately and in fairness to all concerned. Exclusive of the ocean side, whose seed does not thrive anywhere else, the limited seed area of Virginia is far insufficient to supply the demands of our planters. Denuded annually for years, it cannot keep pace with increasing demands. It is unreasonable to expect such a thing. If the entire James were converted to public seed producing (a thing impracticable because of tenures already granted) it would not satisfy the wants of our numerous and increasing number of planters. If leased, it might be made a little more productive, but the many would be discriminated against for the few who acquire it, the latter building up close corporations in time. It would end agitation and give the oyster officials rest, but we do not believe any legislature in the near future is going to do so great wrong to the masses of Tidewater citizens. In fact, the encroachment on producing rocks and the hope of some day getting a slice of rich water bottom has induced some to

abandon less profitable ground already, biding the time of a scramble for ground that reseeds itself without outlay. Others do not care to take up any of the great amount of planting ground not yet occupied, necessarily having to improve it, when they look forward to agitation letting them into fields worth a hundred times more. This uncertainty has greatly demoralized affairs, and accentuates the misrepresentations of our oyster conditions.

If by statute the oyster officials were more liberally entrusted with the management of the seed beds, conditions could be made more favorable. It should be optional with the authorities to close the season there when they deemed best, to lease out or declare open such grounds on such terms as judgment dictated, to resurvey the producing rocks and declare boundaries for the inviolable portions. Gasoline workers should be restricted, and the depredating shoestring planter, lacking other power to oust him, should forfeit his lease upon conviction for violating the laws. We most respectfully emphasize the fact that unless the administrators of oyster affairs are heeded in the matter of legislation, and their bills and recommendations enacted into laws, the solution of this vexed problem is far off. It is to be presumed that members of the Commission of Fisheries in future, as in the past, are selected from men of public spirit, and know the business they are called to supervise, and it is for our successors in office we now appeal to the ear of our lawmakers. The planter is biased, the tonger likewise; those appearing from Tidewater in behalf of this side or that naturally incline to their side; the up-country member knows little of the subject, and cannot, with reason, be expected to devote the time necessary for a proper understanding. If the oyster officials, who have no material and personal interest one way or the other, should not be listened to—then who should?

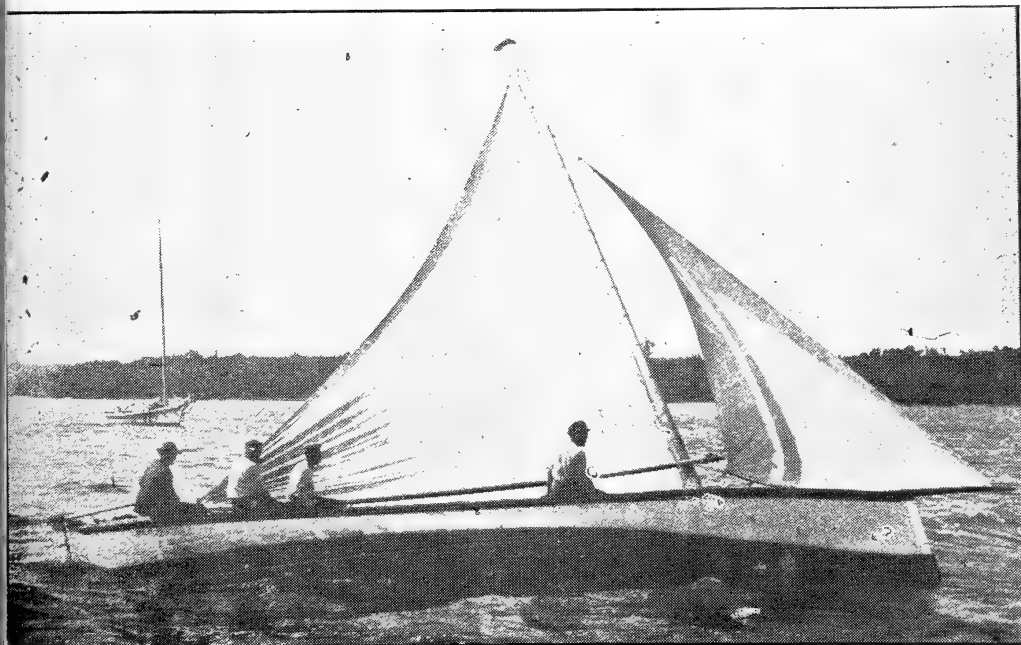
DREDGING.

Dredging is decreasing year by year. The gradual exhaustion of the dredging grounds is making it unprofitable to the dredger. In place of the dredge come numerous "scrapes" (small dredges), and your Commission has had much trouble—though now on the wane—in the Potomac river with scrapers during the summer season. The time is probably not far off when dredging in Virginia will be abandoned of necessity—if not abolished by law. In fact, we believe the time has arrived when Virginia and Maryland would do well to co-operate and prohibit dredging with anything but scrapes in the Potomac river, and permit that season to open January 1st and close May 31st of each year. The oyster rocks in Delaware Bay are open to dredgers from May 1st to July 1st, during which time many thousands of bushels are taken up and transplanted to other waters. This late shaking up of the beds is regarded as a great benefit, and since allowing it the oysters in Delaware Bay have been larger and more plentiful than before the law permitting summer dredging. North Carolina and other States have found the dredge, when used in the fall, to be very destructive.

A moderate use of scrapes is not injurious to some bottoms; in fact, in instances it is beneficial to the beds. But it is greatly to the detriment of the dredging grounds that scrapes or dredges should disturb the rocks when the sets of young oysters have not gotten out of the paper-shell stage. Untold millions of these little fellows are destroyed by dragging over their cradles. An injustice is done the Potomac bottoms by opening the dredging



Hauling Fish Seine at Cape Henry



CHESAPEAKE BAY CANOE IN A CLOSE SHEET BREEZE

The fleetest and staunchest sail craft for the size in the world. Hewn and shaped out of three to five logs

season as early as October 15th, when in Maryland waters it does not begin until November 1st. The Potomac for the first two weeks is the resort for the combined fleets of Virginia and Maryland. Should the dredging and scraping season be, as advised, from January to June, the workers would not be injured, since they get about all the lawful oysters within a season now, and many interests would be greatly benefited, among them: the young would have grown strong enough to survive rough handling; more oysters would have reached the 2½ inch size; slime and mud would be scraped from the cultch in May and be in a condition to catch the spawn of the summer months; and the planter could be furnished with seed stock at a more desirable period. Early action should be taken to prohibit the use in dredging or scraping of any boat propelled by or equipped with other than sail, and penalty made the same as for dredging with steam. The dredging grounds are being depleted fast enough, and a dredger should be satisfied if even permitted to use sail. Otherwise the poor man will be driven out of the business, besides causing the rocks to be quickly depleted.

