# PART V.

# THE COAST OF CONNECTICUT AND ITS FISHERIES.

By A. HOWARD CLARK.

NOTES ON GENERAL FISHERIES GATHERED BY W. A. WILCOX AND FRED. MATHER.

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# PART V.

## THE COAST OF CONNECTICUT AND ITS FISHERIES.

## A.—GENERAL REVIEW OF CONNECTICUT AND ITS FISHERIES.

### 103. THE COAST TOWNS, AND IMPORTANCE OF THE FISHING INDUSTRY.

DESCRIPTION AND STATISTICS.—The coast line of the State of Connecticut, including the numerous small indentations, is from 150 to 175 miles in extent. The water adjacent to the coast abounds at certain seasons of the year with various species of fish, the more important species being menhaden and shad, while oysters and other shell-fish are more or less abundant. The fisheries of the State include the seal and whale fisheries of Stonington and New London, the menhaden fishery carried on by a large fleet of vessels that sell their catch to factories along the coast, the shad fishery of the Connecticut River, and the oyster fishery, which is especially important in the vicinity of New Haven.

The number of men employed as fishermen or shoremen in the State is 3,151; the amount of capital invested is $1,421,020; and the value of the products is $1,456,866; as may be seen by the accompanying tabulated statements.

In the eastern part of the State the most important fishing town is New London, which is the principal food-fish producing port south of Cape Cod. Noank is an important place for the cod and lobster fisheries, and several fish weirs or traps are set by Noank fishermen at the Elizabeth Isles, in Massachusetts.

The oyster industry in the State employs 1,006 persons and $361,200 capital, and the value of the product is $672,875. In the menhaden fishery the number of persons employed is 631, the capital invested is $392,370, and the value of the product is $256,205. The Antarctic sea-elephant and fur-seal fishery and the whale fishery of Stonington and New London employ large capital and nearly 400 men. The products of these fisheries for 1880 is valued at $143,899.

SUMMATION OF THE FISHERIES OF CONNECTICUT FOR 1880.—The following statements show the number of persons employed, the amount of capital invested, and the quantities and values of the various products:

*Summary statement of persons employed and capital invested.*

| Persons employed. | Number. | Capital invested. | Amount. |
|---|---|---|---|
| Number of vessel-fishermen | 1,544 | Capital in vessels and boats | $871,318 |
| Number of boat-fishermen | 1,041 | Capital in nets and traps | 91,852 |
| Number of curers, packers, fitters, and factory hands | 546 | Other fixed and circulating capital | a457,850 |
| Total | 3,131 | Total | 1,421,020 |

a In menhaden factories, $139,000; in other fishery industries, $318,850.

*Detailed statement of capital invested in vessels, boats, nets, and traps.*

| Vessels and boats. | No. | Tonnage. | Value. | Value of gear, exclusive of boats and nets. | Total value. | Nets and traps. | No. | Value. |
|---|---|---|---|---|---|---|---|---|
| *Vessels.* | | | | | | *Nets.* | | |
| In food-fish and lobster fisheries | 105 | 2,835.18 | $192,100 | $158,088 | $350,188 | Gill-nets | 67 | $4,395 |
| In menhaden fishery | 72 | 2,304.76 | 191,950 | 27,600 | 219,550 | Purse-seines | 58 | 23,500 |
| In oyster fishery | 100 | 2,016.88 | 69,000 | 5,990 | 74,990 | Haul-seines | 48 | 9,045 |
| In whale fishery | 5 | 866.41 | 24,000 | 17,000 | 41,000 | Total | 173 | 36,940 |
| In seal fishery | 9 | 1,192.72 | 37,000 | 54,900 | 91,900 | *Traps.* | | |
| Total | 291 | 9,215.95 | 514,050 | 263,578 | 777,628 | Pounds and weirs | 58 | 48,532 |
| *Boats.* | | | | | | Fykes | 255 | 2,480 |
| In vessel fisheries | 368 | | 21,365 | | 21,365 | Lobster and eel pots | 3,900 | 3,900 |
| In shore fisheries | 805 | | 52,220 | 20,105 | 72,325 | Total | 4,213 | 54,912 |
| Total | 1,173 | | 73,585 | 20,105 | 93,690 | | | |

*Detailed statement of the quantities and values of the products.*

| Products specified. | Pounds, fresh. | Pounds, prepared. | Bulk. | Value. |
|---|---|---|---|---|
| Grand total | 83,509,367 | | | $1,456,866 |
| *Fresh fish.* | | | | |
| For food | *a*7,884,982 | | | 280,960 |
| For bait and fertilizers | 4,600,000 | | 23,000 barrels | 7,500 |
| Total | 12,484,982 | | | 288,460 |
| *Pickled fish.* | | | | |
| Alewives | 500,000 | 400,000 | | 6,000 |
| Mackerel | 1,266,900 | 844,600 | | 24,282 |
| Total | 1,766,900 | 1,244,600 | | 30,282 |
| *Shell fish.* | | | | |
| Lobsters | 723,885 | | | 27,145 |
| Clams | 750,000 | | 75,000 bushels | 38,000 |
| Oysters | 2,691,600 | | 336,450 bushels (natives) | *b*672,875 |
| Total | 4,165,485 | | | 738,020 |
| *Miscellaneous.* | | | | |
| Menhaden, for oil and scrap | 65,092,000 | | 256,300 galls. oil; 9,000 tons scrap | 256,205 |
| Whale oil | | | 22,144 gallons | 11,248 |
| Whalebone | | | 10,400 pounds | 20,800 |
| Sea-elephant oil | | | 42,000 gallons | 21,420 |
| Fur-seal skins | | | 9,275 skins | 90,431 |
| Total | 65,092,000 | | | 400,104 |

*a* The proportion of different kinds of fish in this amount is estimated as follows: Alewives, 270,000 pounds; sea bass, 351,900 pounds; striped bass, 36,900 pounds; blackfish or tautog, 173,550 pounds; bluefish, 514,500 pounds; cod, 2,738,000 pounds; eels, 80,250 pounds; flounders and flatfish, 142,600 pounds; halibut, 830,000 pounds; mackerel, 37,000 pounds; pollock, 20,000 pounds; scup or porgy, 930,000 pounds; shad, 1,318,032 pounds; smelts, 27,000 pounds; squeteague, 102,750 pounds; swordfish, 73,500 pounds; mixed fish, 239,000 pounds.

*b* Includes $286,250 enhancement on 515,000 bushels of southern oysters.

# B.—FISHING TOWNS EAST OF CONNECTICUT RIVER.

## 104. THE FISHERIES OF STONINGTON, MYSTIC, AND NOANK.

STONINGTON.—The harbor at Stonington is capacious, and is partly protected by a breakwater built at a cost of $100,000. In the first part of the present century, prior to 1835, the people of this place were profitably engaged in the seal and whale fisheries. It is stated, on good authority, that some years as many as 100,000 seal skins have been landed at this port. A few vessels continued in the seal fishery until the year 1854, when the fleet numbered four vessels. In 1873 the business was renewed, and since that date from one to three vessels have been annually sent to Cape Horn and other Antarctic grounds in search of fur-seal. It was the enterprise of Stonington sealers that helped to open up the fur-seal fishery at the South Shetlands in 1819 to 1821. Nine Stonington vessels were included in the fleet of thirty sealers that visited those islands in 1820. Most of this fleet were American vessels hailing from Stonington, New Haven, Nantucket, and other ports. Captains Palmer and Fanning, of Stonington, were famous fur sealers, and there still lives here the veteran Capt. Thomas Davidson, who was one of the pioneers in this industry. For further particulars concerning the fur-seal fishery from this town, the reader is referred to the section of this report on special fisheries.

The whale fishery of Stonington was of importance for a number of years, especially from 1844 to 1856. The last whaler was owned here in 1861. The number of vessels each year from 1840 to 1861 was as follows: 1840, 11; 1841, 8; 1842, 9; 1843, 14; 1844, 13; 1845, 20; 1846, 26; 1847, 27; 1848, 24; 1849, 20; 1850, 18; 1851, 16; 1852, 17; 1853, 16; 1854, 15; 1855, 14; 1856, 16; 1857, 6; 1858, 5; 1859, 4; 1860, 4; 1861, 1. The products of this fishery in 1847 were 705 barrels of sperm oil, 18,460 barrels of whale oil, and 146,900 pounds of whalebone. In 1853 the products were 561 barrels of sperm oil, 14,142 barrels of whale oil, and 110,300 pounds of whalebone.

In 1880 the fisheries of this place employed 124 men, of which number 82 were in the seal fishery and the rest in the menhaden and other fisheries. The sealing fleet numbered three vessels of 309.52 tons, valued, with gear and outfit, at $39,000. Two vessels of 55.73 tons were engaged in the capture of food fish, and one vessel was employed in the menhaden fishery.

Some shore fishing is done in this vicinity by the use of gill nets, fykes, and other apparatus, but the quantity and value of fish thus taken is very small.

At one time Stonington owned a fleet of vessels in the Bank cod fishery. In the fall of 1810 the largest haul of bass ever known is said to have been made here. With an enormous seine a great school of these fish was shut up in a cove and "guarded" for several days. Twenty-one vessels loaded from the catch and great quantities were sold in this vicinity.

MYSTIC AND NOANK.—At Mystic the fishery interests are centered in the menhaden industry, a fleet of steam and sailing vessels being employed during the season in catching menhaden for the oil and guano factories located here. Four small smack vessels, some small boats, three haul-seines, and about forty fyke-nets are employed in the capture of sea bass, cod, bluefish, and other species. The vessel fishermen use the hook and line and cruise from Montauk Point to Block Island. There was formerly a greater number of fishing vessels owned here, but they have been sold and more attention given to the menhaden business. The fyke-nets are set in the spring as early as the ice will permit and are fished till August. They are set again in October and kept down till winter. Some seasons they do quite well, averaging five barrels per day of flounders,

eels, squeteague, bluefish, and numerous other species. These fykes are set anywhere along the shore on the flats.

The haul-seines are used from November till February and are not allowed to fish in summer. They take mostly smelts and eels. Smelts sometimes come into the river here very abundantly.

The village of Mystic River has an interest in the menhaden industry and also owns a vessel of about 47 tons burthen employed in the capture of food fish.

