UNIVERSITY OF PENNSYLVANIA

TIDEWATER MARYLAND
AN EMBAYED COAST PLAIN

BY
WALTER LEFFERTS

A THESIS
PRESENTED TO THE FACULTY OF THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

INTERNATIONAL PRINTING COMPANY
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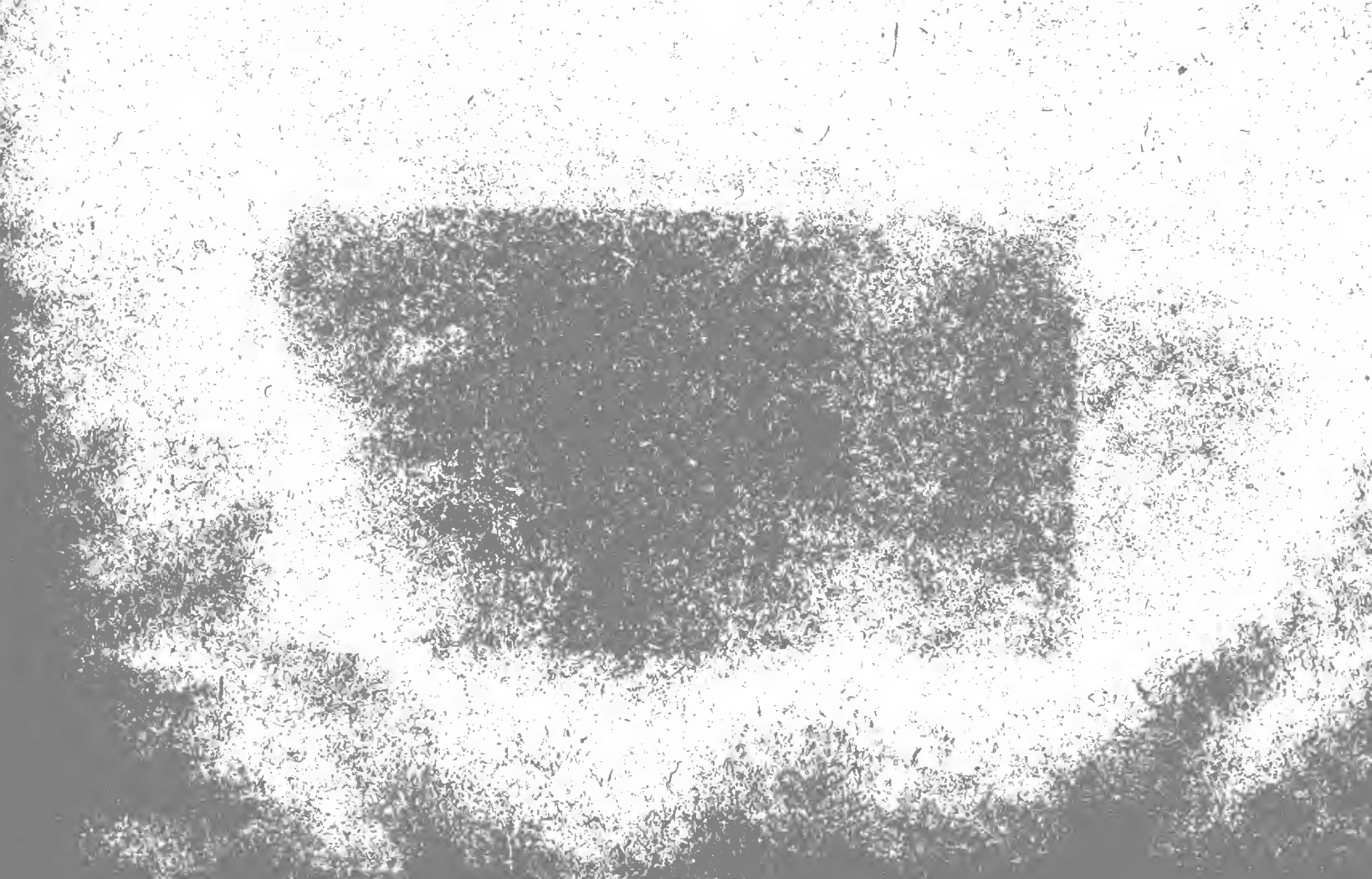
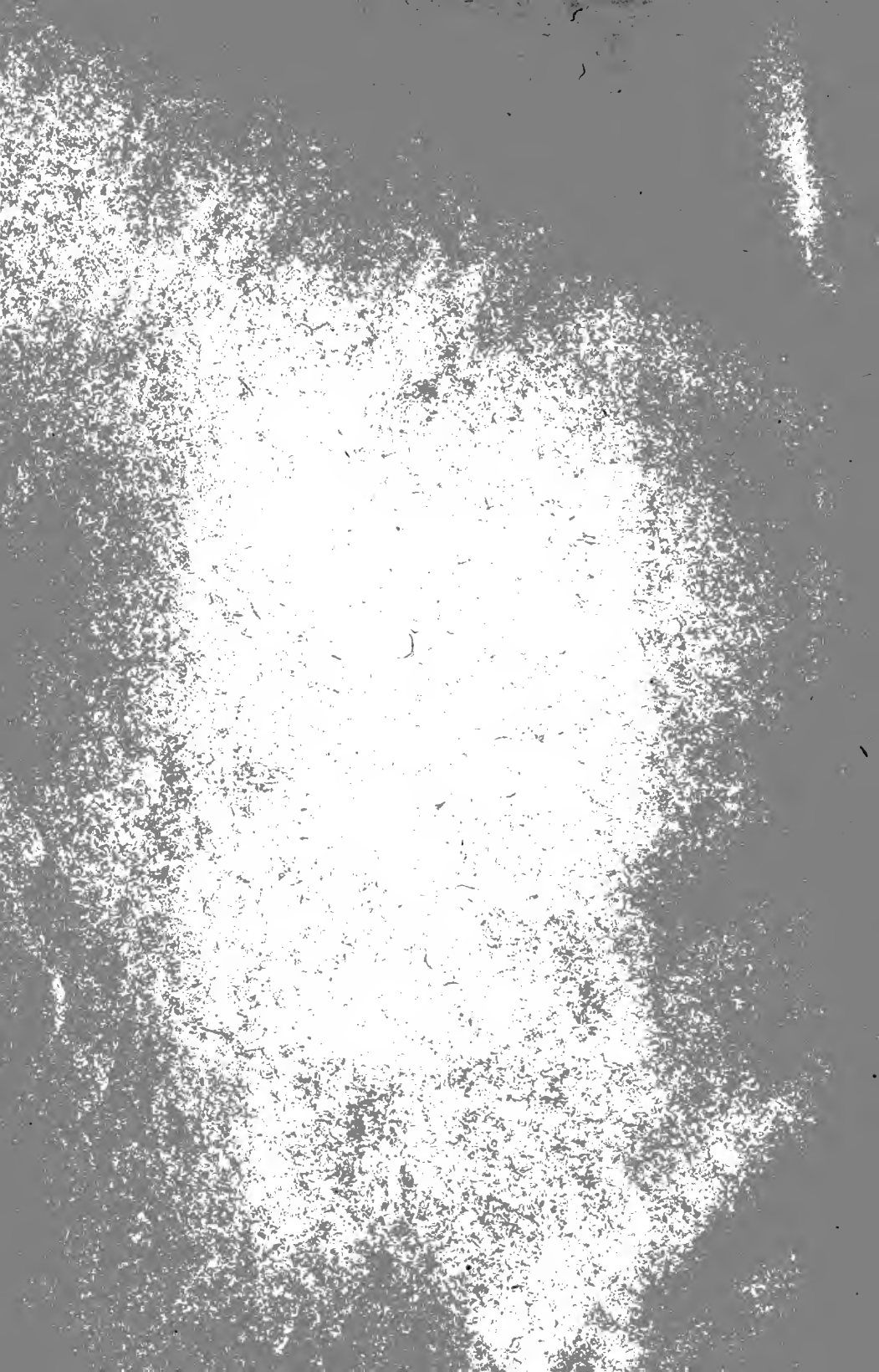
1918





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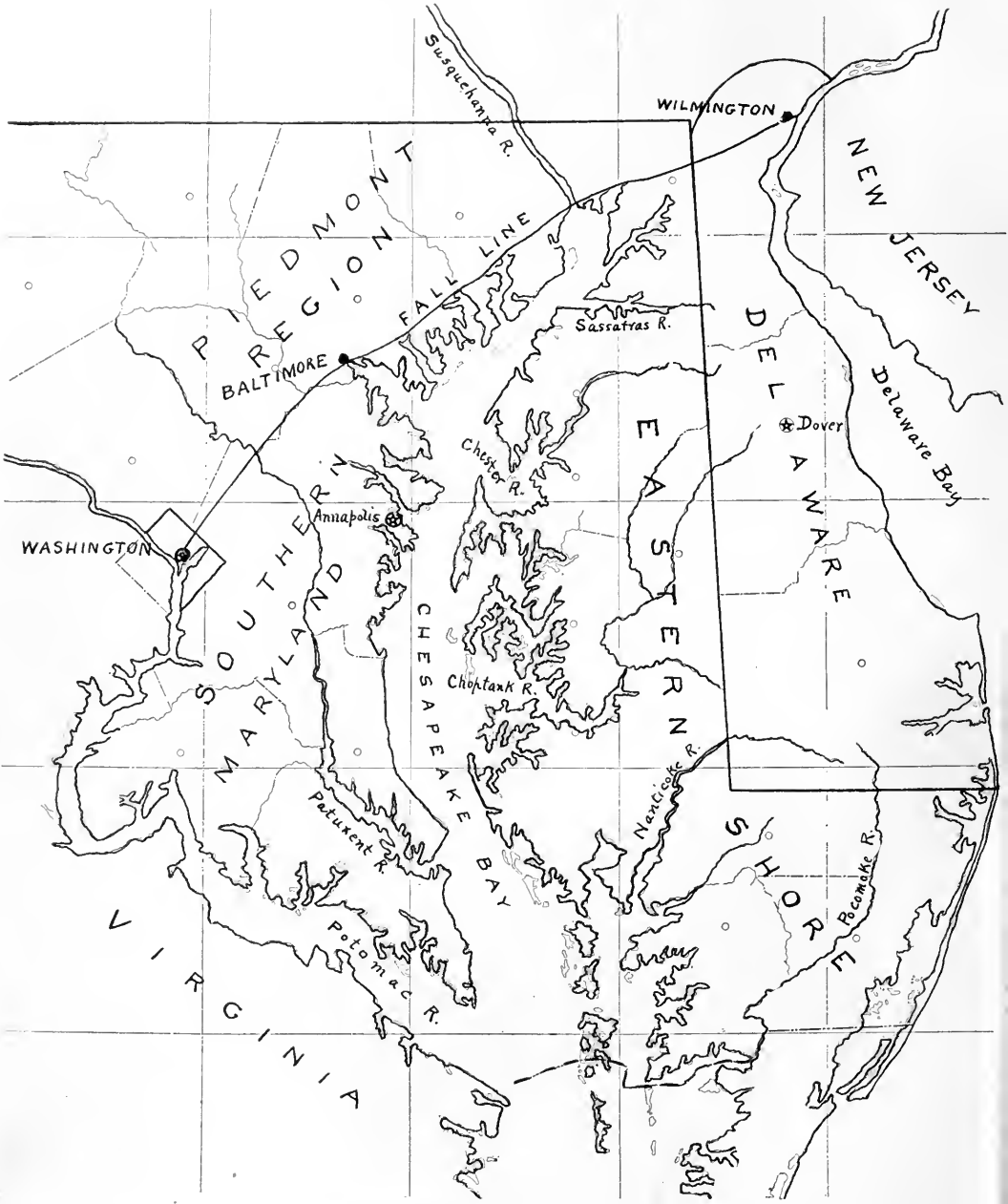

MAP 1. TIDEWATER MARYLAND. PRINCIPAL DIVISIONS.

I. GENERAL DESCRIPTION.

A line drawn from Washington to Baltimore and on toward Wilmington, Delaware, will cut the State of Maryland into two almost equal portions, the eastern and slightly larger one of which is the Coast Plain, often called Tidewater Maryland. This Washington-Baltimore-Wilmington line is the famous "Fall Line," where the rivers descending from the upland meet tidewater; it marks the point of contact between two regions of very different geological age and physical composition, the ancient Piedmont and the recent Coast Plain, the first composd chiefly of hard crystalline rock, the second entirely of soft sedimentary material.

Though the Coast Plain of Maryland is but a small part of that great lowland which fringes the Atlantic and Gulf Shores of the United States from New York Bay to the Mexican border, in actual land surface it covers over 5000 square miles, an area exceeding that of Connecticut. By a partial drowning of the region, the sea has flowed into the ancient valley of the Susquehanna, thus forming Chesapeake Bay, which occupies the heart of the Plain, and by converting the lower courses of the tributaries into estuaries, has made the region typically embayed. The Maryland portion of the Chesapeake, with its numerous estuaries, thus gives, within the Plain, a water area of more than 2000 square miles, over 40 per cent. as large as the Plain's land surface. This embayment has profoundly affected the life of the inhabitants on both sides of the Bay. It is a striking geographic control.

The two parts into which the Bay cuts the Plain have been distinguished from early colonial times as the Eastern Shore and the Western Shore, the mass of the Western Shore, lying south of Baltimore, being now commonly called Southern Maryland. The Eastern Shore is the larger of the portions, containing 60 per cent. of the Plain, or 3200 square miles, while the whole Western Shore comprises only 2100 square miles. Though much alike in some respects, other factors have caused these two sections to differ greatly in development.

This account purposes to present the geographic factors which have operated as controls over the economic life of Tidewater Maryland, and to show the extent of the responses to these controls, which shape the habits, industries and development of the people. The study, in short, offers a geographic basis for the Maryland Coast Plain's social and economic history and gives some foundation for a prediction of its future.

II. PHYSICAL CONTROLS.

1. Surface and Soil.

Tidewater Maryland is not only embayed, it is also terraced. Four terraces, composed of comparatively loose and soft materials, gravels, sands, silts and clays, greatly mixed in many spots, were formed during the intermittent rise of the Plain from the ocean. Without consideration of the terracing, many features of this region could not be satisfactorily explained. The net result is to present at different heights considerable areas of level land, well adapted to the use of agricultural machinery and with a minimum of erosion.

As the Plain slopes from the Fall Line southeastward to the Atlantic, the Western Shore is composed almost entirely of the upper two terraces, while only the lower two are represented on the Eastern Shore. The two portions of Tidewater Maryland, therefore, differ in surface.

Southern Maryland has a maximum elevation of 320 feet, or four times that of the Eastern Shore. Its soft materials have been eroded in numerous places along the edges of the terraces, especially near the Bay, so that the surface there is abruptly hilly. The central portions of the terraces, however, are still unaffected, and much of the original material has been able to change gradually into loam which remains in place. There is little low ground. Only about 3 per cent. of the whole section is marsh or swamp. Ten per cent. more is comprised in the meadows of the flat "forelands" lying along many of the channels, such as the Patuxent (the main waterway intersecting the region). These meadows, while not usually drained enough for tillage, are of the utmost value as pasture, and invite a large cattle industry. Along the Bay, where the waves have eaten well into the terraces, the generally elevated character of Southern Maryland is shown by cliffs which extend for many miles, ranging up to 150 feet and forming a striking feature of the Chesapeake scenery.