From a Baltimore paper of late date we clip the following pertinent interview with Captain Thomas, B. Webster, one of the best known oyster packers in America. In reviewing the depressed oyster situation of the past two years, Captain Webster said:

"I see no alternative for the success of the oyster business unless Virginia and Maryland concur in closing the Potomac river from October 15th to November 1st, and closing Tangier sound for about the same period, and not permit any dredging in these waters until November 5th. What causes me to take this view is the fact that the steam packers every fall are engaged in the packing of late vegetables and fruits, and the pack is getting later every year. When a thousand or more dredging boats in this State start at the opening of the oyster dredging season, which in the Potomac and Tangier sound begins October 15th, it can be readily seen that there is a probability of a glut of oysters on the market, which have no buyers, and as a consequence, the boatmen are compelled to sell their cargoes at a sacrifice, or lose all. Owing to the warm spells of weather in October and the first part of November, oysters, being a perishable product, must be sold, or great monetary loss follows."

While formulating this report the following is clipped from the daily press:

"Easton, Md., is overrun with discharged oyster dredgers. The indications are that this season will be a most disastrous one. There is absolutely no demand there for oysters, and packers refuse to buy from tongers and dredgers for more than six to nine cents a bushel. An oyster packer at Oxford, who owns several dredge boats, could not afford to operate them. He turned boats and equipment over to the crews to make what they could for themselves. After a week they returned the boats in debt. They reported no market for oysters, and the price was from six to nine cents a bushel."

SHUCKING.

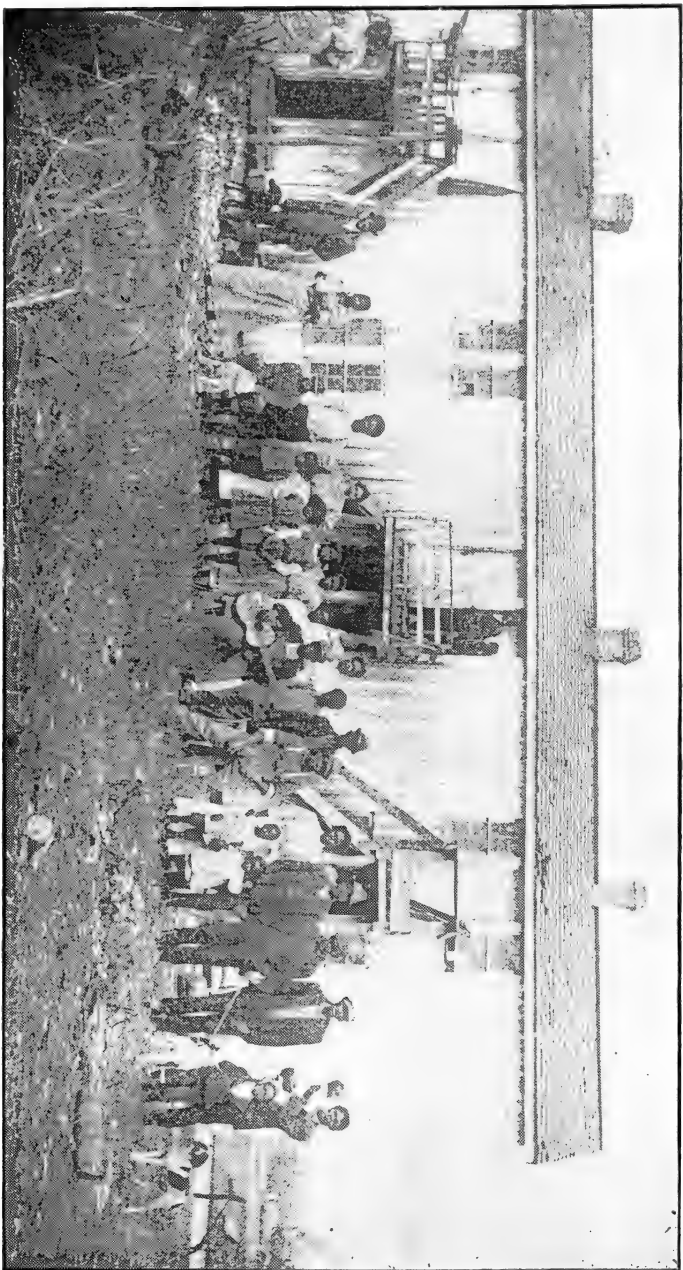
The shucking, or opening of oysters, has developed and increased rapidly in recent years and is now a most important branch of the industry. During the past two years, however, express companies, patent carrier combinations and the pollution scare have seriously affected the business of opening oys-

fers for shipment. Transportation rates have advanced out of reason; manufacturers of patent receptacles for shipping shucked oysters have taken advantage of the pollution scare and systematically laid siege to the legislatures of many States, inducing some to pass laws as to various inane methods of shipment. The public is still timid as to the healthfulness of oysters. Like a flock of sheep, easy to scatter but hard to fold, people have become frightened through publicity of a few polluted oysters cropped around great cities, and this has seriously reduced the consumption of the bivalve. The shucking business is going to be still more handicapped when the United States Pure Food regulation as to mode of packing goes into effect May 1st of next year. When sane reaction will set in, and lift this branch of the business out of the slump, it is hard to foretell. So far Virginia's legislature has been wise in paying no attention to this agitation. At most, it is advisable to go no further than enact a law prohibiting the watering of oysters by vendors, as most of the States are doing. Our State Department of Health is conspicuously wise and just in its review of the Virginia oyster, published in bulletin form. In addition to this, your Commission takes pleasure in circulating this phrase from a letter to the Commissioner of Fisheries from Dr. Ennion G. Williams, Commissioner of Health, dated September 7, 1909:

"Correspondence with the northern boards of health and the inspection of oyster beds in New Jersey and New York have convinced us more than ever that Virginia oysters are the finest from a sanitary standpoint of any in the United States."