The village or town of Noank is a small but very enterprising place. There is owned here a fleet of fifty-one vessels, measuring 1,261.06 tons, employed in capturing lobsters, cod, halibut, tautog, and other species. These vessels have crews aggregating 220 men and are valued, with gear and outfits, at $169,145. Several small boats, a haul-seine, about 50 fyke-nets, and 2,400 lobster and eel pots are also owned in Noank. Four traps owned by fishermen here are set in the summer time at the Elizabeth Isles and are often quite successful. The total capital invested in the fisheries of Noank is $178,165. The catch in 1880 included the following:

| Species. | Amount. | Species. | Amount. |
|---|---|---|---|
| | *Pounds.* | | *Pounds.* |
| Sea bass | 20,000 | Halibut | 340,000 |
| Striped bass | 189,000 | Mackerel | 27,000 |
| Black fish or tautog | 63,550 | Scup | 930,000 |
| Bluefish | 46,000 | Squeteague | 100,000 |
| Cod | 1,445,000 | Mixed fish | 9,000 |
| Eels | 5,000 | Lobsters | 337,885 |
| Flounders and flatfish | 92,600 | Menhaden and refuse fish | 60,000 |

## 105. NEW LONDON TO THE CONNECTICUT RIVER.

NEW LONDON.—New London is on the right bank of the Thames River, 3 miles from its entrance into Long Island Sound. The harbor is one of the best in the United States, and is defended by Fort Trumbull and Fort Griswold. The latter fort is built on Groton Heights, opposite New London, and is memorable for being stormed on September 6, 1781, by Benedict Arnold, a native of Connecticut, after he had become a traitor to his country. Here seventy men, the best in the town, were cruelly murdered after they had surrendered themselves prisoners. A monument has been erected on the spot in memory of those who fell. At Groton is a United States navy yard. The inhabitants of New London have for many years been engaged in the fur-seal and sea-elephant fishery in Antarctic waters. Vessels from here were the first American sealers to visit Desolation Island and Heard's Island in the Southern Indian Ocean, and large cargoes of sea-elephant oil were annually obtained from these islands for many years. The fur-sealers cruise also in the Southern Atlantic Ocean at South Georgia, South Shetland, Cape Horn, and other sealing grounds. The sealing fleet of New London in 1853 numbered eight sail. In 1858 it had increased to twelve sail, and has annually numbered from five to ten vessels since that time.

The whale fishery from this port at one time was of much importance, but is now prosecuted by only five vessels. In 1846 seventy whaling vessels were owned here, but in 1857 the fleet was reduced to fifty-four sail. Since that date the number of vessels in this fishery has been from five to forty-five, and the largest number in the past ten years was fourteen in 1871. The receipts of whale products at New London in 1846 were 1,307 barrels of sperm oil, 27,441 barrels of whale oil, and 183,450 pounds of whalebone; in 1880 the receipts were only 22,144 gallons of whale oil, and 10,400 pounds of whalebone. The fishery in the vicinity of Davis Straits and Hudson's Bay has

been a favorite pursuit of New London whalers. The Davis Straits grounds had been abandoned by Americans for nearly half a century when the ship McLennan, of New London, under Captain Slate, cruised there in 1846. This vessel continued her annual voyages there for several years, and was finally lost while en route to these grounds in 1852. In 1853 two vessels were fitted for this fishery, and in 1855 a third vessel was added to the fleet. In 1860 the fleet numbered ten sail, and the fishery from that date became more profitable. Larger and better vessels were sent out, and the cruising grounds extended through Hudson's Straits into Hudson's Bay. It was a New London whaling vessel cruising in those northern waters that found the abandoned ship Resolute, of the Franklin search expedition, and brought it to this country. For further particulars concerning the seal and whale fisheries of New London the reader is referred to the sections of this report which treat of special fisheries.

New London is the most important receiving and distributing point for fresh fish between Boston and New York. The fishing fleet is exceeded in numbers by but few ports on the New England coast. The larger class of vessels cruise on George's and other offshore banks for cod and halibut, and market their catch fresh in New York. A few vessels are engaged in the mackerel fishery and generally sell their fares in Boston.

The smaller vessels fish nearer home and land their fares in New London. One-fourth of the catch of the near-home fleet goes to New York by steamer, and the remainder is distributed direct from here throughout the country, either by rail or by numerous peddlers that secure their supplies from the vessels or have their fish forwarded by rail. Most of the vessels are well-smacks, so that the fish are generally alive when received in New York or New London. Large floating tanks or cars, made of wood, are moored to the wharves in New London, and in these tanks the live fish are kept for days, or even weeks and months before they are sold.

Most of the vessels use hand-lines, but those fishing on the offshore banks use trawls. Lobsters are taken by the vessel fleet as far away as Block Island, and at the mouth of Buzzard's Bay, while the small boats set their lobster traps near home in Fisher's Island Sound. As the State has no protective law for lobsters, a large part of the catch is too small to be of much benefit to any one, and if sold in Massachusetts or New York would subject the seller to punishment.

A small amount of net fishing is carried on by fykes, and the catch is mostly flounders. Four heart-pounds are set near the mouth of the river Thames, one at Avery Point, one at Pine Island, and one at each end of Bushy Point Beach.

From New London to Norwich, a distance of 14 miles on the Thames River, quite an amount of fish are taken during the year by men that are farmers, mechanics, or laborers the greater part of the year. They fish more or less during the summer season and catch bluefish, bass, eels, flounders, and shad, and a few mackerel. During the winter their catch is smelts, frostfish, eels, and flatfish. The summer fishing is carried on mostly by drag-nets or seines. Eels are taken in pots and with spears in the winter. The principal fishing season from New London is from April until October, but little fishing being carried on by the large vessels during the winter, and by the smaller vessels during only a small part of the year.

The catch of the vessel fleet of New London in 1880 included 1,230,000 pounds of cod, 490,000 pounds of halibut, 467,500 pounds of bluefish, 73,500 pounds of swordfish, 159,800 pounds of bass, 4,223 barrels of mackerel, and 170,000 pounds of lobsters. The shore fisheries yielded about 150,000 pounds of flounders, eels, tautog, smelts, and other species, and about 30,000 pounds of lobsters. The menhaden fishery of this port is important, and employs a fleet of sixteen vessels aggre-

gating 811.76 tons and valued at over $75,000. The statistics of this business are included in the summation for the State.

Mr. Ingersoll reports as follows on the oyster interests of this region:

"The extreme eastern point on the Connecticut shore, where any oysters occur, is in the neighborhood of New London. A few miles east of the mouth of the Thames, in the township of Groton, is an inlet and river known as Pequonock. In 1877 several gentlemen leased about 35 acres of ponds on the east side of this river. In one of these ponds, containing about 15 acres, native oysters grew upon the rocks and around the edges. A portion of the bottom of this pond they prepared for oyster-raising, by spreading scallop-shells over 6 acres, and gravel and beach-sand over 2 acres. Here they planted some 2,500 bushels of seed from Stony Creek, Clinton, and Fair Haven, Conn., at a total expense of between $4,000 and $5,000. These oysters have grown finely, but as yet few have been taken to market. This year (1879–'80) has been a comparatively poor one for them.

"The oysters in Pequonock River are deep and cup-shaped, not of large size, and with a thin, white, flinty shell. Locally they are very highly esteemed. Another locality where this firm has undertaken oyster-cultivation is in the Niantic River, an inlet just west of the Thames, where they have had 20 acres set off for the purpose, and have already planted some seed. In Alewife Cove, between Niantic Bay and the Thames, they have also several acres of ground which they purpose preparing in the near future. A few oysters are now being put upon the market from these ponds, and have met with a good reception, at high prices. These planters believe that a grand success awaits them; others assert that the waters are unsuitable, and that little of importance will result. Three persons are employed.

"In the river Thames, years ago, were great numbers of indigenous oysters. Thousands of bushels were annually obtained for the markets of the neighboring towns. These oysters were of good quality, and generally of immense size. Planting, however, was never a success, owing to the great freshets which often sweep down the river, and also owing to the impurities that are cast so plentifully into the stream from the drainage of the towns and from multitudinous factories along the tributary streams. Nevertheless, a few native 'Norwich River' oysters are annually caught, except in the close season, between March 1 and November 1, and there are half a dozen persons in Norwich who deal in them and in other oysters, but the whole city's trade, probably, does not amount to 10,000 bushels a year of 'natives' and 'Chesapeakes' combined, and is decreasing.

"At New London the oystermen own ground at Bullock's Point and Drownville, in Providence River, Rhode Island. Upon those tracts, in 1879, they bedded about 15,000 bushels of Virginia oysters, in addition to receiving a winter's supply of 35,000 bushels. New London and its neighborhood also consumes about 700 bushels of fancy oysters annually, mainly brought from Providence, R. I. The prices at this point, in 1879, were, for southern oysters, 80 cents to $1 a gallon; for native stock, 50 cents a quart, or $1.60 a gallon, wholesale. Twenty cents a solid quart is paid for opening.

"There are employed here in the winter months twelve men on oyster-vessels and twenty-five men on shore, besides the principals. These are mostly heads of families, who engage in menhaden fishing in summer."

NIANTIC.—Between New London and the Connecticut River there is no fishery of importance, except the menhaden industry carried on at Niantic, at the factory of Luce Brothers, where one hundred and twenty-five men are employed, and some $50,000 capital invested in vessels, buildings, and apparatus for the capture of menhaden and the manufacture of oil and guano.

# C.—CONNECTICUT RIVER TO NEW HAVEN.

## 106. FISHERIES OF THE CONNECTICUT RIVER, SAYBROOK, AND WESTBROOK.

THE CONNECTICUT RIVER AND SAYBROOK.—The Connecticut River, which empties into Long Island Sound at the town of Saybrook, has long been known as abounding in fish of various species, especially shad and alewives. These are taken at different points along the river as far up as Holyoke, in Massachusetts. Within the limits of the State of Connecticut, and especially towards the mouth of the river below Middletown, there are fishing stations where gill-nets and haul-seines are used for the capture of these fish. At present the number of gill-nets used in the river is 57, worked by 114 men, and 20 haul-seines, handled by 49 men. The catch in 1880 was 92,824 shad in number, and 2,700 barrels of alewives.

At the mouth of the river, on the western shore, is Saybrook, for many years famous not only for shad catching but also for the packing and shipment of shad from towns in the vicinity. Shad are taken here in pounds or traps of the usual heart shape. These are set outside of Saybrook Point and just west of the river along the sound. From Lynde's Point, at the mouth of the river, to Cornfield Point, a distance of 3 miles to the westward, there are five of these traps, as follows: One each at Lynde Point, Gardner Place, Guard House, Willard's Bay, and Gillett's Bay. It is a singular fact, that although shad were formerly taken in abundance in pounds set east of the river and near its mouth, the catch of late years has so decreased that pounds in those localities have been abandoned, except for the capture of a few menhaden and a few squeteague, blackfish, herring, and bass.

Just above the point, inside the river, on the western bank, small piers are built out a short distance from the shore. These are used in the shad fishery and named "Washington," "Federal," and "Jamaica." In years past they were considered to be in the best locations to be found for catching shad. As long as thirty years ago the catch from each pier averaged 20,000 shad, but of late years the annual yield has gradually decreased, and if the falling off continues, a few years more will see these old fishing piers given up.

From the piers sweep-nets of 1,920 feet in length and 30 feet deep of 5-inch mesh are used, each pier fishing two nets managed by seven men. One end of the seine is made fast to the pier with a line. The seine is then paid out from the boat and is swept round the fish and the other end brought back to the pier and placed around a capstan by which the seine is drawn in to the pier and the fish removed.

The gill-nets or drift-nets used here are 960 feet long, 25 feet deep, and 5¾-inch mesh. They are taken about 2 miles up the river and allowed to drift down with the current, catching nothing but shad.