The Eastern Shore is much lower and much less diversified than Southern Maryland. Its upper terrace is, at its greatest

elevation, in the north, only about 80 feet high, and slopes down to 30 feet. This terrace covers practically all of the Shore which is directly west of Delaware and sweeps around below the southern Delaware boundary. It is not so high as to afford much opportunity for erosion, yet it is elevated enough to secure good drainage over most of its extent. Here is an area of 700,000 acres of excellent and yet rather light farm land, free from stones and almost entirely level, as pleasant and as profitable to work as any in the East—a choice region indeed. The lower terrace of the Eastern Shore, whose bulk lies south of the Choptank River, contains much marsh and swamp. Its soils are not so loamy as those of the upper terraces, but are predominantly sandy, though there are large areas of clay just south of the Choptank.

Two general regions can thus be distinguished on the Eastern Shore, the north and the south, the north mostly upland, the south largely lowland. Both regions are intersected by many tributaries to the Chesapeake and deeply indented by their estuaries; but while the Sassafras and Chester Rivers of the north have fairly high banks, the southern rivers, the Choptank, the Nanticoke and the Pocomoke, are mostly bordered by marsh or swamp. Though the two regions are about equal in size, the northern section has 3 per cent. of its area undrained, the southern section about 30 per cent.[1]

Though the Atlantic coast of the Eastern Shore is unbroken, and the long line of cliffs in the southern Bay coast of the Western Shore is remarkably regular, the Eastern Shore's Bay coast, particularly in its more exposed southern part, where the Bay is wider, is distinguished by numerous fancifully-cut peninsulas, due largely to the drowning of the region, and many islands formed by wave-cutting of the peninsulas. While the islands themselves and the exposed points and headlands are being rapidly cut away by the waves caused by the westerly winds, which blow across the wide Bay during the greater part of the year,[2] the

[1] Md. Conservation Commission: Report. Balt., 1909; p. 138.

[2] For an interesting discussion of the rapidity of this action, see Hunter, J. Fred: "Erosion and Sedimentation in Chesapeake Bay," U. S. Geol. Sur. Profes. Paper 90. Wash., 1915; pp. 7-15.

same winds are causing sediment to be heaped at the mouth of the southern estuaries, where eastward current-wash checks the stream-flow of the large rivers. Great salt marshes, two or three miles wide in many places, are thus being formed.

On account of the many waterways, coast indentations and marshes, communication by land in Tidewater Maryland is still often so tedious, even between places situated near together in an air line, that water travel is almost forced upon the inhabitants. Navigation is possible to a considerable distance up the numerous estuaries and streams, and ease of water transport has had much to do with the course of development.

On the whole, the Plain's surface is such that by its level nature and generally good drainage it is distinctly favorable to agriculture. Though Southern Maryland, because of its higher elevation, excels in picturesqueness, and in completeness of regional drainage, the Eastern Shore carries off the agricultural advantage because, despite many swamps, it surpasses Southern Maryland in its larger extent of level, yet well-drained land, practically free from erosion. The Eastern Shore farmer can raise tilled crops without taking precaution lest the best of his farm should be carried down the hillside. On neither shore does the surface present any real obstacle of ruggedness to the builders of road or railroad, though swamps, marshes and bodies of water do afford considerable hindrance.

The Bay manifests itself as one of the most active agencies in changing the surface. Its waves cut away the high shores, change peninsulas into islands, and then devour the islands. To compensate for this destruction, however, it builds up the tide marshes that hold the richness lost from the uplands. It is both a destructive and a constructive factor, and its importance as a geographic control must be fully appreciated.

The large amount of marsh and swamp land in the Plain makes reclamation a problem that should engage the serious attention of the State. Nearly one-tenth of the Plain, 325,000 acres at least, is of this description.[3] This area of 500 square

[3] Maryland Weather Service Report. Balt., 1907; p. 24.

miles is now only a breeding place for mosquitoes and a consequent reservoir of malaria. The mosquito plague for some reason is not nearly so great as the area of badly drained land would seem to imply, yet the health of the Plain, especially in the southern part of the Eastern Shore, would, no doubt, be considerably improved if the lowland could be reclaimed.

Reclamation, however, is not at present an absorbing interest in Maryland, although it has received some attention.[4] Practically nothing has been done, either by public or private enterprise, to drain the wet lands, and until the rural population grows denser, it is unlikely that much will be accomplished, especially in the salt marshes, which form two-thirds of the total low area. The upland tracts, however, which can be drained more easily, will add, before the passage of many years, nearly 120,000 acres of exceedingly rich land to the State's agricultural service.

Even without the aid of reclamation, it may be said that the soils of the Plain allow it to run the entire gamut of classes of agricultural production. There are sands for the trucker, general purpose soils (light loams) for cereals and canning crops, and heavy soils for cattle raising and dairying. There are few regions which present such a satisfactory amount of each type of soil within such a limited area.

Additional References.

Surface.

1. Abbe, Cleveland, Jr.: "A General Report on the Physiography of Maryland." Md. Weather Service Report, Vol. 1. Baltimore, 1899. Pp. 74-114.

2. For detailed treatment of the terraces of Tidewater Maryland, see Clark, William Bullock, and Mathews, Edward B.: "Physiography of Maryland," in Md. Geol. Sur. "Report on the Physical Features of Maryland." Baltimore, 1906. Pp. 56-73.

[4] Conservation Commission of Md.: Report, sup. cit., pp. 137-144.

3. U. S. Geological Survey: Maps covering entire region, scale $\frac{1}{62500}$, as follows:

Eastern Shore: Elkton, Cecilton, Betterton, Barclay, Chestertown, Denton, St. Michaels, Hurlock, Oxford, Sharps Island, Nanticoke, Crapo, Salisbury, Pittsville, Ocean City, Green Run, Snow Hill, Princess Anne, Deal Island, Crisfield, Bloodsworth.

Western Shore: Havre de Grace, Gunpowder, North Point, Baltimore, Relay, Laurel, Annapolis, Owensville, Washington, Prince Frederick, Brandywine, La Plata, Drum Point, Leonardtown, Wicomico, Point Lookout, Piney Point.

4. County maps based upon the above, issued by Md. Geol. Sur. (Charles County omitted).

5. U. S. Geol. Survey: Maps, scale $\frac{1}{125000}$, as follows:

Dover, Del. (covers Cecilton and Barclay sheets mentioned above).

Choptank (covers St. Michaels, Annapolis, Oxford, and Sharps Island sheets).

Patuxent (covers Owensville, Washington, eastern part, Prince Frederick, and Brandywine sheets).

St. Mary's covers Crapo, Drum Point, Bloodsworth, and Point Lookout sheets).

Nomini (covers Leonardtown, Wicomico, and Piney Point sheets).

Tolchester (covers Betterton, Gunpowder, Chestertown, and North Point sheets).

6. U. S. Geol. Sur., Geologic Folios:

No. 13.	Fredericksburg, Va.,	1894
No. 23.	Nomini,	1896
No. 136.	St. Marys,	1906
No. 137.	Dover, Del.,	1906
No. 152.	Patuxent,	1907
No. 182.	Choptank,	1912
No. 204.	Tolchester,	1917

Soils.

1. Md. Geol. Sur.: "Report on Physical Features of Maryland," sup. cit., pp. 212-216.

2. Shreve, Forrest, and Chrysler, M.A., in Md. Weather Service, Vol. 3, "The Plant Life of Maryland," sup. cit., pp. 101-151.

3. U. S. Bureau of Soils: Soil Surveys as follows, covering nine out of thirteen entire counties included in Tidewater Maryland, and parts of two others:

Western Shore: St. Marys County, 1900; Calvert County, 1900; Hartford County, 1901; Prince Georges County, 1901; Anne Arundel County, 1909.

Eastern Shore: Cecil County, 1900; Kent County, 1900; Worcester County, 1903; Easton Area (Queen Anne, Talbot, and Caroline Counties), 1907.

These soil surveys include material on surface, climate and agriculture of the regions described.

4. Md. Geol. Sur.: Volumes describing the respective counties of Calvert (1907), Cecil (1902), St. Marys (1907), and Prince Georges (1911), in which the material on soils is republished from the U. S. Soil Surveys, topography is described at length, and the economic resources of the counties covered in general.

5. Whitney, Milton: "Truck Lands of the Atlantic Seaboard," in U. S. Ag. Yearbook, 1914, pp. 139-142.

2. Climate.

Tidewater Maryland lies far enough south to have the advantage of a long growing season. Two-thirds of the region lies below the latitude of Washington, stretching between sixty and seventy miles south of that line, while even the northern third enjoys the same situation as that of the extreme south of the New Jersey Coast Plain, famous for its trucking and general farming.

In the northern part of the Maryland Plain the average growing season for tender crops is about six months, and in the southern part about seven months, from early April to near the middle of November. This long growing season allows of a variety and a succession of crops. In the opening of spring the extreme southern portion leads the extreme northern by about

three weeks, but the closing of the growing season comes more nearly together in the two portions.[5]

The climatic mildness of the more southern part of the Plain is marked. It bears a flora which is distinctly apart from that of the North. The loblolly pine here reaches its northern limit,[6] the Southern cypress is abundant on the lower Eastern Shore, the fig ripens its fruit in open air, and the crepe myrtle unfolds its beautiful pink blossoms, which are so characteristic of Norfolk and Charleston streets in summer. About 1700 cotton was even raised in this section, and, mixed with the native wool, was manufactured into clothing.[7] The truckers of the southern counties of the Eastern Shore are able to get two crops of white potatoes a year, the early ones for market, the later for home use. They also raise great amounts of the tender sweet potato, which cannot endure frost. In the south of the Plain there are not usually found large barns and well-protected barnyards like those of the Maryland Piedmont. The winters on the whole are so mild and sunny that cattle are given no other shelter than that afforded by the lee of a shed or stack,[8] though they would do much better if proper barns were provided. Along the meadows of the Patuxent River there is almost constant grazing through the winter.[9] Plowing is quite common in December and January.

Much has been made, by certain writers, of the mitigating effect of the Bay upon both the winter and summer temperature of the Plain. In considering this point, we must note that the winds received by the Plain are usually from the northwest in winter and the southwest in summer, and that, therefore, East-

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[5] Walz, F. J.: "Meteorology and Climatology of Maryland," in Md. Weather Service Report. Balt., 1899; Vol. 1, p. 487. Also Fassig, Oliver L.: "The Period of Safe Plant Growth in Maryland and Delaware." Bull. Am. Geog. Soc. N. Y., Aug., 1914; p. 589; and McLeon, Forman T.: "Relation of Climate to Plant Growth in Maryland," U. S. Monthly Weather Review, Aug., 1914.

[6] Shreve, Forrest: "The Ecological Plant Geography of Maryland," in Md. Weather Service, Vol. 3, p. 105, sup. cit.

[7] Morriss, Margaret Shove: "Colonial Trade of Maryland, 1689-1715." John Hopkins University Studies, Series 32, No. 3, p. 70.

[8] Blodgett, Frederick H.: "The Agricultural Features of Maryland," in Md. Weather Bureau, Vol. 3, sup. cit., p. 307.

[9] U. S. Soil Survey, Calvert County, 1900; p. 167.

ern Shore receives much more of the Bay's influence, whatever it be, than does Southern Maryland.

Upon examination of the actual records of temperature it is found that the Bay's influence on Southern Maryland is slight, and as far as the prevailing westerly winds are concerned, is confined there to a few peninsulas. The western part of the Eastern Shore, however, is considerably affected. It is cooled in general by the Bay's influence, from January to August inclusive. Far from having an earlier spring on account of the Bay, as many accounts allege, its spring is made later by the presence of the water. During April, May and June the water of the Bay at most hours is colder than the surrounding air by an average of nearly six degrees.[10] Protection from early spring frosts, even along the water-front, is therefore not to be relied upon. Peach growers on the water-side have found that the rows of trees nearest the water are sometimes frosted at blossom-time while the rest of the orchard is spared. In the later spring, however, when the days grow warm, but the nights are still chilly, the presence of the Bay, absorbing the heat throughout the day and giving it out at night, does moderate night temperatures and prevent late frosts or even deleterious chilling of tender crops. Therefore the water-front opposite Annapolis, where not occupied by beautiful homes, is in great demand by truckers and orchardists.

In summer the cooling "sea-breezes" from the Bay are felt on both shores on many nights, and so many resorts are scattered along the Bay within easy reach of Baltimore that the ocean front of Maryland has but one such place (Ocean City) in forty miles. Autumn and early winter are decidedly warmer, however, on the Eastern Shore than elsewhere in Maryland, because of the Bay.[11] Thus the water influence on the whole is decidedly favorable to agriculture and to human comfort.

Rainfall is of good amount, being nearly 44 inches, about

[10] Fassig, Oliver L.: "The Climate of Baltimore," in Md. Weather Service Johns Hopkins University Studies, Series 32, No. 3, p. 70. Report, sup. cit., Vol. 2, p. 147.

[11] Walz, F. J.: "Meteorology and Climatology of Maryland," in Md. Weather Service Report, Balt., 1899; Vol. 1, p. 479. Also U. S. Weather Bureau, Bull. Q, "Climatology of U. S.," 1901, and Bull. U, 1912, Sec. 95.

the same as in Southern New Jersey, but less than in Tidewater Virginia. There is no essential difference in precipitation between the Eastern and the Western Shores, but on account of the proximity of large bodies of water, Tidewater Maryland as a whole does receive about five inches more of rainfall annually than does the Maryland Piedmont.

The distribution of rainfall throughout the year is remarkably uniform, though the greatest amount of rain falls during the growing season. On the average there are two days of every week when precipitation occurs. Drought, however, in summer often afflicts the crops, particularly the truck on sandy soils, and irrigation would be a desirable agricultural feature.

The climate of Tidewater Maryland not only favors general farming, but is especially advantageous to the trucker. The early maturity of crops enables the trucker to market his produce in even the Piedmont of his own State, where the season is somewhat later. Moreover, by reason of its southern situation, the Maryland Plain has a truck season of its own in the great northern markets within easy reach. It supplies these markets after the Norfolk truck on the south is done and before the New Jersey Plain on the north can come into competition. The trucker has truly found his paradise in the lower Eastern Shore, where the heat is not so great as to discourage labor, but where his advantage over his more northern brother is marked.

Population has already begun to increase fast in the distinctively trucking portion of Tidewater Maryland. The climate of the entire Maryland Plain is so generally favorable, however, that as it is not yet densely settled, it should offer a desirable home for farmers from more northern regions. With the development of transportation, all the climatic factors that favor agriculture and make life outdoors pleasant during a great part of the year must inevitably have their weight in drawing immigrants to the parts of the Plain which now, because of unskilful farming, too much dependence on tobacco, or poor means of transport, are losing instead of gaining.