The work of examining the Virginia beds by Dr. Freeman and Dr. Ferguson was very thoroughly done, the State's boats assisting in the work. Upon petition, the Health Department has been issuing health certificates as to oyster conditions for people in the localities examined. Practically all of our oyster territory was subjected to this careful investigation. This investigation was the outcome of the agitation of a year or two ago, when reports were circulated to the effect that oysters supplied to northern markets by Virginia were polluted, to the great damage of our oyster industry, threatening for a time to bankrupt a number of large packers. At the request of oystermen, the State Health Department made the investigation, and found that conditions had been greatly exaggerated in the northern press.

Virginia was slow to take hold of oyster packing. Up to several years ago there were but few shucking houses here, and those located at Norfolk and Hampton. In recent years, statistics show that over 600,000 bushels of oysters are handled annually around Norfolk alone, requiring the services of over 6,000 men. To-day along the Chesapeake, wherever the oyster is grown, and transportation facilities warrant, you will find oyster packing houses. It was a great thing when Virginians awoke to the fact that they were sending vessel-load after vessel-load of shell oysters to Baltimore, and paying for return of the empty shells to be put on their plant beds. Baltimore is suffering seriously by the loss to her of Virginia's oyster output. The freight and the shells are not only saved to us by opening the oysters here and shipping them in kegs, but it produces great returns to our people in the labor market. It is a branch of the industry that is fruitful to the State and should be encouraged. To this end, we hark back to the same song—the natural rocks must be protected, and more seed provided for the planter.



SHORE LABORERS
Typical Shuckers Quarters, everybody works but the dog

Fish, Crabs and Clams.

The oyster industry in Virginia so far overtops all our other fisheries in extent and value that the administration of fisheries affairs is chiefly given to that branch of our water products. Hence the space devoted in the preceding pages to the oyster.

FISHING.

The various branches of the fishing industry have steadily progressed. Some species of fish are decreasing in our waters, while others, from spasmodic appearances, seem to be increasing. First in importance commercially stands the "pound-net," or "trap." This is used now in almost any depth of water—from five to fifty feet—and gathers in pretty much everything that comes its way. It is the means of the greatest output on the food-fish market, and the investment in it on the Chesapeake amounts to more than any other fishing industry, except, possibly, the menhaden. The pounds are chiefly for shad, trout and herring fishing, though quantities of other fish are caught in them. While some fishermen resist the payment of license, your Commission thinks the present license tax fair, and sufficient on pounds as well as on all other fishing devices except the commercial haul-seines and sturgeon nets. Proper penalties for failure to pay fish-net taxes should be provided, as should also a close season for the western bay shore, and additional regulation as to size of net meshes, or a cull-law that would require small fish to be turned out from the nets while still alive. The wanton destruction of small fish in our waters is appalling. Experience of other States leads us to believe that no river or estuary should be blocked to more than one-half its width at the outlet by fixed fishing devices. As a benefactor to communities, few interests can compare with the pound-net fisheries. Wherever it is carried on it builds up settlements, churches and varied enterprises, spreads money and improves realty values. It probably sends more children to school than does any other branch of the fishing industry.

The menhaden is by far the most abundant fish along the Atlantic coast, and in many ways one of the most important, but since it is not usually regarded as edible it is little known outside of the fishery and fertilizing industries. They are of great commercial importance from the fact that a valuable oil can be extracted from their bodies by pressure, while the solid residue is an important constituent of manufactured fertilizers. Utilizing it as a fertilizer keeps the commercial fertilizer market down, for without it the farmer would have to pay much heavier for his guanos. The menhaden fisheries, for the purpose of making fertilizer, have grown into giant proportions here within the last ten years. The general impression that their steamers catch food-fish along with the non-edible menhaden is not borne out by facts. Nothing but the shark, or bluefish is found often in the "bunches" of menhaden, and the fishermen are as afraid of these as of a steam saw. Shark and bluefish will rip a costly net into great rents, letting out the catch, and causing the steamer to lay off a day for mending purposes, frequently at the loss of a thousand dollars. One does not see doves flock with crows, but occasionally a hawk or owl gets into the flock: the same applies to fishes. Once in a while these steamers will get

around a bunch of food-fish and ship them—not grind them for fertilizer as is popularly supposed, for they are worth more on the food market. This is reprehensible, and a heavy penalty should be provided for rounding up food-fish in bunches with the purse-net in the State's waters. The extent of the menhaden industry in Virginia is to be seen by the following figures:

Investment:

35 steamers, at \$20,000.....	\$700,000	
Seines and purse-boats per steamer, \$1,800	63,000	
10 fertilizer plants, at \$50,000.....	500,000	
	<hr/>	\$1,263,000