By the three methods of pounds, seines, and gill-nets the shad fishery is carried on. Most of the catch in this vicinity is outside the river in the heart-pounds. The season commences about April 20, varied a few days by an early or late spring, and continues till June 20, when the law requires fishing with nets and pounds to cease.

The railroad station is located on the steamboat piers, at the mouth of the river, and here the fish are received, packed, and shipped. They are usually put up with snow or crushed ice in boxes holding about 300 pounds each, and in this manner sent to Hartford and New York, whence they are distributed all over the country, the entire catch being marketed fresh. The total number of

shad taken in the Connecticut River and vicinity, during 1880, was 268,608, or about 1,074,432 pounds. Striped bass and numerous other fish that were formerly plenty in the river have grown scarce, and yearly show a decrease. The cause is attributed to the pollution of the water by the large factories along its banks.

Twenty-five fyke-nets are set in this vicinity, a few outside and some inside of the river. They are fished during the fall and winter months, and capture flatfish, herring, bass, and a few shad. Two hundred lobster-pots are set about the mouth of the river and fished by four men. The catch of lobsters is small, and mostly sold in this vicinity. From 10,000 to 15,000 pounds of eels are annually taken. The refuse fish caught by the traps amount to about $500 worth annually.

For trap or pound fishing the twine for the nets is bought and the knitting hired. The twine costs 25 cents per pound and 15 cents per pound to knit it. The work is mainly done by women. The six fishing companies average 2,500 pounds of twine per year for repairs, together with 2,000 pounds of rope at 15 cents per pound. A new pound-net takes from 800 to 1,000 pounds of twine, and costs, with stakes and all the gear, from $800 to $1,000. The men employed fish on shares, receiving one-third of the net proceeds of the fish after deducting rent, packing, cartage, commissions, &c. The fisheries are held by "prescriptive right." The decisions of the courts have been that persons owning the land own the fishery opposite. These fisheries are rented at from six to twenty shad in every hundred caught.

The fishermen and owners of pounds here are mainly well-to-do farmers, and of a higher order of intelligence than is usually found among fishermen. They think that many shad either spawn in salt water or at the mouths of the creeks; and a small creek near by was a famous resort for shad years ago. In proof of this theory they say that they take many shad which have spawned. These they call "racers," and they are taken in April before the temperature is high enough in the river to induce the shad to ascend for spawning, and one was caught in November. They caught small shad of 2½ to 4 inches long in salt water in the latter part of May, 1875, and ask where they come from. In the first week in June, 1881, Mr. Denison found among a haul of six hundred shad sixty-eight of these "racers."

Mr. Samuel A. Chalker, of Saybrook, says that in 1849, the fishing was no longer profitable, and that it had gradually decreased all along the coast under seine-fishing. In that year the pounds were introduced, and since then the shad have not only increased along the coast, but in the river also. It is worthy of note that these pound-nets are not in the river, but run out from the coast just west of it, and that the middle ones take as many as the outer ones. The fishermen think that the shad come in toward the shore at flood-tide to feed, and so run into the middle nets; and in proof of this say that fifty years or more ago there was a trap here called a "weir," which was formed by stone-walls running out from the shore on the flats, and that just before the tide fell a net was stretched across the entrance, and the shad were inclosed and taken out at low tide.

Of menhaden ("whitefish") but few are now taken for manure. There has been talk of keeping the pounds set to catch these for the oil-works on Long Island, but it has not been done.

Near Saybrook there is a small stream called Oyster River that produces a variety of the bivalves after which it is named, which are said to be of superior quality. Fifteen or twenty persons engage in taking these at odd hours, but do not take more than 100 bushels a year.

WESTBROOK.—At Westbrook, the next town west from Saybrook, the shad fishery is carried on by pound fishers, using twenty-one bowls and hearts. These pounds are owned by eleven companies, and an annual average catch is about 12,000 shad, which are sold at Saybrook. About 200,000 pounds of "whitefish" or menhaden were taken here in 1880. In 1851, 5,000,000 of these fish were caught here, but they have gradually decreased in abundance. One hundred men fish

part of the year, and do other work the rest of the time. They make a scanty living. About 35,000 pounds of various edible fish are caught, and either consumed locally or sent to market.

Mr. R. H. Stannard writes as follows, under date of Westbrook, June 4, 1881:

"Our company has fished with pounds for thirty-two years, and occupied the same fishing ground with seines for a much longer time. The catch of shad this spring has been very good, fat, and large, owing to the great abundance of shad-food all along the shore this season. In dressing the shad we find them filled up with it. I think the shad have been the best this spring for twenty-three years. In 1860, 1861, 1862, and 1863 the shad were about the same as this spring. Our record shows for thirty-two years a little increase in catch. Since 1875 the catch by our company has been about 13,000 shad per year. The jelly-fish have been very destructive to pound fishing several times within the past thirty-two years. There have been more or less every year in the sound. In 1861 the best part of the season was destroyed, and in 1868 half the season was destroyed by the jelly-fish taking away the twine and stakes. In the year 1878 jelly-fish were very plenty, and almost entirely destroyed shad-fishing with pounds. This year, 1881, the jelly-fish have destroyed about one-third of the catch or time, or at least one-third of the season."

## 107. FISHING TOWNS FROM CLINTON TO EAST HAVEN.

CLINTON.—From Clinton to Guilford there are twelve pounds, managed by fifteen men. The catch of shad at the former place is marketed at Saybrook.

The oyster industry is of some importance at Clinton. Mr. Ingersoll reports on this business as follows:

"At Clinton, a little village settled under the name of Kenilworth (afterward corrupted into Killingworth), at the mouth of the Hammonaset River, the oyster business is of long growth, and is somewhat peculiar. The harbor, in old times, contained an abundance of large, succulent oysters, but these have been all but exhausted in one way or another. About twenty-five years ago the planting began in the harbor, the seed then used being caught mainly at home or brought from Block Island. The harbor at present contains about 200 acres suitable for oyster-growth. Formerly there was much more, but a few years ago the sea made a breach through the peninsula which incloses the harbor, by which the southerly storms are given so fierce an entrance into the bay, that any attempt at oyster-work, or even at navigation, over much of the water-space, is rendered utterly futile. If this breach, locally known as the Dardanelles, could be filled up—and the cost, I was informed, would not exceed $1,000—a thousand acres or more would be added to the oyster-bottom. The bottom is hard, the water nowhere too deep for tonging, and of about the right degree of freshness. Mud and sand drift so badly in winter, however, that no oysters can be left down during that season. The practice, therefore, is to put down not only Virginias, but natives of so large a growth that they shall be marketable the next winter. Years ago a much larger number of Virginia oysters were planted than at present—often 20,000 bushels—but the business has changed, until now only 8,000 bushels a year are demanded. The freight from the Chesapeake is 12 cents a bushel, and the following four schooners find employment: J. H. Chaffee, 130 tons; Mary Stow, 160 tons; G. A. Hayden, 108 tons; Helen P., 146 tons.

"A fair 'set' occurs in Clinton Harbor every year, and in 1877 there happened a very heavy one. A certain quantity of this survives, and about 1,000 bushels are utilized annually. The majority of the 'native' oysters, however, are raised from seed bought along the shore to the westward, that from Norwalk being preferred. This costs from 75 cents to $1 a bushel, and is planted in April. It is ready to take up late in the following autumn, and has grown rapidly and into handsome shape. The quality, also, is most excellent, such oysters selling at from $1 to $1.50 a

bushel at wholesale. The annual production of this stock amounts to 2,000 bushels. The only enemy of the oyster here is the drill; but this is sadly abundant.

"To recapitulate, Clinton produces annually, of southern plants, about 8,000 bushels; of Connecticut plants, about 2,000 bushels; of native oysters, about 1,000 bushels; total 11,000 bushels.

"The total investment here, which at present will not exceed $10,000, is divided among about fifteen planters, and affords a partial livelihood for perhaps a score of families.

MADISON TO EAST HAVEN.—At Madison there is a menhaden oil factory, with a capital of about $8,000 invested in four vessels of 53.22 tons, buildings, and apparatus for capturing and preparing the fish. Another factory, located at Guilford, employs about $35,000 invested in buildings and fixtures, and seventeen vessels of 329.79 tons, valued at about $25,000.

The oyster interests of this region are thus reported by Mr. Ingersoll:

"The bottom of the margin of the sound off the villages of Madison and East River has been staked off to a considerable extent, but is utilized by only one firm of oyster producers. Mr. Elihu Kelsey has kindly reported to me, by letter, upon the extent of their operations. Their beds consist of 6 acres or more, and are near a small island called Overshore. This area is protected on its southern side by high reefs of rocks. They have a second bed of about 12 acres extent a mile and a half eastward, near Tufas Island, in 20 feet of water, with hard, sandy bottom, where they are experimenting. They also own a third bed near Guilford Harbor of 24 acres, on which they have spread '2,000 bushels of shells and a good many small stones, on which the oysters "set" and grew for four years, and were the best in the world; but the water is too shoal without artificial protection, and the storms and thieves have ruined the bed.' As not enough 'set' is caught upon the stools, a thousand bushels or so of seed-oysters are annually raked from the natural beds in the vicinity of East River, or bought from dealers in Stony Creek and New Haven, and planted upon the beds. These various beds yielded, during 1879, about 1,200 bushels, the most of which were sold in the shell at $1 to $1.50 per bushel. For opened oysters $1.60 a gallon was received. No southern oysters were handled in any shape. In respect to the drawbacks and general condition of the business at East River, Mr. Kelsey writes: 'The first drawback to success is the lack of good protection from storms, which might be remedied by the construction of a breakwater. The second is the constant alteration of the State laws designed to protect the industry. The third drawback is thieving. The present condition of our producing-beds is good, and the prospect is that with plenty of hard labor our venture will be remunerative. We find the character of the soil to be of the greatest importance. On our producing-bed the mineral ingredient of the soil is iron. This renders the oysters healthy and of the finest flavor, so that our customers say they cannot be excelled.'

"At Guilford some inshore ground is cultivated, but this is not of great capacity. Outside, west of Goose Island, they have improved about 160 acres in water from 7 to 10 fathoms deep, upon a hard, sandy bottom. This outer tract has not as yet had time to yield much. The spreading of shells in the hope of catching spawn appears futile, for the sufficient reason that there are no living oysters in the vicinity to produce the spat. A large quantity of seed has therefore been placed on this area. This seed was procured partly in the Guilford River, although there is great opposition to its being taken, and has largely been bought in the western part of the State. Besides this, several hundred bushels of large-size oysters have been scattered among the planted shells to produce the spawn which it is desired to catch. A small set has already been obtained, and next year some harvest will begin.

"The oysters heretofore and at present obtained at Guilford, from the artificial inshore beds which have been in existence for thirty years, are of large size and fine shape. Their flavor is

excellent. Formerly they were sold regularly to Hartford buyers at $8 and $9 a barrel; now, however, they are worth only $4 to $5. About 800 bushels a year comprise the total yield at present. No Virginia oysters are planted at Guilford. Experiments showed that the practice was not successful. The great drawback upon the inshore ground is the drifting of sand and mud, which is likely to occur in storms; the drills also are troublesome, but I did not hear that starfishes had caused much damage thus far.