NOTE.—The climatic features of various regions are discussed in the U. S. Soil Surveys and the county reports of the Md. Geol. Sur., referred to in the previous chapter.

III. INDUSTRIAL HISTORY.

As Tidewater Maryland was embayed, access by water to almost any portion of it was safe and easy, and it was one of the first regions in this country to be permanently settled, but the first colonists were satisfied to inhabit the extreme southern part of the province, immediately across the Potomac from Virginia, and separated by only a small peninsula from the main Bay.

The choice of the Western Shore rather than the Eastern was doubtless due to the uninviting aspect of the flat marshes on the right as the settlers sailed up the Bay in 1634. At St. Mary's in Southern Maryland the shores rose bold from the harbor, and the bordering low terrace offered a favorable site for building and cultivation. Once settled, the new Marylanders found not only surface but also climate and soil distinctly favorable to their enterprise.

With land both cheap and productive, the Marylanders could not help being agriculturists; yet in taking up their land they were careful to stick close to the water. The Bay shaped the life of the colony. By it supplies were brought from the mother country and the planter's produce taken away. Its many arms and inlets, while making intercourse by land difficult or tedious, offered smooth roads to sail and oar. Its waters supported vast beds of shellfish, innumerable shoals of fish, "millionous multitudes" of fowl, not to speak of crabs and terrapin, which were little regarded. No wonder that the planter stayed where both land and water could supply his needs.

The bold shores of the numerous indentations of the estuaries gave opportunity for each important planter to have his own wharf. The comparatively small ships of that early day could come to his very door, bringing European goods in return for his crops. Thus towns were not needed as centers of exchange; a town might serve as a place for the transaction of legal business or public affairs, but nothing more. St. Marys, the first capital, languished and died in spite of its excellent situation, for the Bay scattered commerce instead of causing it to concentrate.

Although the town was conspicuously absent in early Mary-

land, the planters were by no means isolated. Never was there a more social community. The Bay swarmed with small craft, which bore frequent visitors to every family. Hospitality was easy to practice with the Bay ready to yield its wonderful stores of food, easier to gain than the game of the forest or the grain of the field. Life under such circumstances was friendly and pleasant, and it is not surprising that the colony grew rapidly.

As the embayment of Tidewater Maryland made it easy for a fleet of English ships (numbering over one hundred in 1721) to visit the colony each summer,[12] and there was a market in Europe for tobacco, Maryland followed Virginia in making that product its money crop. So much tobacco was planted that the Assembly had to make special laws to force the production of grain, which was becoming neglected. Naturally there soon appeared an over-production of tobacco, but this did not cause much curtailment of its cultivation. Even the exhaustion of the once rich soil by this gross-feeding crop did not shake the fondness of the planter for it. Tobacco needed much hand labor, and thus fastened slavery upon the colony.

The mother part of the Plain, Southern Maryland, the part least affected by modern transportation, retains on this account its old preoccupation with tobacco, which does not demand swift carriage. It still has a strong tinge of Catholicism derived from its founder, mingled with Episcopalianism derived from Tidewater Virginia. This conservatism in religion is typical of conservatism in other respects. Much of its ancient aspect is retained. The mansions of the original tobacco-planting aristocracy remain, and the ox still hauls its tobacco to the steamboat wharf. The Civil War broke up the real or seeming prosperity of the great estates or manors with their slave labor, but did not destroy the conservatism of the region. Isolated from the northern cities by the organization of its land and water routes, carrying on all its commerce through Baltimore, it has remained Southern in its sentiment and in its mode of agricul-

[12] Gould, Clarence P.: "The Land System of Md." J. Hopkins Univ. Stud. 31: 1; Balt., 1913; p. 39.

ture, and may still be denominated a pre-eminently tobacco region.

The northern part of the Eastern Shore, easily reached from across the Bay, proved attractive to the tobacco planters of Southern Maryland on account of its heavy soil, which gave them additional scope for their favorite industry. The banks of the northern estuaries were high, moreover, and afforded almost as good wharfage for every water-side plantation as was found along the "rivers" of the oldest tobacco estates on the Western Shore. The region indented by the Bohemia, Sassafras and Chester Rivers, owned and inhabited largely by the landholders of Southern Maryland or their near relatives, became a copy of that section.

The heavy "Oronoco" tobacco produced in Maryland, a strong variety for pipe-smoking, lost favor in England, however, and had to be consumed mostly in France, where the trade was vested by royal monopoly in the French West India Company, which, unrestrained by competition, gave the Maryland planter a low price.

By 1720 dissatisfaction with the returns from tobacco-raising was at a high pitch. While, however, the planters of the Western Shore clung to their beloved weed as a sole money crop, those of the Eastern Shore tobacco district now developed in their richer and generally heavier soil the raising of much wheat, a typical heavy-land crop, as a second string to their bow. There was a nearby market for wheat in Philadelphia, where it was demanded by merchants in the West India trade, and whither it could be carried easily by a short combination land-and-water route.

When King George's War (1744-1748) broke out, the French tobacco market was closed, and only a small demand came to Maryland from England. Most of the Eastern Shore planters then fell back entirely on their profitable wheat crop, while on his sandier soil the Southern Maryland agriculturist struggled on with tobacco. By 1760 the Eastern Shore raised very little tobacco, and the Revolution finished the extinction of the crop by enhancing greatly the value of food-stuffs, particu-

larly wheat.[13] Since that day the four northernmost counties of the Eastern Shore, Cecil, Kent, Queen Anne and Talbot, have been known as the great wheat region of Tidewater Maryland. Today, though much of the Eastern Shore wheat goes to Baltimore instead of Philadelphia, the region where it is raised has a Northern aspect, with substantial farm buildings and effectively fenced fields, in strong contrast to the Southern aspect of the tobacco region.

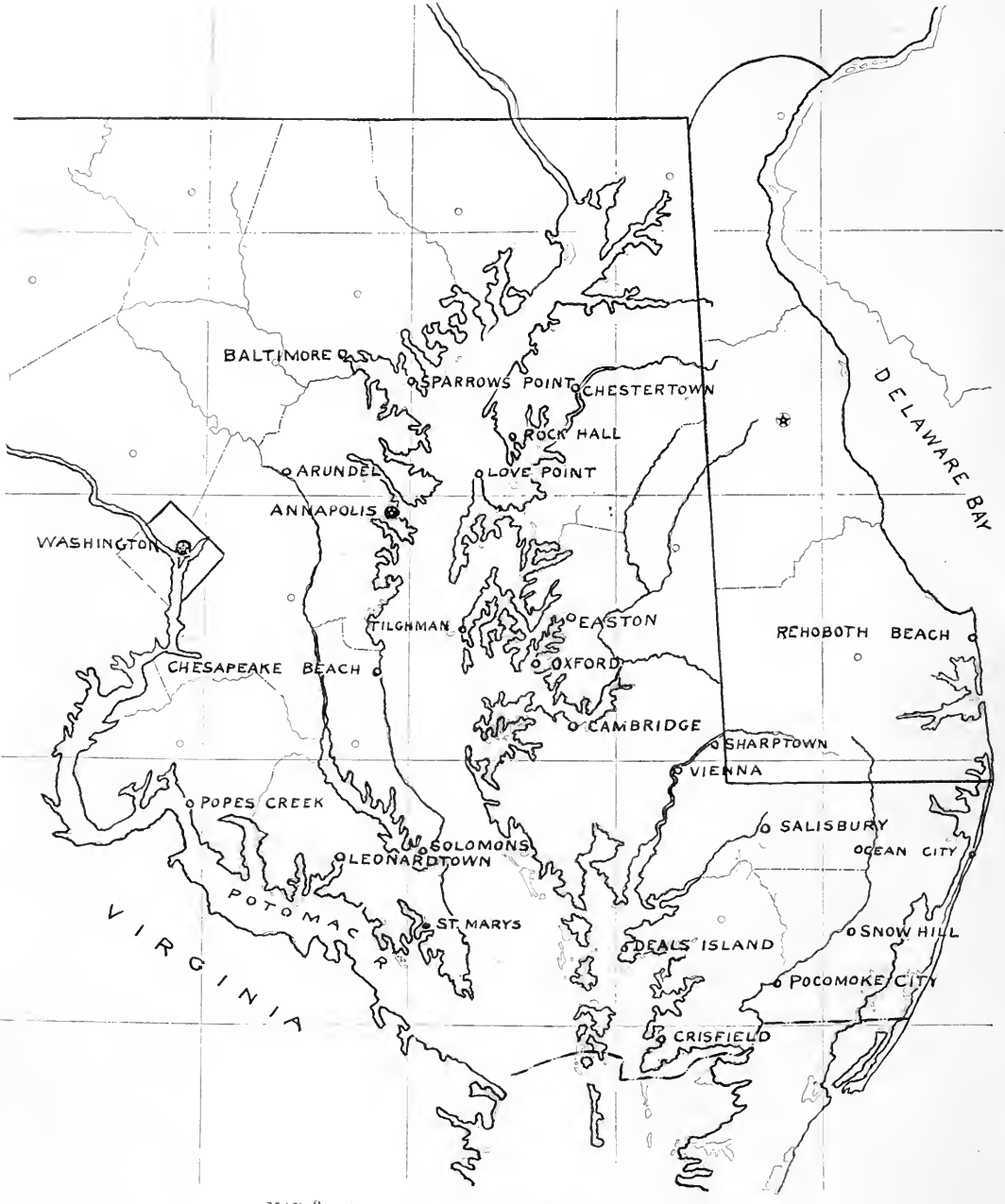
The southern part of the Eastern Shore, up to recent times, somewhat resembled in its life that of the "poor whites" of the South. The land, being for the most part either very sandy or swampy, lent itself neither to profitable raising of wheat nor to tobacco. Therefore, there was little cultivation on a large scale, and little slave labor in the fields. In the absence of modern transport and modern large markets there was not much that could be sent out of the region to bring in money, but a living was easy to make in that mild climate, for the Bay was at hand, with an abundance of fish and fowl. A net, a gun and a sailboat formed the chief dependence of most families.

Thus grew up a race of hardy and independent watermen, inured to temporary labor, but poor and non-progressive. It was a most democratic society, however, and the honesty and sturdiness of its people were proverbial. The men of this region developed special craft, such as the sailing canoe, built of hollowed logs, and the "canoe's big brother," the sharp-ended decked buckeye or bugeye, an exceptionally staunch and fleet freight vessel, which is still seen on the Chesapeake. The sailors of such craft furnished the crews of many of the privateers during the War of 1812 and of the Baltimore clippers of a later date. With the great demand of present-day industrial populations for food, and the wonderful improvement of transportation, this region has come into its own. Its fishing industries have greatly increased, but in addition the once apparently barren sands are supporting an immense truck industry, which is the principal

[13] The last tobacco warehouse on the Eastern Shore was abolished by court order in 1796, having for some time been disused. See Ingraham, Prentiss: "The Land of Legendary Lore," Easton, Md., 1898; p. 247.

source of the region's present prosperity. When reclamation brings into use the fertile but undrained land now lying in marsh and swamp, the progress of this portion of Maryland will be still more remarkable.

Thus we note that in Tidewater Maryland the great natural divisions have differentiated their industrial past and maintain those industrial differences to the present. The ancient tobacco district, the later wheat district, the modern truck district, all bear witness to the power of geographic controls.



MAP 2. COMMUNITIES OF TIDEWATER MARYLAND.

IV. POPULATION.[14]

On account of its early settlement and the easy access by water to its various portions, Tidewater Maryland assumed, before Colonial history was far advanced, a well-civilized aspect, with a white population absolutely English in blood and custom.

When the great railroad lines of the East were laid out, however, the main route from the North to the South avoided the crossing of the Bay which was usual in former days and took the route along or near the Fall Line. This route gave a short line with easy grade, crossing streams at the heads of their estuaries, and took in Baltimore and Washington as principal points, but left the Plain to one side of the course of travel. The rush of our own people to the West and the flood of foreign immigration into the United States left the Plain undisturbed in the comparative isolation which thus overtook it, so that its increase has been largely internal and its people have remained remarkably true to the type of the original settlers. Ninety-two per cent. of the 200,000 whites in 1910 were native-born of native parents, in most cases of old English stock. With these is associated a negro population half as large as the white, and both white and negro are mainly agricultural in their pursuits.

With over 50 per cent. of the land of Maryland, the Coast Plain now contains about 40 per cent. of the State's population outside of Baltimore and its suburbs—a density of 64 to the square mile. It is only half as thickly inhabited as the Maryland Piedmont, yet its population cannot be called sparse, there being only one county (Charles, in Southern Maryland) which is as low as 35 to the square mile, and even that density greatly surpasses many of the counties in Virginia's Coast Plain, and even in her Piedmont.

Regional Growth and Decay.

The Eastern Shore is more thickly settled than the Western Shore, and its people are well distributed. In the past the densest population of the whole Plain has been found in the

[14] The statistics of population in this chapter are from the Thirteenth U. S. Census (1910), Vol. 2.

wheat region, but that apparently well-to-do section, with its well-drained ground, good soil, large farms, neat buildings, and hedge-bordered, well-kept roads, has, during the past quarter century, since 1890, in spite of good crops, lost population both relatively to the rest of the Eastern Shore and absolutely.

In 1890 the wheat region, with 33 per cent. of the area of the Eastern Shore, contained 37½ per cent. of its population, in 1900 only 35½ per cent., in 1910 only 32 per cent. Its population from 1890 to 1900 increased 2 per cent., but in the next decade lost 7 per cent., so that there were 3000 less people in the region in 1910 than there had been twenty years before. Even its towns have shared to some extent in the decrease. Of its six communities with over 1000 citizens in 1900, three had decreased by 1910 with per cents. ranging from 4 to 13. It appears as though the old method of general farming, with its accompanying tenant-system, was not able to hold its population against the lure of the developing truck interest to the south and the attraction of the manufacturing districts toward the north. The decrease in population was accompanied by an actual decrease in land cultivated, though the wheat area was not reduced, the productiveness of the land was not noticeably impaired, and prices did not fall.

The sandy southern counties have found a blessing in raising truck for direct supply of city market and for canning factories. While the wheat region was increasing 2 per cent. in population from 1890 to 1900, the truck region was increasing 11 per cent., and in the succeeding decade it increased 8 per cent.

None of its six largest towns (those over 1000 each in 1900) failed to increase its population in the last census decade, the percentage of increase ranging from a negligible one in the case of Easton to 56 for Salisbury. Both Salisbury and Cambridge, the chief cities, are now over 6000, and Crisfield, known for its fishing industries, is over 3000. The general atmosphere of the region is that of progress, due to the profitable nature of the truck industry, the large amount of labor necessary, the activity of transportation, and the outside capital brought in.

The growth of the town at the expense of the farm has been

marked on the Eastern Shore, as well as elsewhere in the nation, as the following table will show.

Increase of Population.

Wheat Region,	1890-1900	1900-1910
All Territory,	2%	*7%
Incorporated Territory,	3%	6%
Truck Region,	1890-1900	1900-1910
All Territory,	11%	8%
Incorporated Territory,	49%	27%

*Decrease.