*Expenditures, Running Season of
Seven Months:*

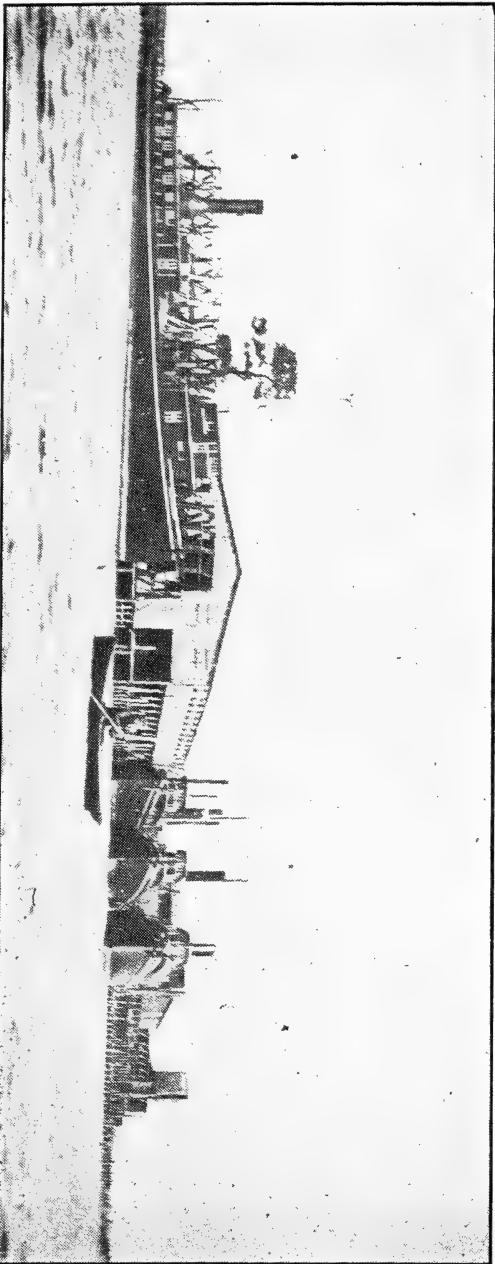
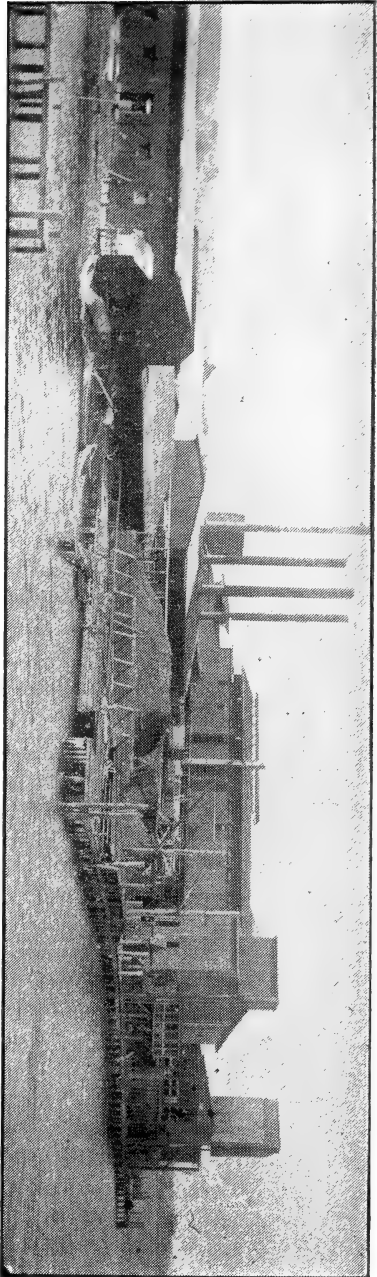
660 men at factories, wages (average \$27 per month).....	\$124,740	} Shore Operations	
660 men at factories, board (at \$10 per month).....	46,200		
Coal at factories, 7 tons per day each at \$3.15 a ton.....	46,305		
Incidentals	7,700		
	<hr/>		\$224,945
1,000 men on steamers, wages (at \$40 per month).....	\$280,000	} Steamer Operations	
1,000 men on steamers, board (at \$10 per month).....	70,000		
Coal on steamers, 120 tons per month, per steamer.....	102,900		
Incidentals on steamers, \$100 per month each.....	24,500		
	<hr/>		477,400
			<hr/>
			\$702,345

310,000,000 fish caught in season, worth \$3,150 per million.

Value of output (approximate), \$976,500, divided as follows: oil, \$241,000; guano, \$735,500.

Indirectly this industry may be said to support outside industries to the extent of half a million dollars, and the families dependent upon the laborers at these works are many.

The menhaden is a small fish, seldom weighing a pound, and closely related to the herring and the shad. It usually makes its appearance in the Chesapeake Bay early in the spring, and rapidly becomes more and more abundant, crowding into the sounds and inlets until the water is fairly alive with them. They remain as long as the weather is warm, but as the winter approaches they pass out into the ocean, so that few are found in the Chesapeake Bay after November. In early spring our fleet of staunch steamers goes to sea to meet the up-run, following them from the Carolinas to Delaware; and in the late fall they are chased by the fleet from Delaware sometimes to the Gulf stream. This is the most hazardous and daring of our water pursuits, a gale occasionally sending to the bottom a valuable steamer and some thirty souls.



MENHADEN FISH FERTILIZER WORKS AND ITS FLEET OF STEAMERS
Grinds Annually Between Twenty and Twenty-five Million Non-Edible Fish



The herring pack (salting herring) has in late years become a great industry on the Chesapeake and its tributaries, confined largely to the section above Mobjack Bay.

The bluefishing industry is not engaged in to any extent by our people. This is left to northerners, who follow this voracious and intrepid fish along the Atlantic coast in their trim "down-east" smacks, seldom coming into the Virginia capes except for bait or to ice and market their catch. The bluefish, while bold, is to a degree wary, shunning close bodies of water and keeping mostly to the deep. The same may be said of the mackerel, which fish also cuts little figure in our merchant fisheries. We can see no legislation that it is advisable to consider in respect to these two fishes.

The sturgeon is one of our important commercial fishes that is fast disappearing. Legislation has long been needed to protect this valuable fish, and your Commission will again incorporate views to this end into its legislative recommendations in conjunction with other fish laws to be proposed. Twenty years ago the sturgeon was practically worthless. We have seen big roe fish gutted on wharves to save freight weights, the roe kicked overboard along with the entrals, and the cleaned fish sent to market, to bring from one to three dollars apiece. They were then somewhat plentiful. To-day the same roe sturgeon is worth from fifty to one hundred dollars. The meat is worth little in comparison to the roe, which is used for caviar. At first this brought but 25 cents a water-bucketful; to-day it is worth from ten to fifteen dollars a bucket, a single fish producing from two to six bucketfuls. Haul-seines, gill nets, pounds and various other devices are used to catch sturgeon, and these are practically without restriction, particularly as to size of mesh. The James and its tributaries are the best of our sturgeon spawning grounds, and it is here that the greatest destruction in our waters occurs. In days past, mule-cart loads of little fellows under four feet in length have been hauled to the lower market place in Richmond and sold at from ten to fifty cents apiece. Another year and one of these little females would have produced roe, worth some twenty or thirty dollars (to say nothing of its value if left to spawn); two years later the same fish would have been worth probably fifty dollars—increasing in value with its years and fecundity.

The perverseness of winds and weather during the summer and fall of 1908 kept migratory fish from our capes, and there was a dearth of hook-and-line fishing, causing a great cry to go up that our fish had been destroyed. Mass-meetings and meetings of commercial bodies throughout Tidewater assembled to consider the subject of depletion, and members of your Commission met these bodies, whenever practicable, to glean what information and impart whatever they could. Practical men were not much perturbed as to any prospect of continued scarcity, though regretful that even one season should see a shortage of the fish output in any of its branches. The summer and fall of 1909 removed all fears of depletion within the near future, for we have not had such abundance of our common species in Chesapeake Bay waters for many years as in the summer just gone. At one time spot were hawked in the streets of Norfolk at five cents a dozen. These intermittent phases, however, do not deter thoughtful men from seeing the necessity of stricter regulation for our commercial fisheries.