"The native river-oysters at Guilford formerly lined the whole river, opposite the town, for 3 or 4 miles. A town-regulation early prohibited the taking of more than 2 bushels a day by one person, but this has been more or less evaded, and now the fishery is of little value, all the oysters taken being very small; yet there is so strong a popular prejudice against utilizing any of this product in seeding the artificial beds, or against allotting the suitable ground in the exhausted river for cultivation, that the town voted to not avail itself of the privileges granted by the State in general statutes, which are as follows:

SEC. 12. "'The selectmen of Guilford may lease, for not exceeding ten years, all ground of the town in East and West Rivers, suitable for planting or cultivating oysters, to the highest bidder,' at public auction; but no lease shall be made to any person of more than five acres, nor to a minor. 'The leases shall be executed by the selectmen, as deeds of real estate, reserving to said town the rents for such grounds, * * * and any lessee shall, during the term of his lease, be the owner of all the oysters thereon, but shall not take any oysters therefrom in the night season.'

"This ratification, as I have stated, was refused, and a two-bushel protective regulation was made instead.

"About 600 acres of land have been set apart for oyster cultivation in the waters of the sound, outside of this harbor, besides that already mentioned near shore. No improvement, however, has yet been made upon this area.

"The next point of oyster-culture is Stony Creek, where the large collection of islets known as The Thimbles affords excellent opportunity for planting and raising. Organized business here is of comparatively recent date, but native oysters of extra quality were always to be had for the raking in the harbor. The largest dealer is the Stony Creek Oyster Company, N. P. Miner, president, which was established in 1868, and now owns 400 acres of ground devoted to the growing of oysters, and has a capital stock of $42,000.

"The Stony Creek Oyster Company raises annually about 15,500 bushels of natives, and employs six men. All the stock is sold in shell, shipping in barrels, and opening little or nothing. The other persons engaged in planting have spent a good deal of money here in getting the foundation of a business laid, but with small actual results as yet. There is also a large class of citizens who cultivate for personal use, or sell to a trifling extent, and so get a partial support out of the industry. It was very difficult to gather any exact or approximate figures, therefore, outside of the oyster company's report; but I judge that all the other producers together, added to the 15,500 bushels reported by President Miner, will not bring the total production of Stony Creek in 1879 above 20,000 bushels.

"The prospects at this point seem very good. Some large sloops are employed in dredging, and it is proposed to employ steam very soon. An air of unusual thrift is observable about the oyster-houses on the shore, which do not, as is too often the case, disfigure the pleasant scene. Stony Creek is a favorite source of seed-supply to the planters of Rhode Island, and probably one-fourth of the year's yield is sold in the spring for this purpose, the purchasers sending sloops to be loaded. Stony Creek beds had a good set in 1879, very little in 1878, but a massive collection of spawn in 1877. The great obstacle to success along this part of the coast is the lack of smooth,

hard bottom, and the liability of the ever-present mud to be moved about and settle upon the oyster-beds in such quantities as to kill the young and stunt the old ones. The oysters grow in clusters, and are likely to be of large size, long and slender, forming 'coon-heels' and 'razor-blades.' They are so clogged with mud when brought ashore that a stream from a hose must be turned upon the heap before the clusters can be broken apart, preparatory to the culling for size."

West of Guilford there are four companies of pound-fishers, employing ten men. Mr. H. Fowler, of Guilford, says he has fished for twenty-five years, principally for menhaden, and takes a few shad, but not in paying numbers. Some tautog, eels, flatfish, and other species are taken with nets and lines, but the total amount captured is not great.

From Sachem's Head to East Haven there are sixteen pound-nets, handled by twenty men, who report the fisheries as failing for years past. But few menhaden are taken, and although shad are more abundant than for several years past, the catch in 1880 was only 20,000. Edward Kelsey has three pounds on Durrey's Island (included above), and takes menhaden, and occasionally other fish. The catch of edible fish in this district was only 20,000 pounds, and of eels 3,000 pounds. A menhaden factory at Branford employs about twenty-five men, and in 1880 produced about $12,000 worth of oil and guano. Three small vessels are used in carrying menhaden to the factory or in capturing these fish.

Mr. Ingersoll reports, concerning the oyster interests hereabouts, that the river at Branford was once a "great natural oyster-bed, but has now become nearly depopulated, and it is hard to get any seed for the outer beds. The star-fishes are reported to have damaged the beds very greatly in 1878, and the drill is an ever-present enemy. Southerly storms often bury the oyster-beds here wholly out of sight. This misfortune happened to one planter, after an expenditure of over $1,200 on artificial beds inside of Stony Island. The whole product of the locality last year was about 3,500 bushels, and half a dozen families are supported. Off Branford and East Haven coast, in the deeper water of the sound, more or less ground has been granted to strangers, but the results are nothing, as yet.

"At the village of East Haven about 80 acres are under cultivation in the offshore waters of the sound, devoted wholly to native oysters, for which seed is procured from neighboring beds, or spawn is caught on planted shells. In 1879 the catch was 3,000 bushels, all of which were sold in the shell at an average price of $1 per bushel. It is supposed there remain 20,000 bushels of oysters on the ground, subject to risks from heavy storms and creeping enemies. The mode of catching is by dredges at all seasons, and three men find employment at $2 wages per day."

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## D.—FISHERIES OF NEW HAVEN AND VICINITY.

### 108. GENERAL FISHERIES OF NEW HAVEN.

HISTORY AND PRESENT IMPORTANCE.—At about the close of the last and the beginning of the present century, New Haven was quite extensively engaged in the fur-seal fishery at the Falkland Islands, South Shetland, Masafuero, and other seal islands. One of the famous sealing voyages from this place was that of the ship Neptune which sailed in October, 1796, and returned to New York July 17, 1799, having taken 50,000 fur-seal skins from the seal islands to China, where they were exchanged for goods that yielded over $260,000 in New York. Other voyages were those of the ship Sally in 1800, and the ship Draper in 1803. The northwest coast of America

fur trade also claimed the attention of New Haven merchants. No sealers have been owned here for many years past, that fishery being carried on from New London and Stonington.

At present almost the only fishery engaged in at New Haven is the oyster fishery. Some lobsters, about 100,000 pounds yearly, are taken off New Haven Harbor, and a large seine, nearly a mile long, is sometimes set for menhaden. The fish markets of New Haven are supplied from New York, Boston, Gloucester, and Portland.

## 109. THE OYSTER INDUSTRY.

HISTORY: IMPORTATION OF SOUTHERN OYSTERS.—The oyster business is fully reported by Mr. Ingersoll. He says: "New Haven is one of the principal depots of the oyster trade in Connecticut, and in the United States. From the earliest times the borders of the Quinepiac River, on the eastern boundary of the city of New Haven, have been the scene of oyster operations. Shell-heaps along its banks show how the aborigines sought in its waters, season after season, the best of bivalves, and the earliest settlers followed their example. Natural beds of oysters were scattered over the bottom of the whole river for 3 miles, clear up to the North Haven salt meadows, and at intervals along the eastern shore of the harbor, where favorable coves existed. At all points these mollusks were convenient of access. The result was that the raking of oysters in this river, and along the eastern shore of the harbor at its mouth, which was a free privilege, was early adopted as a business by many persons who lived near the banks, and a considerable retail peddling trade was thus kept up throughout the neighborhood, in addition to the home supply. Wagon loads of opened oysters in kegs traveled in winter to the interior towns, even as far as Albany, and thence westward by canal.

"It came about, that among the first places in New England to import oysters from New Jersey, and then from Virginia, to be transplanted for additional growth, was Fair Haven; and it is probable that far more oysters were brought there from the Chesapeake twenty years or even ten years ago than now are. At that time a large fleet of Connecticut vessels was employed in this traffic every winter, and some stirring traditions remain of perilous voyages during that icy season. They were better oysters that came in those days, also, than now. While a large majority of these cargoes were at once sent into the current of winter trade, and distributed to customers all over the State (for no other harbor fattened 'Chesapeakes' to any extent), a quarter or so of the whole season's importation was regularly bedded down, in April and May, to supply the summer and fall demand. The favorite bedding ground then, as now, was 'The Beach,' a sand-spit running off into the harbor for more than a mile from the Orange (western) shore. This is bare to a great extent at low tide, but covered everywhere at high tide, and is the best possible place for its purpose. The ground on this beach rents at from 2 to 5 cents a bushel, according to location. Those occupying the Beach each year—in 1879 they were twenty-three in number—form themselves into a mutual protective association, and provide watchmen who never leave the ground. Formerly these watchmen lived in boats housed in, but now, upon opposite extremities of the Beach, piles have been driven and two houses have been built, where these men live, and whence they walk or row about day and night to guard the property. They go on duty at the time of the first planting, and remain until the last oyster is gathered, a period usually about nine months long. Their wages are only $40 a month, and it would seem to be an extremely tedious duty; yet there is no lack of volunteers for the places. But I have shot ahead of my subject, in following out this matter to its present status; let me return to a past period.

"The Virginia trade began about forty or fifty years ago, Capt. Merritt Farran having been the first man to bring them. His cargo was a sloop-load of about 600 bushels, profitably sold.

The trade rapidly grew into immense proportions. Just when it was at its zenith it is hard to say —probably about thirty years ago—and it was then very profitable. The Fair Haven establishments had branch houses in all the inland cities, as far as Chicago and Saint Louis, and it was reported that the profits of a single house, from 1852 to 1856, amounted to $25,000 a year. Levi Rowe & Co., alone, in 1856, are said to have employed twenty vessels, and one hundred openers, and to have sold 150,000 gallons of oysters, while companion houses shipped from 1,000 to 1,500 bushels per day throughout the season. In 1857–'58, according to De Broca, from 200 to 250 schooners were employed in supplying the establishments of Connecticut from the Chesapeake and Fair Haven, which alone, he says, made use of 2,000,000 bushels, but this undoubtedly was a large exaggeration; one-half of that would certainly more than cover the facts. Half a dozen years later the decline was very perceptible."

SOUTHERN OYSTERS AT FAIR HAVEN.—At Fair Haven in 1857 the oyster business was quite extensive. About eighty schooners of 2,000 to 4,500 bushels capacity were mostly owned at this place, and many additional vessels were chartered to bring oysters here. The capital invested was about $1,000,000. Mr. Ingersoll continues:

"With the growth of so extensive a business, in so confined a space, came the attendant evil of too severe competition. About 1850, therefore, one or two Fair Haven men of energy conceived the idea of taking their warehouses to the oysters, instead of bringing the mollusks so far to the salesroom. They therefore opened branch houses in Baltimore. Others followed, and the names of Maltby, Mallory, Hemingway, Rowe, and their confrères, long familiar in Connecticut, and identified then as now with the oyster business on the Quinepiac, became equally well known along the Chesapeake, and, through wide advertisements, over the whole country. All the great Baltimore firms of old standing originated in Fair Haven, just as Wellfleet, an obscure village on Cape Cod, supplied Portland, Boston, and Providence with its oystermen. The result was the same in both cases; the home interests retrograded when metropolitan advantages began to be used in competition, and at Fair Haven considerable and rapid changes in methods, as well as the results of trade, have come about.