Southern Maryland, a region noted for its lack of good transportation, has been at a standstill for some time, except in the immediate neighborhood of Washington and along the line of the railroad from Washington to Baltimore. From 1880 to 1890 the region increased but one-fifth of 1 per cent.; from 1890 to 1900, under the influence of the expansion of cities throughout the United States, with a general rise in price of farm commodities, it gained 13 per cent. in population. This boom, however, brought no better transportation through most of the region, and the last census decade, therefore, showed slight decreases in two of the five counties composing the section, a marked decrease in a third, a practically stationary condition in a fourth, and in the fifth county (Prince Georges) bordering on the District of Columbia, a decided decrease in the half of the county farther from Washington to partially offset the large increase in the other half.

The people of Southern Maryland are even more rural than those of the Eastern Shore; 85 per cent. of them live upon farms, as against 75 per cent. on the other side of the bay. Except quaint Annapolis, and a few suburban communities along the Baltimore-Washington Railway, there are no towns of even 600 population. Annapolis, with a population of less than 9000, has practically ceased to grow, and the large truck industry in its neighborhood is not expanding. Elsewhere in Southern Maryland agriculture is depressed and land is being abandoned at a rapid rate. Unless unforeseen conditions arise to change the situation, it is probable that the present decline in population will continue.

Negro Population.

The county of Southern Maryland (Charles), which showed the greatest decrease of population, is the only one in the State in which the negroes outnumbered the whites in 1910. It is significant to note also that the only county in the same region which increased decidedly in population (Prince George) was the one which had the lowest percentage of negroes in Southern Maryland. The negro is the usual farm laborer throughout the entire Coast Plain, 71 per cent. of the negroes of the State outside of Baltimore residing there, but the labor is usually rather inefficient. Southern Maryland is the pre-eminent region of the State in the employment of negro labor, so keeping up the old traditions. Nearly 40 per cent. of the district's population is still negro, though with the diminution of population negroes have been diminishing also. They are now no more numerous than they were in 1890, and are therefore proportionally less numerous in each county.

On account of dissatisfaction with negro labor, many truck farmers on the Eastern Shore have been endeavoring to replace negro labor by white, and have procured Bohemians and Poles from Baltimore, as New Jersey farmers have hired Italians from Philadelphia. The labor thus obtained is efficient, can be gotten in proper quantity when needed, and discharged at the end of its usefulness. Perhaps the change from negro to white laborers may be a measure of the development of this portion of the country.

Every county in the Eastern Shore has less negroes in proportion to the whites than it had in 1900. Negroes have diminished absolutely in the entire wheat region, though on account of the call for labor they have increased their numbers in the truck region. The two counties in the truck region (Caroline and Wicomico) which have a low percentage of negroes, however, are the ones which most increased in population and prosperity during the decade 1900-1910.

Even in the parts of the Plain where by force of climate, products and tradition, the negro has been most utilized as a laborer, there seems to be no probabilities that he will increase

so as to deter Northern settlement or to present additional social problems. There are no more negroes now than there were in 1890, notwithstanding the easy conditions of life which the Plain affords. In 1890 there were 105,000, or 40 per cent. of the whole Plain's population; in 1910 there were still 105,000, but they formed only 35 per cent. of the people. While the whites had increased 21 per cent., the negroes had just held their own. There is a steady drift of colored young people toward the nearest large cities, where life is more varied than in rural communities. Evidently, there will exist in Maryland no "black belt," such as some other States possess, where the negroes form the most considerable element.

Foreign Born.

As we have previously noted, Tidewater Maryland, with its few and small towns and its isolation from the routes of travel from the seaboard toward the West, has escaped the rush of foreign immigration. Only 3.6 per cent. of the whites in 1900, and 3.4 per cent. in 1910, were foreign-born. The greatest proportion of foreigners today is found in Southern Maryland, in the truck district, which lies adjacent to Baltimore, a port of immigration; the least proportion is found in the truck region of the Eastern Shore, which lies farthest from Baltimore of the Plain's three great divisions.

Under usual conditions, the economic history of our country since immigration became immense, has shown that the increase of the foreigner in any given district is the sign of increasing industrial activity, his decrease the sign of the reverse condition. The foreigners of Southern Maryland are confined mostly to the truck district near Baltimore; they came there from Baltimore in considerable numbers during the expansion of the district after 1890. As that district is no longer expanding, the foreign-born are also absolutely at a standstill in numbers, and their proportion to the total population is diminishing. Their proportion is diminishing also, though not to the same extent, in the wheat region of the Eastern Shore, with its stationary industry and lessening population. Only in the truck region of the Eastern

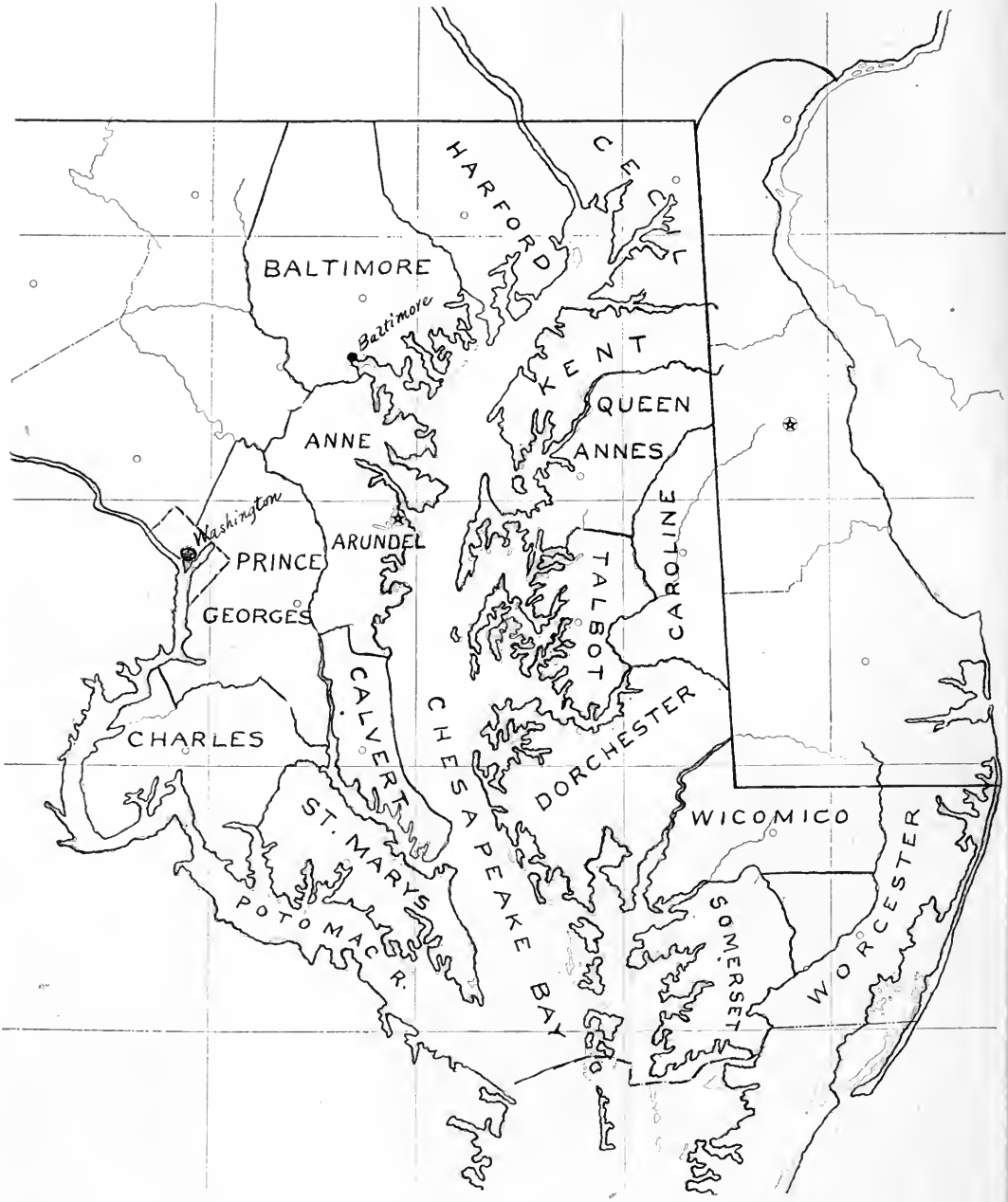
Shore is there an increase, both absolutely and relatively to population, in the number of foreigners, and that increase is slight, despite the agricultural boom since 1900. The foreigners, though they come from Baltimore by hundreds to supply the seasonal demand for workers in field and cannery, do not apparently care to remain so far from the city, and perhaps also are not welcome.

Per Cent. of Foreign-Born Whites in Total White Population.

	Southern Maryland.	Wheat Region Eastern Shore.	Truck Region Eastern Shore.
1900	7.6	1.9	1.2
1910	6.6	1.7	1.3

General Condition.

We see, therefore, that Tidewater Maryland on account of its situation and its agricultural development, is a region of increasing homogeneity of population. Both the negro and the foreigner are decreasing in their proportion of the population and are even at a practical standstill in numbers, though the total population of the Plain is increasing. These are the elements with which it is usually most difficult to deal in effecting social progress, and their gradual lessening as factors affords the Plain an easier solution of whatever problems it may have to face.



MAP 3. COUNTIES OF TIDEWATER MARYLAND.

V. PRESENT-DAY RESOURCES AND INDUSTRIES.

1. Agriculture.[15]

The broad division of Tidewater Maryland into the tobacco region, the wheat region and the truck region has already been noted. Although these are not sharply separated agriculturally, except as to tobacco, they present such differences that they can be separately discussed.

a. *Southern Maryland.*

Southern Maryland is the oldest agricultural district of the State, and its farming displays a marked conservative tendency. The keystone of its agriculture has always been tobacco.

The early settlers found in Southern Maryland the sandy loams, enriched by centuries of forest decay, which were exceedingly favorable to tobacco's growth. The Bay and its tributaries brought transportation facilities to their very doors, and in tobacco centered their life. Values were expressed in it; prosperity or failure depended upon its price abroad. It determined the labor of the colony. As tobacco needs much hand labor, slavery, being thought to ensure a cheap labor supply, fastened itself on the region. Tobacco, being a "gross feeder," exhausted the soil and caused the tobacco planters to hold large tracts of land instead of small farms. In short, all the economic phenomena which have been often portrayed in tobacco-raising Virginia, occurred also in tobacco-raising Maryland.

As Baltimore attained importance, the tobacco no longer went directly abroad from the planter's wharf, but was sent to a middleman in the city. Still, however, water transport was a great feature. The preservation of the quality of the tobacco depended much upon its being well packed in great hogsheads. These unwieldy objects, weighing about a thousand pounds each, could not to any advantage be transported overland, over sandy,

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[15] The agriculture of the various counties of Tidewater Maryland is discussed in the U. S. Soil Surveys and Md. Geol. Sur. County Reports, sup. cit.

muddy, or rough roads, but could be easily hauled, by one strong ox, down from the upland terrace where the weed was produced to the wharf whence sailing-vessel, or, later, steamboat, could take it to Baltimore. In Southern Maryland the wharf was never more than a few miles distant from the tobacco field, and the haul of the loaded hogshead was always down-hill.

When the railroad era came, Southern Maryland was neglected in facilities for rapid transport by land, but this deficiency did not directly affect tobacco transport. Tobacco did not need such rapid means of conveyance, for it did not deteriorate in transit,[16] and the steamboat could carry it more cheaply than could the train. The extension of tobacco-growing into new localities, however, and the competition made possible by the railroad did seriously affect Maryland prosperity.

Tidewater Maryland had no superiority, for tobacco-growing, over many another region. It possessed sandy loam, a favorable soil, but so did much of the whole Atlantic Coast Plain. It had a favorable climate, which admitted of a long growing season, but so had other States, for instance, North Carolina, which is now the second tobacco State of the Union. By virtue of her early start, however, and by the export which the presence of the Bay favored exceedingly, the tobacco region of Maryland had developed, long before the time when the railroads opened the Union to strong competition, a special trade with France and Holland in a special type of tobacco different from that of Virginia,—a coarse leaf of light color, known as the Maryland pipe tobacco. This trade still continues and is the sole support of tobacco-raising in Southern Maryland at present. Only one other section of the country, a small portion of Ohio, competes with Tidewater Maryland in this kind of tobacco.

Though tobacco has been raised on the Eastern Shore, it has faded out there entirely. A trifle is produced in the Piedmont, but Southern Maryland still grows almost all of the State's crop. In 1899 this district contained 97.7 per cent. of the State's

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[16] Blodgett, F. H.: "The Agricultural Features of Maryland," in Md. Weather Bureau, Vol. 3, sup. cit., p. 338.

tobacco acreage; in 1909, 96.5 per cent, or about 40,000 acres in good years. Over most of Southern Maryland tobacco is still the main money-crop. The usual farm rotation is corn, wheat and tobacco. In localities where grass will grow, the corn is usually planted in sod land, but over much of the district, on account of the sandy soil, sod will not form well, and grass does not enter into the rotation, corn stover being used for forage. Clover, which might be used for pasture or for hay, is little raised.

Although tobacco demands an excessive amount of hand labor per acre as compared with the cereals, nearly as large an acreage of tobacco as of wheat is planted. Wheat, indeed, has ceased to be an important crop in most districts. The heavy soils which would produce wheat well are unfit for the kind of tobacco desired and therefore are kept for pasture. The light loams used for tobacco are not sufficiently retentive of moisture to make a good wheat crop as far as grain is concerned. The yields of wheat therefore are low, about ten bushels to the acre, and in many localities wheat is produced chiefly for its straw.

The tobacco is still transported from Southern Maryland entirely by water, and Baltimore is still the exclusive market. Oxen usually are employed instead of horses to cart the great hogsheads to the steamboat landings. The ox is a more economical animal than the horse, as he is fed almost exclusively on forage crops, not grain, but this slow mode of transportation, abandoned in most other portions of the country, is typical of the rate of progress of the tobacco region.

The condition of the tobacco area is in general far from prosperous at present. The region was once a land of large plantations tilled by slave labor, in these respects resembling the cotton regions of the South. The Civil War produced at once a scarcity of labor and an enhancement of its price. Because of this difficulty, most of the plantations were divided into tenant holdings, and much land went entirely out of use. Corn and wheat suffered more and more competition from the great grain-fields of the West and tobacco became more and more expensive to raise.

The region has never recovered from the shock. Tenant

farming is still the rule, and landlord and tenant do not usually co-operate to fertilize the ground as heavily as good tobacco, with its insatiate appetite for lime and potash, requires. So much land has been impoverished by careless farming and the tilling of steep slopes that the cultivated area is diminishing. Population in general is decreasing. An air of discouragement pervades the district. Like the cotton-planter farther South, moreover, the Maryland tobacco-planter is usually in debt, his creditor being the middleman or "factor" in Baltimore, who is money-lender as well as commission-man, and finances the farmer by advances on the crop. It it, therefore, difficult for the planters to abandon tobacco-raising and rid themselves of their dependence on the "factor"; the vicious circle is hard to break.