Your Commission will renew its recommendations on fishing presented to the last session of the General Assembly, with some slight modifications and additions.

CRABBING.

Crabbing has also made rapid strides, particularly the packing of hard crabs. Unfortunately the Commission has been without statute law to foster or restrict, or in any extended way tax and supervise the taking of hard crabs. Though at one time inclined to protective measures against hard crabbing, we are impelled from investigation now to advise against any restriction in the dredging of hard crabs. There may come a time when the sponge bearer (gravid mother) will have to be protected, but that time is not ripe for the Chesapeake Bay.

The hard crab is without number here, and in some localities is a nuisance, deserving abatement. Where numerous, he is very destructive to young oysters. Finding them when feeding, he inserts his strong, horny claw, detaches the muscle, when the oyster becomes his easy prey. The hard crab is the bravest thing for his inches that swims the waters, not hesitating to pinch the feet of human bathers, nor to tackle even a steamboat if molested when feeding or pairing. The young of ducks fall an easy prey to this scavenger of the seas, and no duck farm can prosper on waters where he abounds. He is a fast swimmer, and might be termed migratory. Breeding in the marshes and grassy bottoms of our sounds, the crab mother hastens to the sands near our capes, some fifty miles away, to scrape off, wean, the thousands of minute little ones that cluster around her like a swarm of bees. If not soon rid of these they would sap her life away. Immediately they are dislodged the now independent little rovers leave the bold waters, returning for the most part to the grassy sounds, but a comparative few scattering along shallow tributaries of the bay. The young find protection from the cannibalistic adult in shoal waters, that are littered with sticks, debris or grass, while its frequent shedding permits rapid growth. When soft, the crab is helpless and falls an easy prey to fish, fowl and its own kin. It passes through the various stages, less frequent as it grows older, of hard crab, peeler, buster and soft crab, until fully matured after a year or two, when it ceases to longer shed, and becomes a matured hard crab, called a "jimmy," "sow crab" or "channel crab." At this age, the male continues propagating, but the female does not mate or breed after maturity. Only when in the soft stage does she pair; after which, unless her shell has become hardened, she is likely to be devoured by her mate. It is the impotent adult sow crabs that bed in the muds of the lower bay and furnish product for the hard crab packing industries. They are otherwise useless. Small steamers and gasoline craft are employed in dredging them from their hibernating mud beds. The old male is not found with them in greater number than five per cent.; he continues to be a rover and a fighter. Gifted with powerful claws, but virtually no teeth, he minces his food with this, strikes his prey or his enemy and often inanimate objects which he thinks offend, frequently losing a claw or a fin in the scuffle. Nature comes to his relief, and if not too decrepit another claw or fin will shortly grow to replace the lost or injured member. Aside from services as a scavenger and propagator, his meat is the principal bait for hook-and-line fishing.



Type of Oyster and Crab Packing Plant of W. F. Evans & Co., Hampton



Winter on the Oyster Shores

The hard crab scrapers and packers are building industries which add greatly to our material wealth, and they are willing to be liberally taxed in their calling. The season just passed has been one of the most prosperous in years.

The soft crab industry has entailed labor and expense in keeping citizens on our northeastern boundary within the law, as well as in securing to Virginians their rights. It is a business of much magnitude on the Eastern Shore. It may astound many, and cause some novices to question the statement, when we say that 75 per cent. of the soft shell crabs marketed in the United States come from Virginia waters, all but 5 per cent. of these going from Accomac county alone. A few soft crabs go from North Carolina and a few from Somerset county, Maryland. These figures are gathered from a study of the industry and statistics carefully compiled by dealers of Crisfield, Md. That city controls the output and the markets of the United States. Being on the border of Virginia, it gets practically all the catch of Accomac county. The crabs are packed in wet grass and shipped alive to northern and eastern markets. The canning of soft crabs for western and European shipment is also quite an industry in Crisfield.

Soft crabs are mainly caught by small sail boats that sail over the shallow, grassy bottoms, dragging toothless scrapes (small dredges) over them, dumping the catch upon the vessel's deck, where they are sorted, the hard ones being put into barrels for shipping; peelers and busters put into live-boxes or floats to await a day or two until shedding, when they become soft-shell crabs, and the already soft ones carefully handled and packed in wet grass in boxes. This branch of the industry has likewise just passed one of its most successful seasons.

The cost to protect the crab industry is greatly in excess of the revenue derived from it. To protect citizens of Virginia in the sounds from trespass by Marylanders is a difficult and expensive task, far out of proportion to the direct results gleaned for the State, but it is of vast value to the people of that section. For the purpose of adequate protection these people should be willing to pay a fair license tax. In its recommendations for legislation your Commission will advise specifically on these points.

The value of crabs, clams and oysters marketed last season by Virginians working in Pocomoke Sound amounted to \$300,000, about equally divided between the three industries, and this season promises even better. The value of clams shipped from the vicinity of Cape Charles this year was about \$50,000, the industry there having increased about 500 per cent. in about ten years.

CLAMMING.

Within recent years the clam has grown into a great industry in Virginia, largely confined to Accomac and Northampton counties on our seaboard. The industry is growing rapidly, and the demand for clams is greater than ever before. Legislation seeking to regulate clamming, like crabbing, is much needed. While a license to oyster should also permit the holder to clam, as now, this license tax should be uniform—the same on the seaside as in the bay. Clamming in the season when oystering is prohibited might be confined to certain grounds or localities. Clamming in summer on oyster-producing rocks has led to the utter depletion of some

rocks, and while not to be deplored in a few peculiar localities where the clam produces and pays better than the oyster, in other sections it militates against the greater industry and also against the land vocations. A cull law is very much needed. To-day there is no restriction here as to size in the taking and marketing of clams, and that shellfish is being exterminated in some localities. From reckless catching and inadequate laws at the outset we find the New England States now cultivating, at much expense, the clam, where he once grew in abundance. Heretofore we have not had to cultivate this shell-fish to any extent, as it has been very prolific, but to-day we are importing seed clams from Buzzard's Bay, the people down east having learned long since to conserve this, among other resources, to such extent as to now be selling us seed clams. The barrels in which they are shipped hold about 30,000, worth ten or fifteen dollars. When planted a chicken wire is put around them to protect them from crabs until they hide themselves in the ground. None of the seed is bigger than a chestnut. It is figured in the north, where larger grown and most studied, that a one-inch clam will grow in one year to a size between two and three inches. Under fairly favorable conditions, with a moderate current, a one-inch clam will increase to two and one-half inches, or a gain of 900 per cent. in volume. For every quart planted the yield in one year will be nine quarts. For beds without current, one-inch clams average about two inches, or a gain of 500 per cent.; *i. e.*, five quarts for every quart planted. Beds under exceptionally fine conditions have shown the amazing return of fifteen quarts for every quart of one-inch clams planted. Clams increased in these beds from one to three inches in length.