"All of the foregoing remarks have applied to the imported Chesapeake oysters, which were brought in the spring, fattened on the sand bars in the harbor, and taken up in the autumn. Then, as now, New Haven harbor had no competition in this branch of trade worth speaking of anywhere else in the State; and it may be dismissed, so far as the whole of Long Island Sound is concerned, with the remark that many or all of the old dealers continue to bring and plant southern oysters, which they open in the fall and winter, but a good proportion confine themselves wholly to raising and disposing of natives.

"The Chesapeake oysters brought into this locality in 1879 amounted to about 450,000 bushels. Those from the Rappahannock are the favorites for winter use, and are imported almost exclusively; for planting purposes, however, Rappahannock oysters are undesirable, and those from Fishing Bay, Saint Mary's, and Crisfield are preferred. But this may be wholly changed in a year or two.

"EARLY OYSTER CAMPAIGNS ON THE QUINEPIAC.—The remainder of my history will apply to the gathering, transplanting, and propagating of native oysters in the waters of Long Island Sound, opposite New Haven.

"It has already been mentioned that native beds existed within recent years, if they do not now flourish, in every harbor westward of the Thames River, and that many of these old localities, as Stony Creek, Branford, &c., still furnish large quantities of small oysters for the plantations. None of these localities ever equaled, however, the importance of the Quinepiac and its tributaries

at New Haven as a natural field of oyster production, while this harbor was equaled, if not surpassed, by several inlets still farther west.

"Until lately, however, all this wealth was used up in private consumption, sold in the shore towns as 'fancy,' or mixed in with the southern stock, without being taken into account. The fishing was done mainly for each man's winter supply, and nobody paid much attention to any regulation of it beyond the close-time in summer. Gradually, however, these public river oysters became more rare and coveted. The law was 'off' on the 1st day of November, and all the natural beds in the State became open to any person who wished to rake them. In anticipation of this date great preparations were made in the towns along the shore, and even for twenty miles back from the seaside, boats and rakes and baskets and bags were put in order. The day before, large numbers of wagons came toward the shore from the back country, bringing hundreds of men, with their utensils. Among these were not unfrequently seen boats, borne on the rigging of a hay-cart, ready to be launched on the expected morning. It was a time of great excitement, and nowhere greater than along the Quinepiac. On the day preceding, farmers flocked into Fair Haven from all the surrounding country, and brought with them boats and canoes of antique pattern and ruinous aspect. These rustics always met with a riotous welcome from the town boys, who hated rural competition. They were very likely to find their boats, if not carefully watched, stolen and hidden before they had a chance to launch them, or even temporarily disabled. These things diversified the day and enlivened a community usually very peaceful, if not dull. As midnight approached, men dressed in 'oilskin,' and carrying oars, paddles, rakes, and tongs, collected all along the shore, where a crowd of women and children assembled to see the fun. Every sort of craft was prepared for action. There were sharpies, square-enders, skiffs, and canoes, and they lined the whole margin of the river and harbor on each side in thick array. As the 'witching hour' drew near, the men took their seats with much hilarity, and nerved their arms for a few moments' vigorous work. No eye could see the great face of the church clock on the hill, but lanterns glimmered upon a hundred watch-dials, and then were set down, as only a coveted minute remained. There was a hush in the merriment along the shore, an instant's calm, and then the great bell struck a deep-toned peal. It was like an electric shock. Backs bent to oars, and paddles churned the water. From opposite banks navies of boats leaped out and advanced toward one another through the darkness, as though bent upon mutual annihilation. 'The race was to the swift,' and every stroke was the mightiest. Before the twelve blows upon the loud bell had ceased their reverberations the oyster-beds had been reached, tongs were scraping the long-rested bottom, and the season's campaign upon the Quinepiac had begun. In a few hours the crowd upon some beds would be such that the boats were pressed close together. They were all compelled to move along as one, for none could resist the pressure of the multitude. The more thickly covered beds were quickly cleaned of their bivalves. The boats were full, the wagons were full, and many had secured what they called their 'winter stock' before the day was done, and thousands of bushels were packed away under blankets of seaweed in scores of cellars. Those living on the shore, and regularly engaged in the trade, usually secured the cream of the crop. They knew just where to go first; they were better practiced in handling boats, rakes, &c.; they formed combinations to help one another. That first day was the great day, and often crowds of spectators gathered to witness the fun and the frequent quarrels or fights that occurred in the pushing and crowding. By the next day the rustic crowd had departed, but the oysters continued to be sought. A week of this sort of attack, however, usually sufficed so thoroughly to clean the bottom that subsequent raking was of small account. Enough oysters always remained, however, to furnish spawn for another year, and the hard scraping prepared a favorable bottom, so that there was usually a fair supply the

next season. It was not long, however, before the old-fashioned large oysters, 'as big as a shoe-horn,' were all gone, and most of those caught were too small for market. Attention was therefore turned to the cultivation of oysters, and as the Chesapeake trade declined this subject began to receive more and more earnest attention and to arouse an unexpected opposition upon all sides.

"ALLOTMENT OF GROUNDS; ORIGIN OF OYSTER-PLANTING.—The laws of the State provided for the setting apart of tracts of land under water for the planting or cultivating of oysters. The position and amount of these tracts that were to be set apart were left to the judgment of the people of each town, who chose a committee of three to five electors, termed the 'oyster-ground committee,' to act in such matters. Two restrictions, however, were always jealously insisted upon: First, that no 'natural oyster-beds' should be set apart or 'designated' (the legal term) for purposes of planting or cultivation; second, that no more than two acres should be allotted to each applicant. All the early designations made in New Haven harbor, therefore, were in the shallow districts near and below the mouth of the Quinepiac, where no natural beds existed, and the allotments were of various sizes. They were owned by women and minors as well as by voters, and thus it was possible for a citizen who cared to do so to acquire for his use several acres, being those taken out in the name of his wife, his sons, and even of his relatives of remote degrees. Moreover, it was permitted to assign these rights and privileges; but any one who applied for grants of land 'for the purpose of speculation,' was guilty of a misdemeanor. It was thus an easy matter for a man who desired to cultivate native oysters extensively to get under his control a large amount of land through assignments from family and friends; nor, in the great majority of cases, was any money consideration given for such assignments. It soon became common, indeed, for an application to be made by 'A, B, and others,' a score or more, perhaps, everybody understanding that while the 'others' were actual inhabitants of the town they had no intention of making any personal use whatever of the privileges. This, of course, was an evasion of the law, which practically amounted to its annulment, yet no one objected, for the spirit of the statute was not considered to have been broken; perhaps it ought to be said, no one objected at first, for within the last few years there has been loud murmuring against the largest dealers, who have obtained the control of hundreds of acres, and who have found it necessary to secure amendments and additions to the laws in order to make their titles sure and strong.

"It will be understood by this that the business of catching and cultivating native, home-bred oysters at New Haven had grown, out of the old haphazard condition, into a definite and profitable organization by the time the last decade began. It was not long before all the available inshore bottom was occupied, and the lower river and harbor looked like a submerged forest, so thickly were planted the boundary stakes of the various beds. Encroachments naturally followed into deeper water, and this proceeded, until finally some adventurous spirits went below the light-house and invaded Long Island Sound.

"Who was the originator and pioneer in this bold move is undecided; the honor is claimed by several with about equal right. At any rate, Mr. H. C. Rowe first showed the courage of his opinions enough to take up some hundreds of acres outside, in water from 25 to 40 feet in depth, and to begin there the cultivation of native oysters.

"Incessantly swept by the steady and rapid outflow of the Quinepiac and Housatonic (whose currents flow eastward), the hard sandy bottom of Long Island Sound, off New Haven and Milford, is kept clean throughout a considerable area, beyond which is soft, thick mud. There are reefs and rocks scattered about, to be sure, and now and then patches of mud; but over large areas extends only a smooth, unincumbered bottom of sand or gravel. This makes this region peculiarly adapted to oyster-culture.

"This new departure, or unlooked-for expansion of the business, caused considerable excitement as it rapidly developed. It was soon seen, in the first place, that the existing statutes, which never had contemplated this sort of thing, would not fit all the exigencies, and after the codification of 1866 alterations and amendments rapidly followed one another, in which the conflicting interests of the deep-water cultivators and the small inshore owners were sought to be harmonized or guarded against opposition. Although recognized by law and acknowledged by clear heads since the earliest times, the rights of proprietorship under the water, and the notion of property in the growth and improvement ensuing upon ground granted and worked for oyster-culture, have hardly yet permeated the public mind and become generally accepted facts. Cultivators of all grades found many and many instances in which their staked-out ground was reappropriated, or the oysters, upon which they had spent a great deal of time and money, were taken by their neighbors even, who angrily resented any imputation of stealing. Not uncommonly the proceeding was much after the manner of mining in a new gold or silver region, such as the Leadville district of Colorado, for instance, where prospectors 'locate claims' on top of one another, and all went to digging side by side, the first one to strike 'mineral' having a right to any or all of his rivals' territory, within stipulated limits.

"Having put some oysters on a piece of ground and found them to do well, a man would put in a claim for a grant of that piece, and feel greatly abused because it had previously been designated to some man who knew that the only proper or safe way was to get legal possession of the ground first, and make a trial afterwards.* Then number one would claim the right to remove his oysters, and in doing so would be sure to be charged by number two with taking more than belonged to him. It was easy, too, for unscrupulous persons to dump seed or large oysters upon ground that they pretended not to know was already granted, and then, in taking their stuff away, to rake up a large addition.

"If a man neglected to take out a title to his ground, or omitted any technicality, somebody stood always ready to rob him of all the results of his work in open daylight, with the calmest effrontery. 'All that is under water is public property' was the maxim of the million, 'unless every form of law is observed'; and unless it is watched with a shotgun besides, they might have added. An authentic incident that happened many years ago will illustrate this temper; and I should not devote so much attention to this matter were it not that this false philosophy has been almost universal, has proved the greatest stumbling-block to the prosperity of efforts at oyster-culture along this whole coast, and is almost ineradicable from the 'longshore mind.

"Two of the veterans of the native oyster business at this point were born and spent their boyhood on the shore, and early became accustomed to the habits and haunts of all the fishes and mollusks. When they were lads of seventeen they sought out a suitable place near the western shore, and gradually accumulated there an artificial bed of native oysters, which soon attained a merchantable size. There were several hundreds of bushels, and the young men were congratulating themselves as fall approached that upon the early completion of the engagements which then occupied their time they would reap a rich harvest from their labor and patience. The time when they intended to take them up was only a few days distant, and no harm by storm or otherwise had come to the bed, when one morning they went out only to find that every oyster had disappeared. It was a cruel disappointment, but inquiry soon solved the riddle. In the darkness

* Perhaps some excuse or explanation of this sore feeling is found in the fact that the town of Branford allowed a man to apply for and try a quantity of land a year; at the expiration he could pay for it or "heave it up," as he thought best. This was a purely local regulation, however.

of the preceding night several teams, fully prepared for the work, came down from miles and miles back in the country, from away up about Westville and Woodbridge and North Orange, and their owners had raked up the whole bed and carted it away to hide in their cellars. No robbery could be plainer, and there was little attempt to secrete it; but there was no redress, and the perpetrators chuckled over it as a good joke without a scruple about the propriety of the thing. Nothing in the sea was private property.