We have therefore a crop which since the Civil War has occupied only 2 to 4 per cent. of the region and yet dominates the thought and practice of the greater part of the tillers of the soil,—an unfortunate domination at present.[17] Yet there are signs of a more diversified and more successful agriculture in the future.

The conditions of soil and climate resemble to a considerable degree those in the truck region of the Eastern Shore. The area immediately south of Baltimore, extending to Annapolis, is indeed the most important single truck region in the whole State. No other similar extent of land in Maryland equals it in variety as well as in amount of products. In its strawberries, which form the chief supply of the Pittsburgh market, its sweet potatoes, its peas, its canteloupes and its watermelons, it is pre-eminent. The Bay and tributaries give it great facilities for transport by water as well as by land. Even though many canneries, however, have been established in this truck region, the total acreage of truck and berries is not extending. It is probable that in many cases the limit of profitable wagon-haul has not been reached, but competition on the part of the Eastern Shore, and limitation of the supply of stable-manure from Baltimore, may be responsible for the stationary condition.

[17] The unprecedented conditions of the Great War have now (1918) caused a temporary prosperity in the tobacco region.

The trucking area which has developed in Southern Maryland tributary to Washington, on the other hand, has increased considerably. The competition of the Eastern Shore is not felt in the Washington markets, and the city increased its population, and therefore its value as a market, by over 50,000 persons during 1900-1910. This truck area is showing a marked tendency to avoid interfering with the area near Baltimore in regard to those crops which are marketed outside their respective localities. For instance, it is specializing in early white potatoes, while tending to leave to the other area the cultivation of sweet potatoes as a truck crop. This is a wise procedure.

Canneries, with their stimulating effect upon production of vegetables and fruit, have not yet developed to any considerable extent in the southern part of the Western Shore. Through much of this southern district there is little local market for truck, as most families are agricultural and raise their own vegetables. Transportation by land to larger markets is poor, and that by water is slow also. It is certain, however, that some day canneries will be thick upon the Western Shore, and will probably be the financial salvation of the region. Tomatoes, which fit well into a tobacco rotation, could be raised in great quantities to furnish an additional money crop.

Dairying, even in the least developed part of Southern Maryland, is increasing, though slowly, and will tend to restore the worn-out soils. Clover is being used for the same purpose, although alfalfa is not yet established to any extent. In the northern part of the region potatoes are to some extent replacing tobacco, for the two crops need the same kind of soil. Tobacco may still remain dominant in the region, but its pre-eminence over other crops is certain in the near future to be greatly impaired. Southern Maryland is coming to realize that one-crop reliance has been her bane.

b. *The Eastern Shore Wheat Region.*

The distinctively wheat region of the northern part of the Eastern Shore (part of Cecil County and all of Kent, Queen Anne and Talbot) raises wheat as a part of general farming, the

typical agriculture of the section. In its farming the region resembles the Maryland Piedmont. The typical Piedmont rotation is used—corn, wheat, grass, wheat and grass for a five-field system.

Wheat, as it has been for a century and a half, is still the chief money crop. The fairly heavy land (Sassafras loam) which abounds on the upland gives high yields under proper treatment; in spite of Western competition, therefore, wheat has been profitable, and the area has increased up to recent years. Much more land is sown every year to wheat than to corn. In 1909 these counties, with only 10 per cent. of the State's area, contained 24 per cent. of Maryland's wheat acreage, but only 13 per cent. of its corn land.

The short and cheap water transport to Baltimore which the Bay affords has controlled the movement of the wheat crop, so that this district resembles the tobacco district in having its great money crop moved practically entirely by water and to the same primary market as the tobacco. The wharf is more convenient to the great majority of the wheat farms than is the railroad station, and sailing vessels compete with the steamboat service for carrying the wheat, thus keeping down the freight rate. The wheat district has materially aided in making Baltimore the great grain and flour market which it now is.

Dependence on wheat as the sole money crop has had occasional disastrous results in this district when the favorite crop chanced to fail, and wise farmers are now introducing canning crops of vegetables, particularly tomatoes. Tomatoes fit well into the usual rotation, and have been rapidly growing in favor, being esteemed to leave the soil in excellent condition for wheat. Since the introduction of canning crops it is not likely that wheat will ever again be so dominant in the district as it has been. While in 1899 almost 60 per cent. of the cultivated land in the northern Eastern Shore was in wheat, ten years later wheat covered only 32 per cent.

Though grass flourishes on the heavier soils of the wheat district, there are few, if any, exclusively dairy farms. Labor is not very skilled along this line, and the Southern blood in the

farmers does not relish the close confinement to duty which a large dairy farm often entails. Wheat and tomatoes have been far more popular than milch cows, though on many farms there has been dairying in a small way as a side line.

Fruit-raising has been much more attractive than dairying. In this section, extending into Delaware, once was located the first great centralized peach district of the United States, which reached its height of production about 1875. The peach seems to bear most abundantly in a sandy, well-drained soil, and the immense contiguous orchards were found by Bayard Taylor worthy of his pen. The Bay was an important controlling factor. Its water retained the chill of winter long enough to hold back the too early opening of the buds in spring, and as that season advanced, the Bay protected the trees against late frosts by raising the night temperatures.

The massed trees, however, received little care, and at last the "yellows" and kindred diseases swept through them with devastation effect. Peach-raising was almost abandoned for a time. Recent experiments on a large commercial scale have proved, however, that with proper cultivation and spraying, peaches can still be raised well and profitably on the Eastern Shore, and several orchard companies have made considerable plantings since 1910. The entire Eastern Shore at that time held almost half of the peach trees of Maryland, the true peach area, however, being confined to its old site in the wheat region and its neighborhood, where three medium-sized counties (Caroline, Kent and Queen Anne), with an area of one-tenth of the land of the State, contained one-third of the State's peach trees, and outclassed even the counties in which the Blue Ridge peach belt of Maryland lies.

The peaches of this region are popular in northern markets, but the danger of glutting the market for fresh fruit is ever present. The peach decays with such rapidity that in some years a large percentage of the crop rots under the trees or is thrown away in the market to which it is sent. At present much of the product goes by water to Baltimore to be canned, but, for the best utilization of the crop, canning factories for the fruit should

be located at the point of production. If this is adequately carried out, there is no apparent reason why peaches should not be an important and permanent resource.

While the peach was in temporary eclipse, the Kieffer pear came into prominence on its old ground. This pear has been called "the most successful pear grown." [18] It is a wonderful producer, and its hard flesh, while almost disqualifying it for use in a raw state, renders it ideal for canning purposes. In the wheat region, pear and peach trees are almost equal in number, though the advantage of production is with the pears. Sixty per cent. of the pear-trees are contained in one small county (Kent), which also stands first in peach-trees. Here canneries are becoming abundant, though much of the fruit still goes to Baltimore. There is every reason why both pears and peaches should be raised in this excellent fruit district of the whole northern Eastern Shore.

c. *The Eastern Shore Truck Region.*

The southern region of the Eastern Shore was once the poorest and most backward section of Tidewater Maryland—now it is the richest and most progressive. Tobacco as king has brought financial disaster to Southern Maryland; wheat as king has begun to decline in the northern Eastern Shore; but the region where trucking reigns is at its heyday.

Here are all the features which make the trucker happy—large areas of light land, a long growing season, a fair amount of moisture and plenty of sunshine, proximity to large markets and good transportation thither. From 1899 to 1909 each of the Eastern Shore counties south of the wheat region increased its already large vegetable acreage (excluding Irish and sweet potatoes) by percentages ranging from 11 to 82 per cent. The per-cent. of increase for the whole district was 50, as against 28 for the wheat region and 7 for Southern Maryland. Early vegetables, berries, canteloupes, watermelons and sweet potatoes grow

[18] U. S. Bureau of Soils, Field Operations, 1907; Soil Survey, Easton Area, Md.; p. 12.

to perfection and keep the trucker employed throughout the whole growing season.

While its sandy soil gives this region an advantage in earliness of crops over the trucking districts lying inland from Tidewater Maryland in the same latitude, these as a rule having heavier soil, advantage of position toward the south enables Eastern Shore truck to enter the Northern markets before that of the New Jersey Coast Plain, whose soil is of similarly light character. For the early products of the region the railroad furnishes adequate and fairly swift transport northward, with refrigerator cars when needed, and cheap water carriage to Baltimore takes care of about as much freight as does the railroad.[19]

The Bay gives to the produce of the late spring and early autumn a security which more inland regions cannot have, and through the summer tends to modify the drought which might otherwise afflict. A heavy dew at night is often as refreshing to plants as is a light rain through the day, and the atmosphere of the truck region, which is flanked on both sides by water, is decidedly humid.

For the abundant products of the later season the Eastern Shore trucker has at hand the outlet afforded by hundreds of canneries, both large and small. Nowhere else in the world do canneries more abound, and they pack a large variety of goods, from spinach to sweet potatoes. They aid materially to prevent gluts in the market, and supplement at a fair price the higher rate of income which comes from supplying private customers. Most of them are able to ship their product by either land or water with facility.

The presence of the canneries also enables holders of rather heavier land to raise certain truck crops, as tomatoes, and find a profitable market for them. The heavy soils produce a larger crop, though a later one, than do the sandy lands; but, were it not for the canneries, this late and perishable crop would be

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[19] Bonsteel, Jay A.: "Truck Soils of the Atlantic Coast Region," in Yearbook U. S. Dept. of Ag., 1912; p. 431.

subject to such severe competition in overstocked markets as to cause its discontinuance as a commercial factor. The cannery has thus caused Talbot County, the most southern county of the wheat region, to become important in truck-raising also, so that from 1899 to 1909, while its large wheat acreage decreased 5 per cent., its truck increased 50 per cent.

The chief spring vegetables of the Eastern Shore are asparagus, peas and early potatoes. The strawberry is an important accompaniment of these, and is also largely used by the canneries. Not only did it occupy about 90 per cent. of the acreage of small fruits in 1909, but it moreover is rapidly driving out other berries. The refrigerator car has made possible a great increase in strawberry production, and strawberries compose most of the refrigerated product that goes northward from the Maryland Plain. Tomatoes and sweet corn, however, form the bulk of the canning crop, tomatoes being by far the more important. The Eastern Shore cans about half the tomatoes for the whole United States. The early crop of potatoes is often followed by a second crop, which is used only for home and local needs, for though potatoes yield excellently in the sandy loams, they would glut the markets if sent North late in the season. The sweet potato, which requires even lighter and sandier soil than the Irish potato, finds a congenial habitat in the southern part of the Shore, where, moreover, the winters are comparatively mild.

Dairying, which is such an important complement of general farming, was considered until recently as incapable of existing on the light soils of the truck region. On many fields grass could not be grown on account of insufficient moisture, and the fodder of animals was therefore derived from corn. The silo, giving green food throughout the winter, was unknown; so were also the forage legumes. Now the growth of population in the truck region, coupled with an increase in agricultural knowledge, has led to an important extension of dairying from the wheat region toward the south. Instead of the time-honored clover and timothy of the Piedmont, pasturage and hay for the cattle are supplied by various other forage crops and by corn silage. The sweet-corn raised for canneries could have its for-

age, which is now often wasted, utilized by silos on the farm or at the canneries. The extension of dairying means much to the fertility of the Southern Shore, and this extension, though well marked, is yet in its infancy. It will enable that region to support a far greater population than now it holds.

2. Fishing.

The Coast Plain possesses in its fisheries an actual and potential source of great wealth. Minerals, once removed, will not be replaced, but the crop of the waters, by proper regulation, can be renewed continually. The forty-mile stretch of Atlantic coast, with the great lagoon behind it, has possibilities for a considerable development of both deep-water and shallow-water fisheries, but is insignificant beside the 1,500,000 acres of water extent (2300 square miles) owned by Maryland in Chesapeake Bay and its upper tributaries. Oysters, crabs, and many kinds of food-fish abound in these waters and aid materially in supporting many persons who are not even classed as fishermen. It is the common saying along the Bay: "Give a man a little grease and flour and he can live free for half the year."

First in value of Maryland's fishery products is the oyster. In 1916 oystering employed about 25,000 fishermen. Nearly 800 vessels, averaging ten tons each, were engaged in the fishery, beside over 1300 gasoline boats and a swarm of other small craft. The 5,250,000 bushels of oysters obtained brought to the fishermen over two million dollars—a product and value slightly inferior to that of Virginia, which has richer beds. The Maryland fishermen produced in the year named about one-third of all the oysters gathered in the United States,[20] and the oyster industry stands next in importance to farming as a primary industry of Maryland.

Chesapeake Bay is the greatest oyster producing body of water in the world.[21] It is brackish enough to allow oysters to

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[20] Md. State Bd. of Labor and Statistics, 25th Am. Rept. Balt., 1916; p. 40.

[21] Smith, Hugh M. (U. S. Fish Commissioner): National Geog. Mag., June, 1916; p. 555.

grow as far north as Baltimore. Its tributaries bring down from the land much vegetable matter, which acts as a culture-medium for the microscopic forms of animal life on which the oyster feeds. The large and indented coast-line gives a variety of currents, some rapid and constant, which make a bare and hard bottom where the young oysters may cling without danger of being smothered by sand or mud; some slow, so that the maturing oyster may make the most of the food in the water and grow large and fat. Thus are met the diverse conditions required on the one hand by seed oysters, and on the other by marketable oysters. The cycle of production is complete, and the conditions for the continuance of the industry are naturally provided.

The entire oyster area of the Maryland Bay has been surveyed, and its condition is fairly well known and mapped. Two hundred thousand acres at present, about one-seventh of the upper Bay, are producing or have produced oysters in good quantity. Half again as much can by planting be converted into valuable oyster grounds, giving a total area nearly half as large as Rhode Island.[22] The southern half of the Atlantic lagoon (Sinepuxent Bay), was also a fertile oyster field until its inlet from the ocean was closed by drifting sand.

The Bay has always swarmed with excellent food-fish which could be readily caught by the boat-load. On account of the variation in salinity from the middle of the Bay toward its head, there is opportunity for many different varieties to find the kind of water which they like best; but the shad and herring attract most notice because in spring they press up the rivers to spawn in fresh water and therefore are caught with exceptional ease. Moreover, being seasonal fish, the catch of them can be measured with more exactness than is possible in the case of other fish. The Bay ranks above every other United States locality in the catch of these migrants.

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[22] Shellfish Commission of Md.: Fourth Report, 1912, pp. 25-31. Also Md. Bureau of Statistics and Information: Twenty-first Annual Report, Balt., 1912; pp. 96-109. The (New) Conservation Commission of Maryland, in First Ann. Rept., Balt., 1916 (p. 6), estimates, however, that there are 600,000 acres of oyster bottoms in Maryland, "fully half of which produce oysters naturally in paying quantities."

The shad ranks as one of our most delicious fish. Shad formerly reached the head of the Bay in large numbers and ascended the Susquehanna for a long distance, but in recent years the great catch farther down the Bay has sadly reduced the fishery of the Susquehanna, as it has done in the other tributaries. The industry is now important only in the open Bay and the lower courses of the larger streams. Formerly the upper reaches of every little tributary were visited by many fish.[23]

The spawning season of the river herring is somewhat earlier and shorter than that of the shad. The herring appear in enormous numbers, and the large catch, coupled with the short season, makes the price low. This is a food supply which is mostly disregarded. In its fresh condition the herring is too bony to be very desirable, but when pickled, the bones are so softened as to make the fish excellent eating. In recent years this mode of preparation has been adopted to a considerable extent, but many fish go to waste. It is probable that canneries could make good use of this abundant food.