It is alarming at what a rapid rate Virginia clam beds are becoming depleted, owing chiefly to lack of a cull law. The little fellows are gathered in and have been sold in the past for as low as 15 cents a thousand (estimated measure.) To-day the beds of Chincoteague, an important clamming section, are so depleted that the people there are importing seed. Only two years ago, in urging restrictive laws, this Commission incorporated the following in its report:

"We do not in Virginia have to cultivate it, and it is probably more prolific (naturally) here than north of us; yet, unless legislation regulates the taking of the clam we will soon be in the condition of the New England States. Before public clamming had depleted the bottoms in Maine, an acre patch was known to produce two hundred barrels, dug up by two men in a very few days. There is on record the discovery of more than a thousand little fellows starting to bed in one square foot of mud bottom. If the young are as numerous as this record would show, what damage must be done them in graveling with tongs for the larger ones during the hatching season! Of course, even if undisturbed, the tenth part of them could not mature in that small space; and it is known that starfish, crabs and other fish destroy a large portion of the young. Little Necks, called 'Nicks' here, under the size of a silver dollar, should be returned to the beds. In some respects clam beds are like oil wells—you make a 'strike' and get lots of money from a bed when first discovered, but the public soon learns of it and your good fortune is short-lived. Upon occasion of these strikes a good clammer will make as much as \$75 a week; then the bed is made barren; no small ones are returned, but all marketed."

Owing to the fact that every clam caught is marketed the yield of clams in our waters the past two years has been very large, while the demand has



Soft Crab Station on the Marshes of Tangier Sound



A Soft Crab Fleet on Strike, Waiting for Better Prices

been constant and prices remunerative. Until New England began protecting and cultivating the young growth the clam had almost become extinct in many hitherto prolific localities. This alarming decrease has been checked within recent years only. For twenty-five years the destruction went on there by over-digging. Virginia is rather tardy in considering this important industry, but another two years should not pass without efficient laws.

Our police say on the seaside that it is impossible to stop summer oystering so long as summer clamming is permitted. Yet there are hundreds of our citizens who make a livelihood in summer in no other way than by clamming. As they protest against paying license sufficient to keep the oyster grounds protected, it is a matter in which your Commission feels powerless, and should be solved by the General Assembly, with the potent aid of the representatives from the Eastern Shore.

In event of a closed season for clams, say from June to September, the oyster spawn would be given a chance, as would also the clam spawn. Oysters spawn there from June to September usually, but the clam is found to spawn to some extent every week in the year. This is somewhat in violation of the popular idea that clams spawn only in the spring. Maine culturists have revised this opinion. The clam is a rapid grower, and in support of a cull-law it may be stated that experiments prove that a quarter-inch clam will grow to one and one-half inches (the suggested cull size) in four to six months, and from two inches to four inches in sixteen months. Experiments have shown that where flats or bottoms have been entirely depleted, all that is necessary to restock them is to procure small clams and scatter them about upon the bottom as a farmer would sow his grass seed. When the tide flows and covers the clams they will bury themselves, and in a few months the little fellows have reached marketable size, in addition to depositing spawn. There is no question but that the clam bottoms of our State are being depleted very rapidly, especially in some sections, and unless something is done to better regulate this industry a great revenue will be lost to our people and the Virginia natural growth clam will give place to the costly cultivated one as grown at the north. Unless those directly interested will observe a cull-law, and probably a short closed season, the foregoing condition is not far off. It would in such case mean the total prohibition of clamming for a number of years and the abolition of patent tongs until the bottoms could recuperate. Alternating closed seasons of about two years at a stretch is what New England clammers have had to come to.

CONCLUSION.

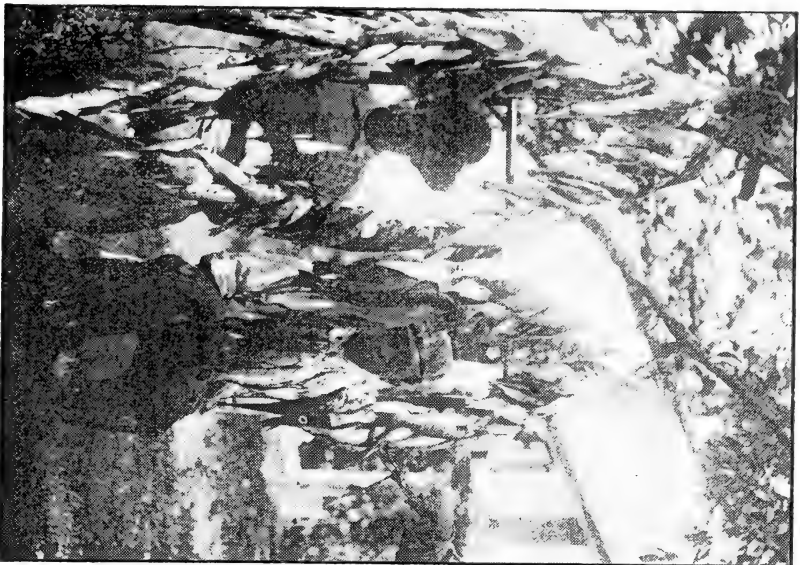
We adhere to and reaffirm our recommendations by bills to the General Assembly and through recent annual reports for protecting, regulating and fostering our fish and oyster industries. When again submitting its recommendations to the General Assembly for a revision of the fish and oyster laws the Commission will be pleased to explain its reasons if called upon. With effective laws and intelligent administration of them the problem of restoring and improving our water industries can be solved. Wisdom in private culture, and integrity in dealing with both planting and public grounds and their manipulators, will insure to Virginia possibilities hardly dreamed of; for nature has been more bountiful to us in our water wealth

than to any State in America. What Maryland claims to be true might apply in some degree to Virginia—"The most valuable of the possessions of Maryland, more valuable than its farms and fields and its forests, more valuable than its mines and quarries, is the Chesapeake Bay."