"LEGAL PROTECTION FOR OYSTER-PLANTERS.—A vast amount of this sort of stealing and interference with proprietary rights granted by the State was perpetrated and sanctioned by the great majority of the watermen, under the plea that the locality in question was 'natural ground.' Any definition or restriction of this ground was impracticable and resisted. The only resource for the man who had invested money in oyster-culture, and wanted the opportunity to develop his investment, was to declare that no 'natural oyster ground' existed in New Haven Harbor, and that designations past and to come were valid, even though the areas so designated might once have been natural oyster-beds. This checkmated the men who 'jumped claims,' yet refused to be considered thieves; but it caused a tremendous howl against the movers, in which a large number of persons, having small information of the facts, joined, on the general principle of 'death to the capitalist.' It may have worked discomfort in a few individual cases, as all sweeping changes must, but on the whole, considering how nearly exhausted and worthless the Quinepiac fisheries had become, I think it must be regarded as not unjust. At any rate, the legislature of 1875 passed an amendment exempting Orange, New Haven, and East Haven from the enactment prohibiting the setting apart or 'designation' of 'natural oyster-beds' for purposes of planting or cultivation, leaving, however, the law intact for the rest of the State. Had this measure not been passed, systematic cultivation would have been vastly hindered, if not altogether killed, by thieves and malcontents, so far as New Haven harbor is concerned. Elsewhere, under different conditions, no such necessity exists as yet, in order to be able to prosecute the artificial raising. Instantly upon the passage of this act there was a rush by everybody for the possession of lots in all parts of the Quinepiac and West Rivers. The oyster committee of the towns decided that each owner of land abutting on the river should possess the right to the bottom opposite his land for 100 feet from high-water mark. This was a concession to popular feeling, though that opinion had no foundation whatever in law, since the title to riparian real estate in this State terminates at the high-water tide limit. Between these boundaries, or 'wharf lines,' tracts equal in width to each man's water front, and extending to the channel, were allotted to the land owners at $10 to $15 an acre; but the majority of them were not more than half an acre in extent. Lucky receivers of these river grants at once found themselves able to sell for from $25 to $50, and before long there was brisk demand and little sale, at prices ranging from $100 to $150. The deep-water men found this river property of great use as a nursery for seed, and as a place to make temporary deposits of surplus stock, &c. The Quinepiac thus began to bristle with boundary stakes, much as the harbor had done for many years previous, and many of these river lots are now valued at more than $500.

"In 1877 a very full set was obtained everywhere in the river and harbor; in 1878, however, there was almost a total dearth; but 1879 again saw a partial set.

"PRESENT CONDITION OF OYSTER-CULTURE IN THE VICINITY OF NEW HAVEN.—Situated on the western shore, the township of Orange (West Haven) owns the western half of the harbor of New Haven. These shores have always been populous with oysters, which were raked as public property. If any attempts at cultivation were made until within a few years, they were desultory

and of small account. When the general oyster statutes were passed, Orange at once acted under them, but delegated to its selectmen the powers of an oyster committee instead of erecting a second board, as was done in all the other towns. This arrangement has been found to work very well. The first designation was made in April, 1864, and all the suitable ground in West River and in the harbor was soon set apart, amounting to about 45 acres. Mr. Samuel Smith, chairman of the selectmen, tells me that nothing was charged for this ground, but that it was put under taxation, and now pays on valuations running from $50 to $500. When, four years ago, the experiment of deep-water cultivation was begun, Orange issued designations, almost wholly to citizens of other towns, for about 2,450 acres, at $1 an acre. It is impossible to come nearer than this to the town's revenue from its oyster-lots, since no separate account is published by the treasurer. The deep-water area is taxed at a merely nominal rate at present.

"Only two producers of any consequence now reside in West Haven. The small allotments in West River which they possess are nearly ruined by the drifting of sediment, and the total product of the river last year would hardly exceed 500 bushels. One planter told me he had had 12 acres in one lot in the harbor spoiled by becoming covered with mud.

"Between Orange and East Haven lies New Haven, priding herself upon her harbor. She had begun to set apart oyster-planting ground for the use of her citizens. Before long, however, it was claimed that she was allotting spaces of bottom over which she had no jurisdiction. This brought on suits at law and aroused inquiry. The forgotten fact was then brought to light that in 1863 a joint commission (of which Noah Webster, the lexicographer, was a member) determined the boundary between New Haven and East Haven to be, in general terms, the ship-channel down the Quinepiac and down the harbor. This was ratified by the general assembly. A few years later some disputes caused the appointment of a commission to settle upon the boundary between New Haven and Orange. This was reported to be the middle of West River, and thence eastward to the ship-channel in the harbor. It seems to have been the intention of this commission that this line should intersect and terminate at the East Haven line, but by some error this was not quite done. The recommendations of this commission were adopted by the legislature and decreed to be the boundary between the two towns. This left to New Haven only the waters just about her wharves and a very narrow, wedge-shaped strip down the channel. When, by later laws, it was decided what of the deeper ground of the sound should be 'designated' by East Haven and Orange, respectively, New Haven was allowed a strip 1,500 feet wide, running southward into the sound from a line drawn from the old light-house to Savin Rock.

"Although these boundaries were settled nearly a century ago, the New Haven oyster committee not long ago designated ground in Orange waters, where they had no right to. Unscrupulous persons at once took possession, and in some cases refused to yield to the legal owners deriving their designations properly. Hence expensive suits and much personal animosity has arisen. Many lessees, however, learning their mistake in time, took out new deeds from the rightful authorities, and so saved themselves. But this was done at additional expense, for New Haven had never charged anything for her privileges.

"Out of the 7,000 or 8,000 acres 'designated' in New Haven Harbor and its offing only from 3,000 to 3,500 are in actual use as yet. The largest possession is Mr. H. C. Rowe's; he operates upon about 1,500 acres. Several other planters have from 200 to 600, while many have 100 acres under cultivation. The major part of this is in deep water, and is yet regarded to a great extent as an experiment, particularly by those who live in other parts of the State. Thus far the success has been encouraging. One gentleman calculates that he has 200,000 bushels of oysters of all

ages on his offshore land. Another planter gives me his estimated wealth as follows: On 70 acres 75,000 bushels, suitable to be sold as seed in the spring of 1880, at an average of 50 cents a bushel; on 50 acres, shells and a good set; elsewhere, in one tract, about 3,000 bushels of young spawners, on which shells are to be thrown; on another tract, 20,000 bushels of seed useful in 1880; and, lastly, an area holding about 5,000 bushels of 'set'. A 30-acre lot yielded this firm 12,000 bushels in three years, which were sold at 70 cents."

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## E.—COAST TOWNS OF CONNECTICUT WEST OF NEW HAVEN.

### 110. GENERAL FISHERIES OF THE DISTRICT.

FISHERIES FROM MILFORD TO NEW YORK.—There are no important general fishing stations in Connecticut west of New Haven. At Milford there is a menhaden oil factory with a fleet of twelve vessels, aggregating 316.62 tons, and a large capital invested in buildings and machinery. In the Housatonic River eleven seines, handled by forty-seven men, are used in the annual capture of about 28,000 pounds of shad and 165,000 pounds of other fish.

At Stratford seines are hauled for menhaden for manure, and a few blackfish or tautog, flounders, and striped bass are taken. The total catch of these fish is about 6,000 pounds yearly, and 20,000 pounds of eels. No one lives entirely by fishing. Ten men take eels in summer.

W. D. Cook & Sons, fish dealers at Bridgeport, report that a few bluefish, weakfish, and striped bass are taken near there with lines, mainly for sport. A seine is sometimes hauled, but it does not pay. Fykes are set for flounders, and a sturgeon is sometimes caught. The bluefish seldom exceed 2 pounds. Eels are taken in pots and with spears. The market supply of fish comes from New York, Boston, and Gloucester. The above firm has sold 44 barrels per week. The catch here amounts to 2,000 pounds of eels and 5,000 pounds of other species. No one lives by fishing entirely; it is mainly done for sport. The fishermen throw small eels on shore to die. Mr. W. D. Mills has a small seine 30 rods long, 14 feet deep, and of 2½-inch mesh. He says that there are nine seines owned here, but that if a man depended upon fishing he would starve. They fish when other work is dull. Blackfish and flatfish are the main fish. A few lobsters are caught.

The supply of fish for South Norwalk comes almost entirely from New York, and there is no fishing here except for sport. Some of the people take a few eels and flatfish, but not enough to amount to anything for market.

From South Norwalk to New York the same story is told. All fish come from New York to the big markets. A few men drag out an existence by fishing when nothing else offers, but they are of an idle class who do not care to do too much of anything. A few anglers fish for sport, and an occasional big bass is taken. The following notice is from Forest and Stream of June 2, 1881:

"NEW ROCHELLE, NEW YORK.—On the 24th of May, Mr. Walter J. Davids caught with a hook and line, using a squid for bait, a striped bass 4 feet 2 inches long and weighing 53 pounds. It was taken in New Rochelle Harbor, Long Island Sound, in about 12 feet of water, near the village dock.—H. W. M."

Anglers find sport occasionally, but from a commercial point of view there are practically no fisheries here.

## 111. ORIGIN AND PRESENT IMPORTANCE OF THE OYSTER INDUSTRY.

MILFORD.—Concerning the oyster industry of Milford, Mr. Ingersoll says:

"Leaving New Haven, the first stoppage for oyster studies is at Milford, one of the most interesting and beautiful places in the State. It was settled in 1639, and long ago had an extensive West India trade and ship-building industry. The business in that line declined forty years ago. The gulf, harbor, and estuaries have always been more or less prolific of shell-fish. Milford long-clams have a good reputation. Milford Point, at the mouth of the Housatonic River, was a famous oystering place many years ago. Old citizens remember a row of huts, built of wreckage and covered with banks and thatching of seaweed, which used to border this wild beach. In these huts lived fifty or sixty men, who made here their home during the greater or less part of the year, and devoted themselves to clam-digging and oyster-raking. Many of these men, who were utterly poor, thus got together the beginnings of a fortune, which, invested in active agriculture, placed them among the most influential inhabitants. But for the last thirty or forty years such sea industries as these have been declining, until nothing whatever was done on the water by Milford people, except the catching of menhaden, for the utilization of which two large factories have been built.