The crab fishery has developed into a seasonal supplement to the oyster industry, being carried on largely by the same fishermen, but in the warmer months of the year (April-October), when the oyster is spawning and demand for it falls off on account of its deterioration in quality. Crabs are found farther up toward the head of the Bay than are oysters, but abound most in the southern waters of the Eastern Shore, where shallow grassy areas bordering the great marshes furnish excellent conditions for their food and shelter. The voracious hard crabs are easily caught by baited lines; the soft crabs, which hide during the shedding period in sand or grass and take no food, are captured by hand scoop-nets or by scrapers operated from sailboats. The Chesapeake now has the principal fishery of our country.

Cambridge and Oxford, in this region, are the chief points of supply for hard crabs, these being shipped alive from Cam-

[23] Md. State Board of Labor and Statistics: Twenty-fifth Annual Report, Balt., 1916; p. 41. Also U. S. Commissioner of Fisheries: Annual Report, 1915; p. 21.

bridge to various cities, while the meat of most of those taken at Oxford is canned. Crisfield and Deal's Island, near the Virginia line, adjacent to the largest marshes, supply most of the soft crabs, Crisfield being the largest crab-shipping point in the world.[24] In order to furnish a regular supply, "shedding-pens" are now built in the grassy waters, and hard crabs are kept there until they throw off their old shells.

The possibilities for extension of the industry are great, as the demand in city markets is growing, but the supply of crabs, which a few years ago seemed unlimited, is becoming somewhat depleted in the most frequented fishing grounds.

The oyster fishery of Maryland has passed through the same stage of wasteful exploitation that has characterized the development of most of our natural resources. Its high-water mark was reached in 1884, when 15,000,000 bushels were taken. This was excessive and could not be maintained. By overworking the beds, in the total absence of any regulation, the industry gradually declined until in 1904 the catch was only 4,500,000 bushels.

The State authorities saw the imperative need of conservation measures. In 1906 a Shellfish Commission was created, and in the next six years surveyed the entire field. In 1912 existing laws were so modified as to greatly encourage oyster planting upon bottoms leased from the State. These measures have come none too soon in saving this valuable industry. Fortunately it can be saved, and under proper regulation a permanent supply more than double Maryland's present yield seems possible in the near future.[25]

The abundant food to be obtained from the waters of the Bay has supported and still supports a large population. Nowhere in the world, probably, does the fisherman live under better conditions. There is a variety of products. The same boat can be used from October to April for oystering, from May to Sep-

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[24] (New) Conservation Commission of Md.: First Ann. Rept., sup. cit., p. 21.

[25] (New) Conservation Commission of Md.: First Ann. Rept., sup. cit., p. 15.

tember for crabbing, and at any odd time for fishing. For the most part, the fisherman dwells on the mainland, where fruit and vegetables can be raised on his own plot of ground, but even though he should have no field or garden, agricultural produce is abundant and cheap. Fishing has enabled many spots, which otherwise would have been deserted, to support a good population. The produce of fishing, either in money or food, is often supplemented by hunting the wild-fowl which in their spring and fall migrations seek the marshes, or by trapping the muskrats which abound.

The Maryland fisherman's life therefore is not one of grinding poverty. An industrious man need have few fears of being unable to support his family in comfort from these practically free gifts of Nature. It is a healthy and independent existence, with a nourishing, varied and abundant diet—a life tending to develop sturdiness and self-reliance. The waters of the Bay, moreover, are so protected that there is comparatively little danger to life in the daily fishing toil.

The greatest danger to the prosperity of the fishermen comes from the wasteful exploitation of the products of the Maryland waters and their consequent exhaustion. This is a grave danger indeed. We have seen its possibility in the case of the oyster. At present so few shad escape the hedges of nets, hundreds of feet long, that herd them into "pounds," that the spawning-grounds are almost deserted.[26] Were it not for the distribution of fry by the United States Fish Commission, shad would have been almost exterminated by the prevention of spawning. As it is, in 1913, the catch of shad in the Chesapeake Basin was the poorest in many years, and the United States Fish Commissioner stated: "The shad in the Chesapeake Basin is doomed unless the States take radical action to insure the survival of at least a small percentage of the run of spawning fish."[27] The statement may be taken to apply also to herring.

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[26] (New) Conservation Commission of Md.: First Ann. Rept., sup. cit., p. 47.

[27] U. S. Fish Commissioner's Report for 1913.

3. Forest Industries.

Almost all of the Coast Plain was once densely wooded. The descriptions of early Maryland are full of references to the shaggy forests, both lowland and upland. These at the time of the first settlement were largely of deciduous growth, but where sandy soil has been cleared and abandoned, it has been reforested by seedlings from the pine trees originally mixed with the prevailing deciduous forest.

At present the wheat section of the Eastern Shore has been almost cleared of forest, but so much woodland remains in the southern part of the Eastern Shore and all through Southern Maryland that the Coast Plain as a whole has 40 per cent. of its area wooded and far exceeds the Piedmont in this respect.[28] Southern Maryland is the higher section in amount of timbered land because, since the Civil War, much one-time farmland has grown up to pine,[29] and because protecting forest is needed in this rolling region to guard against slope erosion. The lower part of the Eastern Shore, however, is the chief lumber region of the Plain.

The sandy portions now have as their chief tree the loblolly or "bull pine," considered by the State Forester to be "without doubt the most important timber tree of the State."[30] It grows quickly, attaining a large size if allowed to do so, and because the wood is strong, though coarse, the demand for it is great. More of it was cut in Maryland in 1913 than of any other wood, the total quantity of it being 65,000,000 board feet. The larger sticks are almost all shipped by rail to the Pennsylvania anthracite region to furnish mine timber.

In the swamp occur two other coniferous trees of commercial importance. The bald cypress prevails in the extreme south, along the Pocomoke River and its tributaries, though the best of it has been cut. The white cedar grows principally a little

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[28] Md. Geol. Sur.: Report on the Physical Geography of Maryland, sup. cit., p. 250.

[29] Chrysler, M. A.: "Ecological Plant Geography of Maryland, Western Shore District," in Md. Weather Bureau, sup. cit., Vol. 3, p. 166.

farther north, near the Delaware line. Near the swamps, but on firmer ground, flourishes the red gum, which is a large tree, the chief source of veneer to make berry-boxes, baskets and crates for the needs of the great truck industry. Pocomoke City and Salisbury have gained much of their importance from this manufacture.

On the higher clay lands, not swampy, but full of moisture, the white oak once formed dense forests of large extent, and furnished the best material for ship construction in the United States before iron hulls came into use. As early as 1762, vessels of sixty tons were being built at Pocomoke City.[31] Until the forests near the town were exhausted, the chief industry of Cambridge was shipbuilding, and Vienna on the Nanticoke River was also famous.[32] These towns still retain their shipyards, though activity has decreased and is now limited to construction and repair of small craft. Staves for the West India flour barrels and the tobacco hogsheads were once produced in this district in large amount, and the white oak bark was tanning material for a considerable leather industry,[33] which has disappeared, because almost all of the oak has been used.

Since the more valuable deciduous trees of Southern Maryland have largely been culled out, the forest which remains is inferior in quality to that already described. In the few swamps which exist on the Western Shore, there is no white cedar and very little cypress, though red gum is abundant. White oak has mostly disappeared, as it has on the Eastern Shore. Loblolly pine is confined to a limited area in the extreme south, a fact which probably can be explained only by a slightly more severe climate on the western side of the Bay than on the eastern.[34]

The sandy portions of Southern Maryland are occupied

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[30] Md. Weather Bureau, Vol. 3, sup. cit., p. 367 (1910).

[31] Jones, Elias: "History of Dorchester Co.," pp. 73 and 88 (1902).

[32] Maryland Hist. Mag. 3; 20 (1908).

[33] Gambrill, J. Montgomery: "Leading Events of Md. Hist." (1904), p. 241; and Ingraham, Prentiss: "Land of Legendary Lore," sup. cit., p. 232.

[34] Dr. Roland M. Harper has noted a close correspondence in the Southern States between the distribution of the loblolly pine and the profitable cultivation of cotton. See Maryland Weather Bureau: sup. cit., p. 298.

mainly by scrub pine, which is inferior in size and value to the loblolly pine and which links this region botanically to the New Jersey Coast Plain as the loblolly does to the Virginia Plain.

Timber cutting is still actively proceeding on both shores of the Bay. The production is much reduced from that of ten years ago, even though inferior woods are being used. Red gum is cut in increasing quantity, and scrub pine, once despised, is eagerly sought in Southern Maryland as pulpwood. Some of the scrub pine is used as piling, for which the large extent of water front being improved causes a great demand, but most of the piling is of oak. There are still some tracts of valuable timber in Southern Maryland which are not near water transportation and are so far from the railroad that the cost of hauling by animals has been prohibitive; but with the advent of the motor truck these tracts will soon disappear. There is much cheap land yet in the Plain, particularly in Southern Maryland, which perhaps cannot at present profitably compete in agriculture with other land but which under careful management could be reforested or could have its existing forest conserved, and would ultimately pay a good interest on the investment.

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4. Mineral Industries.

Because of the marine origin and geologically recent date of the Coast Plain deposits, the mineral resources are not varied. Nature's magic heat and earth-movements have not been present to transmute and combine, and only the commonest and least valuable mineral substances, from which little profit is derived, are found.

Clays and sands occur almost everywhere. The clays are best exposed in the erosion-trenched region of Southern Maryland, and are most used in the vicinity of Baltimore. Almost every variety can be found, suitable for every purpose. They furnish a considerable part of the material for Baltimore's brick-works and potteries. The clay-using industries of the city, however, are not increasing their product, there is little call for clays elsewhere in the Plain, so the market is at present limited. The sands are of only local use and are so abundant as to be but little prized. The iron-bearing sands and gravels, however, by their cementing power, are valuable for road-metal.

Two belts of marl occur in the Plain, extending parallel to each other in the general direction of the Fall Line. The southern one stretches from the southern part of the wheat region of the Eastern Shore (Queen Anne and Talbot Counties) through the southern part of the Western Shore (Calvert and St. Mary Counties). It is a shell marl and not very valuable except for its high lime content; therefore it has not been used to any large extent even upon the farms where it occurs.

The other marl belt, a few miles to the north of that just described, is far greater in its potential fertility. Its marl is a "greensand," which contains a high proportion (2½ per cent. maximum) of potash, and some phosphoric acid and lime. Because this marl lies near the surface, at an average depth of about three feet, it has given rise to a special type of soil, the Collington, which is fairly fertile. These marls resemble in many respects the famous marls of New Jersey, which have been extensively utilized as fertilizing material in the Coast Plain of that State.

As a fertilizer, however, the Maryland greensand marls are considerably inferior to those of New Jersey, which have a high content of phosphoric acid and soluble lime in addition to their potash. The New Jersey marls probably contain fifty times as much phosphoric acid as do the Maryland marls, yet even the marl of New Jersey has almost gone out of use through the competition of commercial fertilizers. It is extremely doubtful, therefore, whether the Maryland greensand marls can have any important future as a commercial product. They are chiefly valuable in an economic sense because upon the Collington soils derived from them a fertilizer with low potash content can be profitably used; but where cost of labor and transportation is very low, these marls may be used locally to change the texture of heavy soils by adding a sandy component which gives some increase of fertility.[35]

Tripoli, or diatomaceous earth, composed of the limy skeletons of innumerable microscopic animals, is mined at one spot on the Patuxent River, where water transport is available, and is also found along the Potomac. It is used in water filters, for polishing powder, as the absorbent material for dynamite, and as a non-conducting packing similar to asbestos The product however is worth only $5000 annually, and as there is abundance of tripoli elsewhere, the material is not of great importance.

The earliest iron mines of the State were based upon carbonate ores obtained from the belt of clays which extends along the Fall Line. Here once was a series of small swamps, formed by a slight tilting of the Plain so that its junction with the Piedmont was depressed. In these depressions accumulated iron deposits brought by streams and reduced to carbonates by the action of carbon dioxide with only a small amount of oxygen present. These deposits, though worked since Colonial days, are still ample to supply a great industry, but in this era of cheap

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[35] See: Conservation Commission of Md. Report, 1908-1909. Balt., 1910; p. 61. Md. Geolog. Survey: Prince Georges County. Balt., 1911; pp. 153-157. Miller, Benj. Leroy: U. S. Geolog. Survey, Choptank Folio, No. 182. Wash., 1912; p. 57.

transportation cannot compete with the richer, more easily worked ores of Michigan, Minnesota and Alabama. The only furnace now manufacturing Maryland ore, however, uses this iron. It has survived its many associates in other regions of the State only because it has a special customer, the Federal Government, which desires for certain purposes the extremely tough iron which the furnace, situated at Arundel, a few miles from Washington, can produce from this ore by the old charcoal process.[36]

Bog iron ore or limonite exists in some quantity in the south of the Eastern Shore, where sluggish streams, brown with vegetable infusion, give opportunity for oxidation and settlement of the iron which their waters have dissolved from the sands and gravels and their vegetable matter has carbonated. The bog ore contains much phosphorus, which makes brittle the derived iron. When the railroad era began, however, and iron rails were called for, it was thought that even this ore could be used to advantage. Some ore was mined along a branch of the Nanticoke and was shipped to Baltimore, and in 1830 the only furnace ever built on the Eastern Shore was established on a tributary of the Pocomoke, near Snow Hill, but after twenty years of struggle gave up the endeavor to market its poor product.[37]

One of the largest iron and steel plants in the United States is situated in Tidewater Maryland, at Sparrows Point on the Patuxent ten miles from the center of Baltimore. The location of this Maryland Steel Company was not determined, however, by the occurrence of the local ore, for of this it does not use a pound, but was fixed by the embayment of the region. Its supply comes from the hematite of Cuba, and the plant was located on tide-water, where it could receive these supplies direct by vessel, could ship out, if need be, by sea, and yet could have the advantage of the railroads and the labor supply of the nearby city.[38]

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[36] Md. Geol. and Econom. Survey: Report on the Iron Ores of Md. Balt., 1911; p. 172.

[37] Md. Geolog. Sur.: "Iron Ores of Maryland," sup. cit., pp. 227-231.

[38] Md. Bureau of Statistics and Information, 21st Ann. Rept. Balt., 1913; pp. 122, 123.

5. Manufacturing.

Manufacturing has always played but a small part in the life of the Coast Plain. With plenty of land to till, and plenty of waters in which to fish, the people have not felt compelled to crowd together into cities. Legislative enactment in the seventeenth and eighteenth centuries strove hard to create towns, but the ease of making a living from the bounty of nature prevented towns from growing. Even today, with the many incentives to development of large communities, the largest city, Annapolis, with less than nine thousand people, has few manufactures and is almost stationary in population, deriving its importance from being the capital of the State, the seat of the United States Naval Academy, and for the well-to-do a desirable place of residence, mild in winter, cool in summer, beautiful in outlook over the water.