Notwithstanding many drawbacks, the impediments noted and the rather large undertaking with stinted powers, your Commission hopes to pursue the work as mapped out. A virile administration is not without criticism, and is flooded with petitions, litigations and appeals for decisions. Numerous complaints from inland counties are filed with the Commission relative to pollution of fresh water streams by mills and manufactories, unlawful methods used in killing or capturing fish, failure to provide fishways, and so on. It is not contemplated that this Commission shall have supervision over such things above tidal waters. There are local laws governing inland localities, and the local authorities are the proper ones to see them enforced. But, altogether, the duties of this Commission have been pleasant, made largely so by a gratifying change in sentiment throughout Tidewater, and the support of officials of the State administration. In this, the last annual report before turning over affairs to our successors under a new Executive administration, we do not feel it out of place to thank Governor Swanson for his confidence in us, and pay tribute to his judgment (in so far as the members can do so with modesty) because of the happy fact that no jar or friction has occurred among the members of his Commission during its term of office and no dissenting vote on matters of more than minor importance. The chairman and secretary have had at all times the active co-operation and support of their associates.

The Commission, in concluding, desires to express thanks for the strong endorsement in your Excellency's message to the legislature of the recommendations made by the last Board of Fisheries, and for the hearty co-operation in its labors extended by the executive department and State officials, also to the General Assembly for increased appropriation, and the efforts of many untiring members to have better laws enacted for the management of fish and oyster affairs, as well as to those people and newspapers of Tidewater who have given us encouragement and support in our work. We, as well as the State at large, are indebted to United States Fish Commissioner Bowers, first-assistant Dr. H. F. Moore, and their subordinates for the thorough work done on the James river survey without cost to our State.





HOOK-AND-LINE FISHING

A before breakfast catch—240 trout, spot, perch, etc., on a single tide



DUCK-BLIND ON THE MARSHES

(Good Spot for a Wet and Shivering Boy)



Financial Summary

Paid in to Auditor Public Accounts from fish and oyster revenues, year ending September 30, 1909 ----- \$76,693 76

Annual appropriation ----- \$45,000 00
 Sale of little steamer Rappahannock ----- 1,250 00

 Gross amount available for service during fiscal year ----- \$46,250 00

GROSS EXPENDITURES.

Steamer Commodore Maury, pay-roll, subsistence and supplies.....	\$ 8,990 39
Steamer Accomac, pay-roll, subsistence and supplies.....	3,627 11
Steamer Rappahannock, pay-roll, subsistence and supplies.....	325 23
Schooner Pocomake, pay-roll, subsistence and supplies.....	3,286 54
Launch James River, pay-roll, subsistence and supplies.....	1,859 58
Launch Viola, pay-roll, subsistence and supplies.....	2,067 59
Launch Greyhound, pay-roll, subsistence and supplies.....	2,011 54
Launch Saxis, pay-roll, subsistence and supplies.....	1,934 24
Launch Great Wicomico, pay-roll, subsistence and supplies.....	1,150 04
Launch Northampton, pay-roll, subsistence and supplies.....	1,367 83
Launch Miss Mary, pay-roll.....	600 00
Watch-boats on James river, supplies.....	123 64
Gasoline yawl tenders, repairs and supplies.....	89 96
J. Wood Tull, ship carpenter, on the several boats.....	797 94
Coal contract, in bulk.....	1,835 84
F. A. Gunby & Son, sundry supplies.....	242 27
W. McDonald Lee, commissioner, salary.....	2,500 00
W. McDonald Lee, traveling and office expenditures.....	593 61
S. Wilkins Matthews, secretary, salary.....	1,800 00
S. Wilkins Matthews, traveling and office expenditures.....	460 20
Bland Massie, traveling expenses.....	182 15
George B. Keezell, traveling expenses.....	144 50
R. A. James, traveling expenses.....	16 00
J. M. Hooker, traveling expenses.....	114 20
W. E. Lawson (supervising inspector), salary, office rent and expenditures.....	642 49
E. L. C. Scott (messenger), salary and expenses.....	206 74
J. C. Brewington, special police.....	250 00
A. F. Amory, special police.....	155 00
James Aydelotte, special police.....	454 14
C. H. Muse, special police.....	210 00
Thomas Winder, special police.....	375 00
Alfriend & Sons, insurance on Commodore Maury.....	200 00
Sundry small bills.....	66 45
Court expenses.....	511 79
Counsel fees.....	1,168 32
Surveyor fees.....	156 01

Total expenditures.....	40,516 34

Unexpended surplus for the year.....	\$ 5,733 66

SPECIAL APPROPRIATION FOR PURCHASE OF NEW BOATS.

Amount of appropriation for two years.....		\$20,000 00
Expended in purchase and equipment of gasoline boats in 1908.....	\$8,016 82	
Expended in purchase and equipment of gasoline boats in 1909.....	1,809 02	
		9,825 84
Balance unexpended		\$10,174 16

Respectfully submitted,

W. McDONALD LEE, *Chairman*;
 S. WILKINS MATTHEWS, *Secretary*;
 GEO. B. KEEZELL,
 BLAND MASSIE,
 J. M. HOOKER,

Commission of Fisheries.

MEMBERS OF COMMISSION OF FISHERIES OF VIRGINIA (1909), AND THEIR POSTOFFICES.

W. McDONALD LEE, *Commissioner*.....Irvington, Lancaster county.
 S. WILKINS MATTHEWS, *Secretary*... ..Oak Hall, Accomac county.
 GEO. B. KEEZELL.....Keezeltown, Rockingham county.
 BLAND MASSIE.....Tyro, Nelson county.
 J. MURRAY HOOKER.....Stuart, Patrick county.



Table of Interests and Persons Engaged in the Various Branches.
(Accurate Statistics Taken in Fall of 1907.)