"About eight years ago, however, Mr. William H. Merwin, knowing what had been done about New Haven, began his valuable experiments in cultivating native oysters. He and some others had once before started an enterprise of raising oysters in the 'Gulf Pond' at the mouth of the Indian River. But the other stockholders, being older men, disregarded his advice, though he had always lived by the shore, and the effort failed. They insisted upon damming the river, so that the sediment brought down by the stream was deposited upon and smothered the oysters. It is this episode that gave rise to section 10 of the oyster statute.

"Eight years ago Mr. Merwin resolved to try oyster-planting for himself. He took up a few acres off the shore in water 8 feet deep at low tide. He had just got his oysters well planted and had high hopes of success, when a storm destroyed them all. His labor and money got no return but costly experience. He then tried again, further out toward the sea, in 18 feet depth of water, near the Government buoy. He got so heavy a set, and his young stock grew so well, that he estimated his crop at 10,000 bushels. Cultivators from Providence and Boston came down and bargained with him to take it all about the middle of April, but the last of March there came a gale which drifted so much sand upon the oysters that they had not strength, after the severe winter, to 'spit it out,' and before they could be taken up so many died that only 3,000 bushels were sold. There had been an immense excitement over the seeming success of oyster culture; a joint-stock company had been formed and the whole harbor taken up; but this storm put an end to the enthusiasm, and everybody, except Mr. Merwin and his two sons, retreated. Mr. Merwin, however, saw that the trouble lay in the shallowness of the water. He therefore went down to Pond Point, eastward of the harbor, and buoyed off 200 acres in water from 25 to 40 feet deep, upon a hard gravelly and sandy bottom. He placed upon this ground a quantity of full-grown oysters and shells and secured a large set, which has been augmented each year since, until he now has 100 acres under cultivation. In 1877 there was a very heavy set hereabouts; in 1878 less, and in 1879 least of all.

"Having thus got assurance of a profitable farm, for storms no longer seemed able to affect him, Mr. Merwin saw that he needed more rapid and sure means of harvesting his crop than the row-boats and skiffs afforded. He therefore employed the firm of Lockwood & Co., of Norwalk, to build him a steamer for the express purpose of dredging, and introduced the proper

machinery for that work. With this steamer, which is to a large degree independent of wind and weather, he can do three times the amount of work possible for the same number of dredges worked without steam (500 bushels is not an uncommon day's result with two dredges), and do it best on the 'dull' days, when it is too calm for his neighbors' sloops to work. Its owners often find profitable employment for their leisure in chartering the steamer to other oystermen, who desire aid in dredging or in raking off the starfish that infest some beds. One single instance of the advantage the use of steam was to this firm will be pardoned. In the spring of 1879 a Rhode Island planter sent a sloop, capable of carrying 1,500 bushels, to New Haven to buy small seed. The Merwins were invited to contribute to the cargo, the captain of the sloop buying on the principle of 'first come, first served,' until he had filled up, haste being the great desideratum. It happened that upon the very day the sloop arrived a dead calm fell, and not a sloop from Fair Haven or Oyster Point could haul a dredge. Meanwhile Mr. Merwin's steamer was puffing back and forth through the quiet sea, without an hour's cessation, and in two days placed 1,200 bushels of seed upon the sloop's decks.

"There are two rivers which come down to the sea at Milford, the pleasant Wepawaug, along whose banks the town lies, and whose upper waters turn numerous mills; and Indian River, which empties into the harbor close by the mouth of the former stream. Indian River debouches in an estuary called the Gulf, or Gulf Pond. Except in one little spot no oysters grow now, or ever did grow, in this inclosed salt-water pond, although it would be the best possible place to cultivate them. But the popular feeling of the town is so strongly against the utilization of these advantages by private effort, that no ground is permitted to be set off, and any oysters put down there are liable to be seized as public plunder. Once, indeed, the oyster committee assigned to Mr. Merwin a tract in the gulf; but as soon as it was found out, an indignation meeting was held and mob law was loudly threatened. Cooler judgment overruled that, but any cultivation of this valuable ground, otherwise wholly useless, was sternly interdicted.

"Inspired by Mr. Merwin's success and pluck, various persons have taken up ground in the vicinity of his tract off Pond Point, amounting in the aggregate to about 750 acres, divided among eight owners. One of these gentlemen, in addition to 100 acres here, has several smaller tracts at different points along the shore to the westward; in all, about 400 acres, upon which some thousands of bushels of young oysters are growing. There is plenty of good bottom still remaining off this shore, however.

"SEED OYSTERS AT STRATFORD AND VICINITY.—Having passed to the westward of New Haven and Milford Harbors, we come upon a new feature of the oyster business. This is the systematic dredging of natural beds in the sound and along the inlets of the shore, for seed to be placed upon the artificial beds in the eastern part of the sound, in the East River, and on the south shore of Long Island. This department of the business will demand more and more attention as I progress toward its headquarters at Norwalk. The most easterly natural bed which these dredgers attack is one off Clark's Point, just east of the mouth of Oyster River. (In Oyster River itself, by the way, no oysters have ever been known within the memory of tradition, although that name appears in a map drawn prior to 1700.) The next natural bed consists of a reef, 5 acres in extent, on the western side of Pond Point. Beyond that, off Milford Point, at the mouth of the Housatonic, lies the Pompey bed, which afforded sustenance to the sea-hut colony that used to frequent Milford Point, and where now a crop can be gathered about once in five years.

"Upon the opposite side of the entrance to the Housatonic lies one of the principal seed-grounds in the sound; that side of the Housatonic River is one vast natural oyster-bed all the way from Stratford Light up to the bridges, a distance of about 3 miles. There are many persons who

live along the shore in Stratford, who devote almost their whole time to the gathering of the young oysters and selling them to the vessels which in summer throng the bay. They get from 15 to 25 cents a bushel, and there are perhaps fifty men who make this a business.

"In May sloops and small schooners begin to come after the seed, which is of a year's (or less) growth. They hail principally from Norwalk and its vicinity. This fleet gradually increases, until in mid-summer there are sometimes to be seen from seventy-five to one hundred vessels at once in the mouth of the river. These vessels do not dredge for the seed. They anchor near the bed and send out skiffs, with a crew, who tong the oysters up until their skiff is full, when they take it to their vessel to be unloaded. From one to half a dozen skiffs are employed by each vessel, which is thus able to load up quickly, go home with its cargo, and be ready to return. To avoid any loss of time, however, in voyages back and forth, some owners of beds keep one or more vessels anchored in the Housatonic all the while, upon which the crews live, who load other vessels that are constantly passing back and forth. The rapidity of this work is shown by the fact that one man with two assistants will put upon his sloop a full cargo of 500 bushels in two days, and be off and back in another two days, ready to go at it again. Persons who live upon the shore, and who claim to found their estimate on trustworthy facts, say that 400,000 bushels of seed were taken off these Housatonic beds between May and November, 1879.

"Notwithstanding this heavy and long-continued drain these nurseries do not seem in danger of depletion. Few oysters, of course, manage to reach maturity, but there are enough to furnish spawn to repopulate the district, which the constant scraping fits in the best possible manner for securing a set. The people of Stratford, however, are beginning to object to longer allowing an unrequited privilege to everybody to rake the beds. Such an indiscriminate crowd embraces many loose characters, and frequent petty annoyances, with some serious trespasses, have occurred on shore. There seems no way to get rid of the nuisance, however, except to declare the whole ground available for culture and stake it off. This is urged by some of the shoremen, who think they see in this plan some chance of making the meadows and river bottom a valuable property, and a blessing instead of a curse to them. This meets with considerable opposition, however, and the old foolishness about 'natural beds' seems an unsurmountable obstacle. Every year the staking off and cultivation of this river bottom is delayed Stratford loses by it in a way she will one day regret. Stratford also possesses along her front very good deep-water ground, running from Stratford Point to the Middle Ground, which remains to be utilized. The Housatonic seed, however, could not be utilized on this outer ground, since it is the long, fresh-water variety, which would not flourish in water so salt as that of the outer sound.

"OYSTER BUSINESS AT BRIDGEPORT.—At Bridgeport there is a small but flourishing oyster business, participated in by three firms of planters. The natural oyster-producing ground off this harbor extended from Stratford to Black Rock, a distance of about 5 or 6 miles, but by 1850 it had become exhausted of all salable oysters, and even became of little value as a seed-producing area. Previously to that seven boats were owned at Bridgeport, all of which, since 1850, have been obliged to go elsewhere or change their work. Long ago, however, a Fair Haven man utilized ground at the point of the beach, at the mouth of the harbor, to bed down southern oysters, and his example was followed in a small degree by Bridgeport men. The first planting of native seed, however, was not until 1844, young oysters being brought from the Saugatuck and from Westport. At present Stratford and Housatonic seed is chiefly used. For opening purposes the Housatonic River seed is regarded as the best, because it becomes salable one year quicker than the sound

seed; but for shipping in the shell the deep-water seed produces more profit, though of slower growth, the mature stock being single, shapely, and of large size.

"The practice of catching seed-oysters on shells prevails here with much success, but will be so fully discussed in a future chapter that I refrain from doing more than mention the fact here; and add that Mr. Wheeler Hawley, the largest planter at Bridgeport, believes himself to have been one of the first, if not *the* first, to adopt this method of oyster culture in Long Island Sound, putting the date of his experiments at 1853.

"Replying to my questions in regard to methods and cost of following this practice in this harbor, one of the planters informed me that, in his case, he counts expenses per acre in preparation of oyster-bottom as follows:

| | |
|---|---|
| 500 bushels shells ("stools") at 5 cents | $25 00 |
| 50 bushels of "spawners" (unculled) | 12 00 |
| Total cost of seeding | 37 00 |

"From this he thought he ought to take up 1,000 bushels of seed to the acre of marketable oysters after two years, with a remainder left for the third year. The cost of taking up would be about 20 cents a bushel. If seed-oysters are bought to be placed upon the ground, from 25 to 60 cents a bushel must be paid for them.

"The total acreage under cultivation at Bridgeport, for which a rental of $2 an acre is paid to the town, is about 110 acres. On this ground there were raised in the winter of 1879–'80 about 8,000 bushels, which were mainly sold in the shell to New York buyers, at an average of about $1.12½ a bushel. These oysters were large and fat, often opening six quarts to the bushel, as I was informed. In 1857 they brought $12 a barrel.

"The fleet employed by the oystermen here consists of nine sail-boats, worth, perhaps, $2,500 in total; the care of the beds and running of the boats give support to about a dozen families, and occasional wages to others at the height of the season, the pay being about $2 a day.

"OYSTER BUSINESS AT WESTPORT.—Westport is a little harbor on the Saugatuck River, one of the most beautiful of the many charming streams that debouch along this part of the coast. The river has long been celebrated for the abundance, large size, and excellent flavor of its natural oysters. They grew almost continuously, in favorable seasons, from the mouth of the river up to the village bridge, a distance of about 4 miles, and the farmers who lived along the river were accustomed to gather them in any desired quantity, without a thought of exhausting the supply. The depletion came at last, however, and now few marketable oysters, native to the Saugatuck, are ever procured.