Water-power, which has located so many industrial establishments, is not important in the Plain. The small elevation of the surface and the ease with which the streams cut toward grade have decidedly limited the amount of power development. A number of ponds have been made by damming the streams above tide-water, but the power derived from these is small and has been applied mainly to grist-mills, which are mostly disused since improvements in transportation lessened their local importance. The rates on soft coal from the mines of West Virginia, Maryland, or Pennsylvania are greater to points in the Plain than to Baltimore or Philadelphia, and this imposes a handicap on the establishment of manufacturing industries.

The handicap of lack of fuel and water-power might be overcome by the advantage of a cheap labor supply, such as has established the cigar-making industry in the German agricultural districts near Philadelphia; but a satisfactory labor supply for large manufacturing is hard to procure. The man of the Plain is by heredity an outdoor man, and living is still so cheap that he has not been compelled to congregate in large towns and earn his bread in factories operated the year around.

The ease of getting a living from Nature's bounty in the districts adjoining the Bay has always been proverbial. Both

animal and vegetable food is cheap and plentiful, requiring only intermittent labor to secure it. Fish, oysters, crabs and wild-fowl are yet obtainable by the exercise of a small amount of skill and effort. Small game, such as the opossum, the rabbit, the squirrel and the muskrat, furnish a considerable amount of free food. Land is cheap, and the favorable climate permits a large quantity and variety of vegetable food to be produced within the year. Wild and cultivated berries grow well, and fruit-trees can be planted about even the poorest home. Fuel is still supplied from the neighboring woodlands.

With these aids from natural sources it is possible for even discontinuous work to make possible a good living for a family. Lumbering, fishing, farming, may be carried on in an independent manner with much occasional leisure. The life of the usual dweller in the Maryland Plain is traditionally one of considerable freedom, of work which may be laborious and exposing at times, but which is comparatively unhurried. Economic pressure due to high standards of living, to artificial and expensive amusements, to lack of opportunity for employment or to competition arising from density of population, has not been present in this region.

The manufacturing which does exist is not concentrated into large establishments, for it arises from local resources which are widely distributed. Agriculture, fishing and lumbering furnish the raw material. The manufacturing is almost all upon the Eastern Shore. Southern Maryland has a remarkably small amount, due perhaps to the conservatism of its people.

Canning of fruit, vegetables and sea-food is by far the most important branch of industry. The canneries are numerous on the Eastern Shore and scattered. With little trouble or expense a cannery can be established wherever the product warrants it; the labor employed is largely unskilled and cheap, and can be procured without much difficulty; the product is non-perishable and easy to transport. It is not necessary, therefore, for the canning industry to center in towns, and the industry, in fact, does largely seek the raw material.

Canning of fruit and vegetables, which constitutes the bulk

of the Plain's canning, is a strictly seasonal industry. The average season of canneries of these products is only from six to ten weeks, and one of the largest canneries on the Eastern Shore, handling fruit only, is open for but three or four weeks each year during the height of the season. The dates of opening and closing the factories change each year with the season, and even during the season an occasional scarcity of material may cause a stoppage of operations, since most canneries confine themselves to one or two products, tomatoes being favored by the majority. The Eastern Shore, with some assistance from the Piedmont, cans nearly half the tomatoes consumed by the whole United States. Canning of sea-food, mostly oysters and crab-meat, lasts through a longer season than that for fruit and vegetables, but is far less important. In 1915 there were about 300 canneries in the Plain, 95 per cent. of them being on the Eastern Shore.

The supply of local labor is not sufficient for the canneries, even though women and children are able to do the work. This labor is considered in the Plain as unsuitable for any but the lowest class, as Poles from Baltimore, Italians from Philadelphia, and negroes from Virginia are brought into the canneries in large numbers to join the negroes and "poor whites" locally secured. The living conditions among these imported laborers are often very bad, and children as young as twelve years are allowed by law to be employed. Half of the canneries used imported labor in 1915.[39]

Dependent on the local industries are many lumber mills and wood-working establishments, which, using for the most part local material, furnish baskets, boxes and crates for the products of farm, fishery and cannery. For convenience of transportation, the finished product being bulky, the wood-working establishments are usually situated in towns, and to approach the source of supply they are mostly in the southern part of the Shore, where pine and also the red gum, the chief veneer wood for basket making, abound. Pocomoke City, near the Virginia

[39] Md. Bureau of Statistics and Information, 24th Ann. Rept. Balt., 1915; pp. 206-212.

line, is the chief center of the industry. The work of making the small baskets is easy, and many women and children take part in the industry, either in factories or in the home. In the southern region of the Shore also are a few small shipyards to build and repair small vessels for the coasting and Bay trade.

The wages offered are not sufficient to tempt many local men into the canning and basket-making industries, and were it not for women and children, these industries would be seriously handicapped. The labor available from women, however, has brought a new industry in recent years to the southern part of the Eastern Shore, where population is fast increasing. Baltimore's greatest manufacturing industry is the making of men's clothing, and the manufacturers, finding that cheap labor by women is obtainable on the Eastern Shore, get considerable work done in the most thickly populated portions—Salisbury, Cambridge, and lesser towns in the same counties. Here there are many little factories which contract with the Baltimore firms to make shirts and overalls, and employ the local women, either in the factory or at home.[40]

Manufacturing other than that dependent on the raw material afforded by the Plain will not develop fast in that region. Nature has been so clement that economic pressure is little felt. Land and water supplement each other in affording many free goods, and there is yet plenty of ground for agriculture. The average white man of the Plain is his own master; the negro has never proved satisfactory for highly organized industry. Tidewater Maryland in all probability will long remain a region with few and simple manufactures.

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[40] Md. Bureau of Statistics and Information, 24th Ann. Rept. Balt., 1915; p. 203.

VI. TRANSPORTATION.

1. Water Transportation.

Although the Coast Plain of Maryland borders upon the Atlantic for about forty miles, there is not a single navigable inlet now open within that distance. Behind the barrier beach stretches a continuous lagoon, connected on the north by various waterways with Delaware Bay, and opening in Virginia, through Chincoteague Inlet, into the ocean; but transport is naturally small upon this shallow, isolated body of water, bordered by marsh on one side and sand-dune on the other.

Water transportation, however, is largely utilized in the life of Tidewater Maryland. Chesapeake Bay puts a wide ocean-river, over a hundred miles long, through the whole heart of the region. With its almost numberless branches, inlets and bays it furnishes two thousand square miles of navigable water and gives an interior coast-line which rivals in extent the coast of Maine, and is far more protected.

In no other agricultural district of such importance does the steamboat play a larger part than it does in the Eastern Shore. By sentiment and custom, even more than by convenience, the face of the Shore is still set toward Baltimore. Its wheat, its oysters, its fruit and vegetables for canning purposes, the canned goods themselves, go largely to that city, and water transport must be employed to get them there. In return the city is the great supply point for this region. Despite the large rail movement of early fruit and vegetables northward, and the considerable return movement of freight, Baltimore still dominates the trade and thus sustains the water-borne traffic of the Shore.[41]

A glance at the map of the Eastern Shore will show many districts, largely peninsular, which railroads do not or cannot serve, because of the isolating influence of extensive swamp, broad estuary or indenting bay. To the very door of the inhabitants of such district comes the steamboat. At over 150 wharves on the Eastern Shore steamboats regularly call. Some towns of fair size for that

[41] Andrews, Frank: "Inland Boat Service," Bull. 74, U. S. Dept. of Ag. Dec., 1914; pp. 6, 7.

MAP 4. STEAMBOAT ROUTES OF TIDEWATER MARYLAND. ONLY THE PRINCIPAL ROUTES AND WHARVES ARE INDICATED. NOTE THAT ALL ROUTES CENTER ON BALTIMORE.

region have no railroad facilities at all. Such are the fishing settlement of Deals Island on Tangier Sound (population 1000), Rock Hall, nearly opposite Baltimore (800), Tilghman, farther down the Bay (600), and Sharptown on the Nanticoke River (700). Towns of this size do not exist elsewhere in Maryland without railroad communication, and would not now exist on the Eastern Shore were it not for the steamboat. There are six large estuaries on the Eastern Shore which cannot be closely paralleled by railroads, but which are served by regular steamboat lines, one of which extends across the Delaware boundary to a point 46 miles by water from the Chesapeake, and about 25 miles in a straight line from Delaware Bay. These lines are usually able to run all winter.

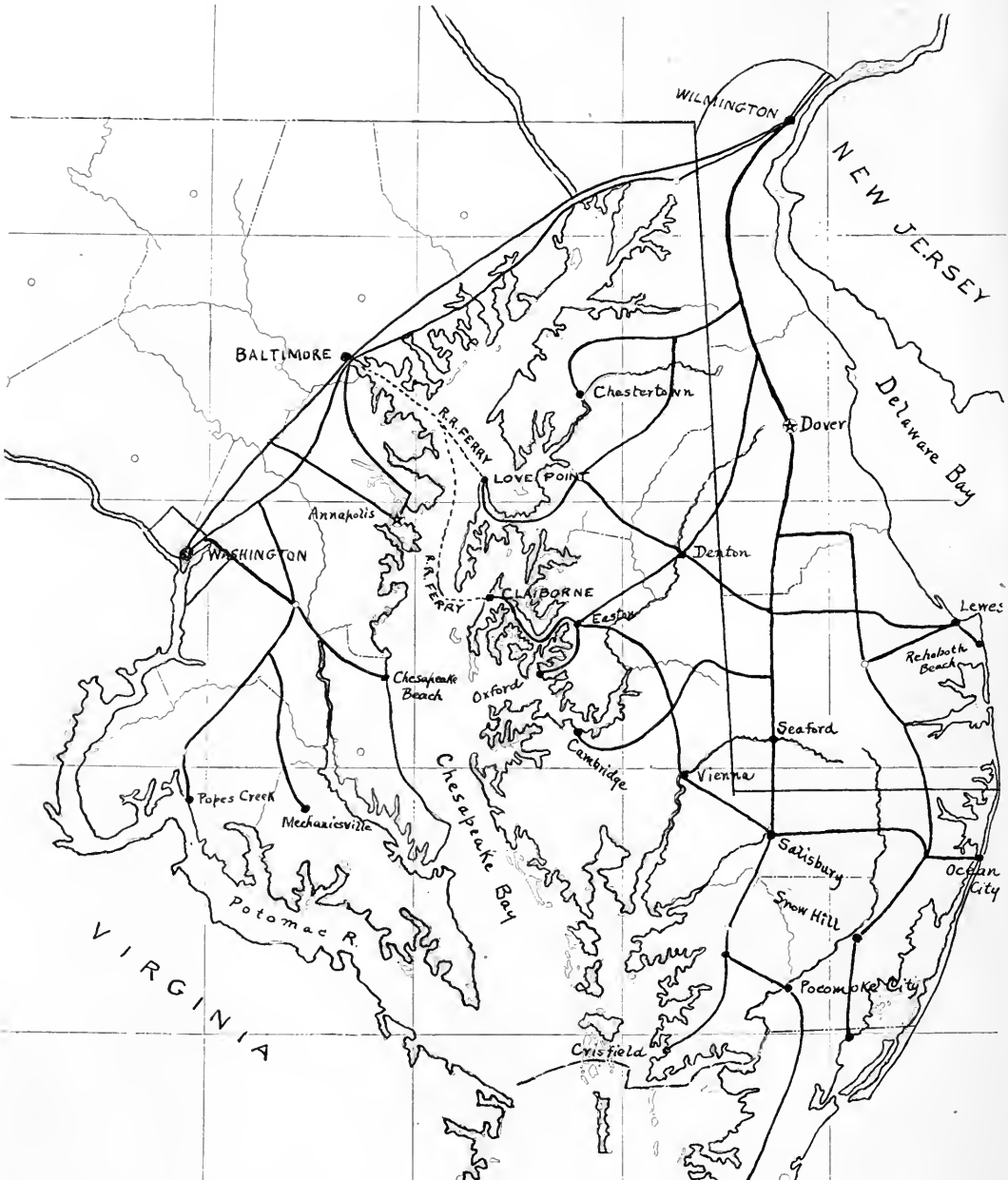
In Southern Maryland, which has direct land communication with both Baltimore and Washington, railroads are few and offer especially poor means of transport. The main agricultural export of the region, tobacco, reaches its market by water, and the general depression which has prevailed there since the Civil War has not been favorable to railroad promotion. To most of the region the steamboat is even more important than it is on the Eastern Shore, although the commerce is not so large. The estuary of the Potomac, 113 miles long, bounds Southern Maryland in two directions, and affords a water route to and from Washington, with 36 wharves. The Patuxent estuary, nowhere over 10 miles from the Bay, cuts into the heart of the district for nearly 50 miles of navigation, with 25 wharves. Nowhere is a vessel more than 10 miles from the Bay as it plies the Patuxent, and the head of navigation is only 35 miles from Baltimore. The settlements of Southern Maryland, with the exception of Annapolis, are all under 600 population, and many of the largest of these, as Leonardtown, a county seat on the Potomac, and Solomons, a fishing town at the mouth of the Patuxent, are served only by steamboat. The inconvenience of such service is great. Fog, storm, or extra cargo may delay for hours the arrival of the steamboat at any given point. In winter ice may close navigation entirely for a time. Even though the boat should

maintain her regular schedule and be punctual, the passenger often cannot avoid being landed at his destination late at night. To travel with any pleasure on these lines one needs to be possessed of great patience.

Beside the steamboat lines on the Bay, with their regular service, there is the irregular service of a swarm of gasoline launches and sailing vessels. These may either convey freight to and from steamboat landings or make independent trips. The gasoline boats are even more useful for the towing of barges than they are for the direct carrying of freight. Sailing craft have not disappeared from the Bay as they have from many other waters, since they can be used for fishing in addition to the transport of many different products at various seasons of the year.

The organization of the steamboat routes tends to isolate from each other the two divisions of the Plain. Though steamboat lines serve every important point on each side of the Bay, not a single steamboat crosses the Bay south of Annapolis. For over one-third of the plain there can be no direct water communication across the Bay, except by a special charter of some private vessel. It is scarcely probable that the commercial interests which control the steamboat lines will further any interference with Baltimore as a focus of these lines, and the separation of the two regions is therefore likely to continue. At present, however, this separation is not such a drawback as might at first appear, since the regions are not necessarily dependent on each other.

Were water transportation free to compete with that by railroad, the population of much of the Coast Plain would probably enjoy extremely favorable freight rates for the products which they produce and consume; but there is little effective competition. Two great railroad and steamboat companies practically monopolize the Maryland traffic of the Bay. They, in turn, are controlled by a third railroad, the Pennsylvania. All but a handful of the wharves along the Bay and its tributaries lie in the possession of this powerful combination. Rival companies have met with little success. In the case of certain largely raised products, as wheat, tomatoes and pears, the irregular service of



MAP 5. RAILROADS OF TIDEWATER MARYLAND. NOTE THE LACK OF GOOD RAIL FACILITIES THROUGH SOUTHERN MARYLAND AND IN THE SOUTHWEST OF THE EASTERN SHORE.

individual carriers is offered to the producer at extremely low rates during a special season, but this occasional, special one-way competition does not force similar rates upon the strong regular steamboat-railroad lines, and many shippers are slow to offend, by seasonal patronage of other agencies, the carriers on whom they must depend in the majority of instances. The Coast Plain, therefore, though so well provided with water routes, has not reaped from them all the benefits possible.