COUNTY.	TONGERS.		Dredgers and Scrapers	Hard Crabbers	Soft Crabbers	Clammers	FISHING DEVICES.			Acres Planting Ground	Shucking Houses
	White	Colored					Pounds	Haul Seines	Fykes		
Accomac	1,850	102	368	15	500	1,480	240	9	13,750	10	
Elizabeth City	40	214	2	13		50	224	6	7,725	12	
Essex	24	100					15	20	1,075	1	
Gloucester	559	1,050				510	121	5	5,542	1	
Isle of Wight	210	321						32	2,680		
James City	1	4	7					10	1,065		
King George	8	30						55	35		
King and Queen	20	33					2	21	800		
King William								20	33	4	
Lancaster	800	576		2	140		207	3	5,331	16	
Mathews	247	200	2		80	162	270		3,340	1	
Middlesex	670	800			20	10	37	4	2,860	4	
Nansemond	121	180				10		15	1,500	2	
New Kent	2	12							142	1	
Norfolk city and county	108	100	1					10	1,302	14	
Northampton	252	246	42		15	137	12	21	12,605	13	
Northumberland	288	189	333		70	2	215	10	2,707	10	
Portsmouth and Norfolk county	25	190						20	670	3	
Princess Anne	4	12					17	7	1,570		
Stafford county	43	85	25		25		25	20	1,025	5	
Warwick	213	390	6	20			10	16	3,690	1	
Westmoreland	142	109	88		6		20	5	2,987	3	
York	401	750				201	16	11	6,808		
Surry							2	9	200		
Stafford	8						49	1			
Charles City								2			
Henrico								11			
Chesterfield											
Prince George							2	1			
Total	6,028	5,793	874	50	831	2,562	1,484	8	367	79,392	101

NOTE.—Including helpers not licensed, ashore and afloat, the above totals should be about as follows: Tongsers, doubled; dredgers, multiplied three times; hard crabbers, eight times; soft crabbers, three times; clammers, one man each; fishing devices average five men. On planting grounds about 8,000 workers. In shucking houses, about thirty men or women to each. Including the menhaden table, a grand total of something like 50,000 persons actively and directly engaged in our fisheries industries, dispersed over 2,000 square miles of water. This takes no account of the thousands who for short periods engage with hard crabbing, haul seines or other fishing devices not requiring license.



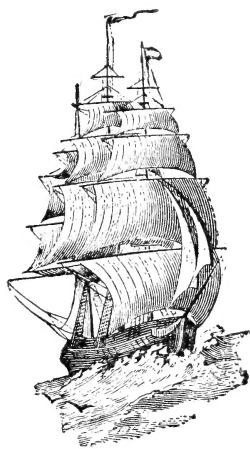
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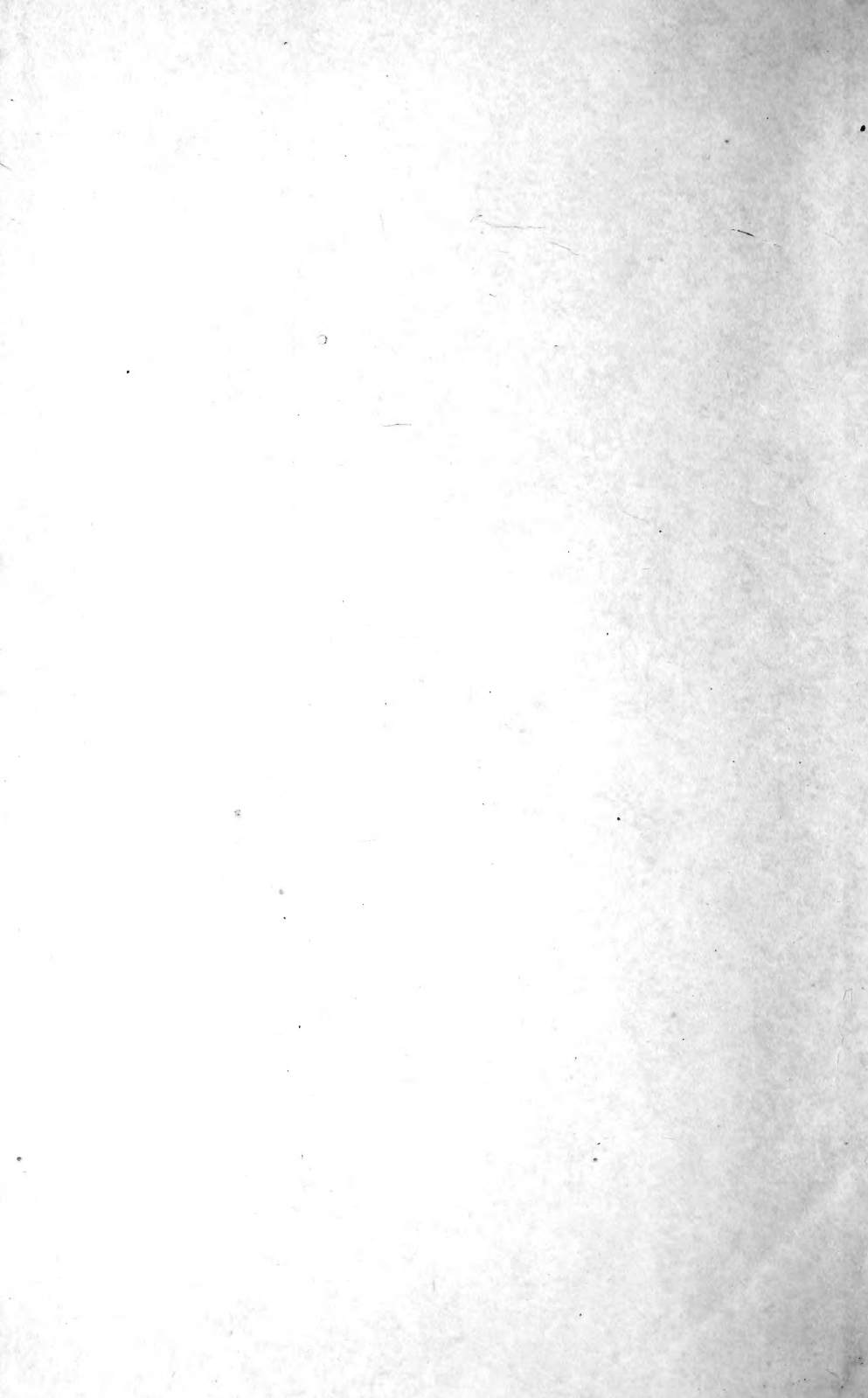
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