"Some years ago, when attention was first called to the desirability of transplanting oysters and raising them upon artificial beds, the Westport men staked off a large area at the mouth of the Saugatuck. No ground within the river, however, was allowed to be assigned, the town reserving all this as 'common ground,' where seed might be gathered by poor men and everybody, to be sold to the planters. The amount of seed thus procured annually varies greatly with different years. The highest trustworthy estimate given me for any one year (and this not recently) was 50,000 bushels. Last year, however, only about 4,000 bushels were caught; half was planted locally and half sold to outside buyers. In midsummer a score or so of men in skiffs may often be seen in the river at once raking seed-oysters, but these work only occasionally, and there are less than a dozen men who really derive their support 'by following the creek' (chiefly oystering) in the whole town. The seed used is between one and three years of age, and it is sold by the skiff-

men for 35 or 40 cents a bushel. Smaller mixed stuff sometimes sells for 20 cents. There are only two or three sail-boats devoted to this work.

"The first efforts at planting were made in the mill-pond east of the village—a pond of salt water about 40 acres in extent. The bottom of this pond is a soft mass of mud, not barren, clayey mud, but a flocculent mass of decayed vegetation, &c., apparently inhabited through and through by the microscopic life, both vegetable and animal, which the oyster feeds upon. Although the young oysters placed there sank out of sight in this mud, they were not smothered, on account of its looseness, but, on the contrary, thrived to an extraordinary degree, as also did their neighbors, the clams and eels, becoming of great size and extremely fat. Ten years ago oysters from this pond sold for $3 a bushel, and for one lot $16.50 is said to have been obtained. Before long, however, a rough class of loungers began to frequent the pond, and the oysters were stolen so fast that planting there has almost wholly ceased, and prices have greatly declined.

"Something over 500 acres of oyster ground have been set apart in the waters of the sound belonging to Westport. This ground lies in the neighborhood of Sprite's, Hay, Calf-pasture, and Goose Islands. Two-thirds of it is owned by Norwalk men and other non-residents, and therefore the town has derived no revenue of consequence from it.

"The principal planter in town is Mr. Eli Bradley, who gave me the most of the information obtained here. He has been long engaged in the business, and has planted many thousands of bushels of seed upon his beds, as also have his neighbors; but there has been so much litigation concerning boundaries, so much actual thieving, and so incessant persecution by the starfishes and drills, that not much has been realized. Last year (1879) no oysters whatever of consequence were placed in the market from these beds. Outsiders, however, shifted certain oysters into Westport waters temporarily and saved a good crop, the figures relating to which appear elsewhere. All the residents at Westport assert strongly the extreme suitability of their ground for successful oyster-raising, barring the damages inflicted by the starfishes, which they think they can keep free from with sufficient labor.

"SOUTH NORWALK.—Just eastward of Rowayton lies the city and harbor of South Norwalk, one of the most important oyster-producing localities in Long Island Sound, as well as one of the 'oldest.' The bay at the mouth of the Norwalk River is filled with islands, which protect the shallow waters from the fury of the gales. This whole bay, in old days, was full of native oysters from the sound all the way up to Norwalk itself. Long before the elaborate means for growing oysters at present in vogue were thought of, therefore, Norwalk supplied the people of that region with fine, large, natural oysters, just as it had for centuries been a store-house of shell-fish food to the Indians, the remains of whose feasts and feasting places are still to be found.

"About forty years or more ago, however, the natural beds in the vicinity of Norwalk Harbor had become so depleted that they no longer afforded to anybody employment that amounted to anything; nor was it until toward the year 1850 that any transplantation of seed, or anything in the shape of the propagation, was attempted. The business of oyster-growing here therefore, which at first sight seems of immemorial age, is only about thirty years old. The history of its growth need not be given here. It will be sufficient to publish the statistics I have accumulated in regard to the present status of the business at this point.

"The principal planters and shippers at South Norwalk (with which I include its suburb, Village Creek) are the Hoyt Brothers, Graham Bell, Oliver Weed, C. Remsen, Raymond & Saunders, Peter Decker, the Burbanks, and several others who raise more than 1,000 bushels a year. In addition to these there are many men who have small beds which they keep increasing as fast as circumstances permit, and who make a part of their living by working at wages for planters

whose operations are more extensive than their own. There is one firm, for instance, which employs the services of eighteen or twenty men nearly all the time, and in some seasons largely increases this number. These smaller planters sell their little crops of from 100 to 1,000 or 1,500 bushels to the half a dozen shippers, chief among whom are the Hoyt Brothers and Mr. G. Bell, wisely preferring cash, at a small discount, to the trouble and risk of themselves taking their oysters down to New York, or elsewhere, in hopes of a slighty larger price.

"The total production of this locality, during the season of 1878–'79 (the present season, 1880, will probably be found not greatly to differ from it), is given at about 65,000 bushels.

"These oysters, as I have said, were the property of fifty planters, which gives an average of 1,300 bushels to each one. It is probable, however, that as many more persons got their living out of these oysters, from first to last, so that I do not hesitate to say that one hundred families in South Norwalk and its immediate vicinity are supported by the cultivation and sale of oysters there. The estimate of two hundred families, which I have often heard made, is undoubtedly too high. This question is ever a hard one to answer, because, in many cases, the head of the family depends only partially upon his professional means of support, the attention he pays to it and the income he derives varying with each good or bad season. Most oystermen are also farmers or fishermen. Many of them also keep summer hotels, and thus add largely to their income during the dull season at the beds.

"Every supposed available spot for oyster operations, probably, is now set apart for that purpose, not only inside of the Norwalk Islands, but also in the outside waters of the sound off the mouth of the harbor. Only a portion of this is in use, however; in all, about 680 acres out of 2,300, in round numbers, which have been designated in Norwalk harbor. The average production at present, therefore, is less than 100 bushels to the acre of land actually cultivated, and only about 28 bushels to the acre of bottom held for the purpose of oyster cultivation. I see no reason why future years ought not to see ten times as large a proportion.

"The fleet of Norwalk used by the oystermen in their business consists of two steamboats, a dozen sloops, and about thirty sharpies and sail-boats, of less size and value than the 'sloops,' most of them being without decks. Besides this there are skiffs innumerable. This disparity in the number of large sloops between so important a place as Norwalk and some of the small ports westward is explained by the fact that the planters here do not often themselves take their goods to New York.

"From a particular part of Norwalk harbor, many years ago, came to Tom Donan's famous old shop in Broad street, New York, the original 'Saddle-rocks,' named from the reef around which they grew. These oysters were so large that twenty-five would fill a bushel basket, yet they were tender and luscious, and often sold for from 15 to 30 cents apiece. But they were not very numerous, and the raking of them was so profitable that the supply was quickly exhausted. Like the generous host who gave them name and fame, they have long ago departed except from the branding-iron and sign-board of the dealer, whose 'Saddle-rocks' now may have come from anywhere except Norwalk.

"That is the story as I was told it at South Norwalk; since writing it I have seen an article on the subject, taken from the New York Observer and vouched for by the Rev. Samuel Lockwood, who speaks of the writer as 'our friend, Dr. O. R. Willis.' This article places Saddle Rock on the opposite shore of the sound. It reads thus:

"'The original Saddle-rock was not only very large, but possessed a peculiar, delicious flavor, which gave it its reputation. And it received its name because it was discovered near a rock

known as Saddle Rock. A high northwest wind, continued for several successive days, always causes very low tides in Long Island Sound and its bays. On the farm of David Allen, situated near the head of Great Neck, on the eastern shore of Little Neck Bay, is a rock about 20 feet high, and from 15 to 20 feet in diameter. The shape of the top of this rock resembles somewhat the form of a saddle, and from that circumstance is called Saddle Rock. At low water the upper or land side of this rock is left bare, while the opposite or lower side is in the water. In the autumn of 1827, after a strong northwest wind had been blowing for three days, a very low tide occurred, and the water retreated far below the rock, leaving a space wide enough for a team of oxen to pass quite around it. This extraordinary low tide revealed a bed of oysters just below the rock. The oysters were very large, and possessed the most delicate flavor; we collected cart-loads of them, and placed them in our mill-pond (tide-mill). The news of the discovery spread among the oystermen, and boat-loads soon found their way to the city, where, on account of their excellent flavor, they commanded fancy prices, even reaching $10 a hundred—an enormous price for those days. In a very short time the locality was exhausted, and for more than forty years there has not been a real Saddle-rock oyster in the market.'

"ROWAYTON, DARIEN, STAMFORD, AND GREENWICH.—The next point is the very important station known as Five-Mile River or Rowayton, where the cultivation of oysters has been systematically pursued for many years. In all, at present, there are about thirty-five planters or firms, and nearly or quite as many families are supported. The little creek-mouth is perfectly filled with oyster-boats, and the other conveniencies of this pursuit. I find upon my list of the oyster-fleet twenty-eight sloops and sail-boats, which belong here, some of them very large and well built. I estimate the value of these 'sail' and the other floating and shore property at Rowayton, directly concerned in the oyster trade of the port, at not far from $30,000. Rowayton produced, in 1879, which was considered a very poor year, something near 50,000 bushels. How far this is beneath occasional crops, if not beneath the recent average, is shown by the statement made to me that about five years ago a single dealer in New York City bought 32,000 bushels of Rowayton oysters. Little of the stock raised at this point fails to reach New York, and within the last three years Rowayton has supplied a large proportion of the oysters sent to Europe, partly by direct shipment. Like all other parts of the East River, the oysters are sold here wholly in the shell, and almost always by the barrel or bushel—the selling 'by count' belonging to the region farther west and to the Long Island shore.

"At Darien about 3,000 bushels a year are sold from about 250 acres. They have ten or a dozen sail-boats, and a value in oyster interests, generally, of perhaps $5,000.

"The next oyster-producing point is Stamford, where, also, I found the planters bewailing the decline of their fortunes. The number of men raising oysters is about a dozen, and perhaps as many more are employed. From about 150 acres of improved harbor bottom Stamford yielded for market, in 1879, about 5,500 bushels of oysters, the majority of which was shipped to New York. Their fleet counts up nine sloops, which, with boats, floats, and so forth, are stated to be worth about $15,000. The principal men at Stamford are A. M. Prior and Capt. John Decker.

"The next point westward, and the last in Connecticut, is Greenwich, where, at Mianus, Cos Cob, Greenwich Cove, Old Greenwich, and Greenwich, a large business is done and a large number of persons is engaged, though oysters are not now raised here to as great an extent nor of so fine quality as formerly.

"The mouths of all the rivers and each of the many coves that indent this rocky coast are filled with planted oysters, though a general feeling of discouragement, arising from various

causes, prevails. In all about 800 acres are under cultivation, all in shallow water, and the total annual product for last year of the whole region may be set down at 33,000 bushels, the majority of which was taken to New York in the boats of the respective owners, and sold to the dealers at the foot of Broome street.

"The number of families supported in this township out of this occupation it is hard to state. I estimate it at about forty. The craft employed amounts to one steamer, about thirty sloops, and perhaps one hundred small open boats. These, with other estimated fixtures, foot up an invested capital approaching $30,000, exclusive of oysters now growing on the beds."