2. Land Transportation.

a. railroads.

Tidewater Maryland has the advantage of two great railroad routes from the North to the South. One of these runs from the North along the backbone of the Delaware-Maryland-Virginia peninsula, reaching Norfolk by ferry, thus avoiding both rivers and swamps; the other follows the general course of the Fall Line through Baltimore to Washington. Both of these routes possess advantages conferred by ease of railroad construction and directness of line.

So long as water transportation reigned supreme on the Shore, Baltimore was necessarily the center of the region's trade interests; now, through the railroad, the inland regions of the Shore turn in their trade toward the North, and have acquired a wide-awakeness which may be ascribed to that source. There are, it is true, two other railroad lines on the Shore which cross the peninsula from east to west and have terminals in Baltimore, using large steamers to ferry across the Bay, but these are of minor importance. They are "resort lines," practically without branches, and designed primarily to induce travel to the seashore. The more northern road serves the middle of the Shore and ends at Rehoboth Beach, Delaware; the other road serves the southern part of the Shore and ends at Ocean City, Maryland. These roads, therefore, do not divert a large proportion of the inland trade to Baltimore, especially as both of them are controlled by the Pennsylvania system. The Eastern Shore producer, though he can by them gain access to Baltimore markets

and supplies as well as those of the North, does not secure low freight rates by their presence, and the bulk of the Shore's freight traffic is a north-and-south movement.

The extension of the railroad, now part of the Pennsylvania system, from the north into the Eastern Shore has enabled the truck industry of Maryland to attain its present great importance. Water transportation was neither sufficiently swift nor regular to allow the truck-grower to reach distant markets with fresh produce. As soon as the railroad was available, however, Northern cities could be reached, and could be quickly and regularly supplied. The growth of trucking has been the cause of the Shore's recent development and prosperity.

The Eastern Shore, it is seen, is fairly well supplied with railroads. Every important town is touched by railroad, and several of the towns have the service of two roads. The most considerable extent of country untouched by railroad is that lying between Cambridge and Princess Anne and bisected by the Nanticoke River. Here is much fertile land, but great marshes will probably prevent any railroad construction for many years to come. A few other links obviously remain to be built, but probably will not be undertaken in the near future, as the territory is already well covered in general, and there is no competition to force new construction.

While the Eastern Shore has the good fortune to lie along one of the main railway routes of the country, Southern Maryland lies to one side of the main currents of traffic. Though two great railroad lines, the Pennsylvania and the Baltimore and Ohio, pass along its western edge, the body of the region is apart from their influence. South of Annapolis the bulk of Southern Maryland has been little developed by railroad and consequently has not developed in fruit-raising, trucking or dairying, which, in the absence of a canning industry to absorb their product, must have frequent and rapid transportation.

A resort-line of little importance extends from Washington to Chesapeake Beach, a summer colony on the Bay. A branch of the Pennsylvania Railroad does extend through the western part of the region to a village on the Potomac and throws off a

sub-branch directed toward Point Lookout at the mouth of the same river; but the Potomac terminal exists mainly to serve a summer resort on the Virginia side, and the sub-branch ends "in the air," stopping at a small town, and having no water terminal or junction with other railroads. Service on all these roads is slow and poor, and the region they attempt to serve is thinly settled and neither increasing in population nor prosperity. The present stagnation of Southern Maryland calls for some transportation development, but relief at present seems likely to come only through the extension of good highways.

b. ROADS.

Early History.

Maryland was settled from the water, and land-roads were subordinate to waterways. The large plantations had each its wharf, where vessels from over-seas could discharge cargo. Each estate produced most of its own food, and supplied its other needs from articles brought to its door by visiting ships. Tobacco was practically the only export of the colony's early days, and this was sent abroad directly from the plantation wharves. Export and import, therefore, were by water.

For trade and communication within the colony, waterways were almost exclusively utilized. There was little heavy freight that needed to be carried by land. Travel was quicker, easier and safer along the rivers and across the inlets than it was by winding tracks through the thick forests.

During the first century of Maryland's existence, therefore, water routes completely overshadowed land routes, and roads were few. Until about 1700 there were no towns upon which roads could concentrate. As late as 1733 "a considerable number of people" in a neck of land in the southern part of the Eastern Shore (Dorchester County) petitioned to have a road cut out of the peninsula, for all their ingress and egress hitherto had been by water.[42] After 1730, however, with the spread of

[42] Court Records, Dorchester Co., Md., Nov., 1733; p. 241; quo. in Gould, Clarence P.: "Money and Transportation in Md., 1720-1765." J. H. Univ. Stud. 33: 1 (1915); p. 129.

population inland, increased communication with other colonies, and the development of the "back country," the Piedmont, new roads were rapidly opened, and some much-traveled, if not well-kept, main roads developed.

The roads of greatest note were naturally those on the route connecting the North with the South, Pennsylvania with Virginia. These focused upon Annapolis, because Annapolis was the only considerable town of Maryland. Travelers from Philadelphia had their choice of two routes to Annapolis, one on each shore of the Bay.

There was a main road on the Eastern Shore extending the full length of the peninsula, but it was mostly locally traveled below the latitude of Annapolis. The bulk of long-distance travel turned aside to Chestertown on the Chester River, whence one might continue along that "neck" to Rock Hall on the Bay and sail across; but the more popular route, entailing a shorter crossing of the Bay, was that which ferried over the Chester River, then turned west to Love Point on Kent Island opposite Annapolis.

The Western Shore road passed by the heads of the Elk and the Northeast estuaries, across the mouth of the Susquehanna and around the head of the Patapsco, where Baltimore (founded 1729) was slowly emerging from obscurity. This is the present route of the railroad trunk lines. From Annapolis one southward road led to the Potomac opposite Alexandria, for Washington was not yet in existence; another took the direct route south and crossed the Potomac at Pope's Creek, where a railwal line ends today.[43]

If we substitute modern Baltimore for ancient Annapolis as a focal point, we see that these early roads have fixed the present locations of steamer lines and railways. This is most marked as to railways in Southern Maryland, but on the Eastern Shore the crossing-places of the old "post road" over the estu-

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[43] Gould, Clarence P.: "Money and Transportation in Maryland," sup. cit., pp. 136-138.

aries are still the termini of steamboat routes. Love Point is the beginning of a railroad line to which frequent ferry-boats run across the Bay, but Rock Hall has been kept from its similar natural destiny, and is served only by steamer, for fear of killing the prosperity of Chestertown, the little metropolis of the northern Eastern Shore.

One important set of early roads on the Eastern Shore did not lead to the establishment of railways. These roads were "portage" roads, running east and west between the heads of navigation on the tributaries of the Chesapeake and those adjacent along Delaware Bay and the Atlantic lagoons. There were roads, ranging from five to thirteen miles in length, between the Bohemia, the Sassafras, the Chester, the Choptank, the Nanticoke and the Pocomoke Rivers on one side and the winding Delaware creeks and Sinepuxent Bay on the other hand. Although much merchandise went over these roads before the advent of the locomotive, they did not conform to the general railroad scheme on the Eastern Shore. They were merely incidental to water routes, whereas the railroad aimed to make water transport secondary to that by land. Therefore the hamlets which the portage roads served continue for the most part to lie a little aloof, in gentle oblivion, from the railroad which occupies the watershed of the peninsula.

The old north-and-south main roads of Maryland have fitted into the general arrangement of railroad travel today, and the routes which they indicated have largely been followed; but the old east-and-west roads, laid out with equal conformity to topographic conditions, show, by their failure to control railroad building, the present-day subordination of transportation by water to that by rail.

Present Development.

Until 1905, the State of Maryland took no part in road building. The county was the unit of the road system, so that local conditions governed highway administration and construction. The Eastern Shore in 1905 was far in advance of

Southern Maryland as to roads. Its population was denser on the whole, its condition more prosperous, and the nature of its agriculture demanded that large amounts of material should be hauled to railroad stations, to wharves, to canneries, with quickness and constancy.

The main highways had all been surfaced, mostly with oyster shells, which were procurable nearby in considerable quantity and were cheap. A shell road is easily constructed, and is a good though not lasting highway for horse-drawn vehicles, but the sharp edges of the shells cut automobile tires so that stone or concrete roads are beginning to be demanded. The State has built a considerable extent of concrete road in the northern part of the Shore, but high railroad freight rates have so deterred the counties disposed to use broken stone for roads that it is probable the shell road will for some time continue to be the characteristic improved road of the region.

Southern Maryland has long been noted for its poor roads. Its hilly character causes much greater erosion of highways than on the Eastern Shore. In many places the roads have sunk in this manner several feet below the general surface and the narrow wagon-track is flanked on each side by deep ditches. Such roads, very dangerous, and often too narrow for vehicles to pass, are great hindrances to ease of traffic, but the region, conservative in agriculture, rather scattered in population, and not at all prosperous, made little effort to improve its highways. The general absence of good railway service has made the poorness of the roads even more to be regretted and has greatly tended to maintain the isolation of the Western Shore. Even after State aid had considerably increased road-improvement throughout most parts of Maryland, this region remained so inactive as not to receive much help from that source. Since 1910, however, when the State began construction of improved roads upon its own account, Southern Maryland has decidedly benefited. The new highways, with the consequent opportunity offered for the use of motor vehicles, appear to give the most promising chance for immediate development of this backward region.

Possible Effect Upon Population Distribution.

A considerable portion of the population of Tidewater Maryland, however, does not live directly along the public roads. This is due to the peculiar topographic condition presented by this embayed coast plain. Its partial drowning causes the formation of many peninsulas or "necks," each of which has many smaller necks extending at right angles to its main axis. Necessarily a main road runs along the main axis where the surface is undissected and level, but there is usually space and need for only one such road. Short sub-roads extend from the main road to the few steamboat landings, but the isolated farm houses usually lie by choice and tradition far back from the main road, along the water front, and are served by a long private lane.

As agriculture comes to appreciate the vital necessity of having swiftness and ease of road transport, and as motor vehicles come into greater use on the farm, there is a great probability that the farm population will be drawn toward the road instead of maintaining its present situation remote from it in so many cases. A considerable portion of the people of Tidewater Maryland would thus be changed from water-front dwellers to roadside dwellers, and the movement would mark one more victory of the land road over the waterway.

References.

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VII. INFLUENCE OF THE BAY AND FUTURE DEVELOPMENT.

Through the whole fabric of the economic history of Tidewater Maryland runs the influence of the Bay. Despite man's efforts to render himself superior to physical controls, the embayment of the Plain still profoundly affects his individual activities and the course of the region's development.

The Bay carves away old land and forms new; it modifies extremes of climate and so favors agriculture; it gives the fisherman a bountiful harvest, whose treasures feed many persons outside the region and add to the ease of living in the tidewater country; it opens water roads far inland and gives a variety and a picturesqueness of aspect which otherwise would be lacking. But picturesque and interesting as is the Bay, we must recognize that in regard to industrial evolution it is now a limiting rather than an assisting factor.

Once the embayment of the land was an aid to communication; now it is a limitation. Man at present counts distance in hours rather than miles, and any slow method of travel is a loss to industry. In speed, in punctuality, in frequency of service, the steamboat is immeasurably inferior to the railroad train. The waterways of the Bay limit the use of both train and automobile.

Once the embayment was an aid to rapid increase of population; now it is a limitation. When the land lay wild and there were few roads, plantations quickly sprang up along the water's edge and settlers hastened to make their homes on the estuaries. No colony except Virginia could equal Maryland in offering smooth water roads, along which the boundaries of civilization could be extended. Now the East is subdued to man's hand and inland agriculture flourishes. Were the Bay turned into dry land of the same fertility as the rest of the region, it would support an agricultural population many times as great as that which fishing and its allied industries can ever support.

As agriculture, under favorable circumstances, supports a denser population than does fishing, so manufacturing supports a denser population than does agriculture. The trade of Tidewater Maryland is largely with two industrial centers—first, Bal-

timore, second, Philadelphia, with its attendant cities, Chester and Wilmington. These are highly developed in manufacturing, having a great variety of industries, many of which are large and long established. They possess, moreover, advantages of transportation by both land and water and a large supply of skilled labor, and have a cheaper freight rate on coal than does the Maryland Plain. Like immense fortresses they stand on the border of the Tidewater region to dominate the manufacturing situation. New plants tend to seek place within them or in their immediate neighborhood. Except in the case of the canning industry, which is dependent on local raw material, the manufactures of the Maryland Plain will therefore probably long be small and of merely local importance. A vital element of manufacture, moreover, is transportation, and modern transport is not based on inland waterways. It is significant of modern economic life that the great manufacturing city which dominates Tidewater Maryland is situated at the very limit of tidewater, not on the main bay. Although Baltimore thrives on the trade of the Chesapeake, she stands at its boundary, where railroads have a freer range; she pities her former rival, Annapolis, which is a true child of the Bay, but being so, lacks the facilities for the spread of railroads which Baltimore possesses in her hinterland.

The Bay, then, is a powerful present factor in restricting Tidewater Maryland to a more retarded or simpler type of industrial development than its situation near great centers of population would otherwise warrant. As fishing and agriculture are the main primary occupations, the people are rural, not urban. Though some of the urban communities are growing rather rapidly, it is not likely that large cities will arise in any near future, because the Bay interferes with the centering of railroad lines. A simpler type of industry, a lower density of population, are the consequences of the embayment. It fosters the leisurely life that goes with the canal and the steamboat, as opposed to the clanging haste of the railroad.

Although the Bay has to a considerable extent restricted the modern development of the Tidewater region, it must not be thought that the Plain need lack prosperity. By its favorable

market situation, level surface, diversified soil, and mildness of climate, to which the Bay contributes, Tidewater Maryland is eminently fitted to fulfill a great agricultural destiny.

The natural resources of the Plain will never support a great mineral industry. The growth of lumbering, even under the best management, is distinctly limited. The oyster industry, the backbone of the fisheries, can merely double its present moderate size, and other branches of fishery can be kept up only by great efforts in conservation. Agriculture, however, has practically unlimited possibilities for the near future. The city hives of industry within easy reach give an unsurpassed market, with expansion as the urban communities continue to grow.

The capabilities of Tidewater Maryland's varied soils have been demonstrated, but only partially utilized. Here the general farmer, the orchardist, the stockman, the dairyman, and the trucker can each find a place for profitable industry. The wheat and corn, the peaches and pears, the cattle, hogs and sheep, the milk, cream and butter, the canteloupes and watermelons, strawberries, tomatoes and sweet corn of certain parts of this region are all in great modern demand and are susceptible of tremendous increase by good agricultural methods. With better farming, and an extension and thorough co-ordination of both land and water transport, Tidewater Maryland will be one of the choicest agricultural sections of our continent.