
PART V.

THE MENHADEN FISHERY.

By G. BROWN GOODE and A. HOWARD CLARK.

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1. NATURAL HISTORY AND COMMERCIAL IMPORTANCE OF MENHADEN.

The menhaden (*Brevoortia tyrannus*) is a fish of the family Clupeidae. It is known along the Atlantic coast by numerous names. In Maine the common names are poggy, bonyfish, menhaden, and mossbunker; in Massachusetts it has also the names hardhead and poggie; among fishermen of Rhode Island it is called menhaden, mossbunker, and bonyfish; in Connecticut it is known as whitefish, bonyfish, menhaden, and bunker; New York fishermen call it bonyfish, mossbunker, and menhaden; in New Jersey the common name is mossbunker; in Delaware we find the name mossbunker, oldwife, and bugfish; in Maryland and Virginia the names are oldwife, cheboy, cll-wife, alewife, bugfish, greentail, bughead, and wife; in North Carolina it is known as fatback, bugfish, menhaden, and yellow-tail shad; in South Carolina the name is commonly menhaden, or mossbunker; in Georgia, menhaden, and in Florida, menhaden, mossbunker, and fatback.

In length the menhaden is about the same as the common sea herring, but is deeper and more robust in appearance. Its weight, when full grown, is from two-thirds of a pound to one pound. A large specimen, of which a cast is preserved in the National Museum, measured 20 inches in length, while the average length is from 12 to 15 inches. At the menhaden factories, in estimating the number of fish in a certain bulk, 22 cubic inches are allowed to each fish.

The geographical range of this fish is along the Atlantic seaboard from Maine to Florida, its northern limit of migration being the Bay of Fundy, while its southern limit is Mosquito Inlet, on the Florida coast. It is found in bays and rivers as far inland as brackish water extends, and it ranges oceanward as far as the Gulf Stream. Other species of menhaden occur in the Gulf of Mexico, along the South American coast, and on the west coast of Africa, but none resembling it are found in the Pacific Ocean. The fishery is limited to the Atlantic seaboard of the United States.

Schools of menhaden make their appearance in the coastal waters upon the approach of warm weather and they remain until the cooling of the water drives them away, the temperature most favorable for them being from 60° to 70° Fahrenheit. Along the coasts of the Southern States they appear earlier and remain longer than farther north. In Chesapeake Bay they usually appear in March and April, on the New Jersey coast in April and early in May, and along the shores of Southern New England in the latter part of April and May; at Cape Ann about May 15, and along the coast of Maine in the latter part of May and the 1st of June. Since 1879 these fish have not appeared north of Cape Cod, except in very limited quantities, though they were formerly very abundant along the Massachusetts coast. In the autumn they usually begin to leave the Maine coast in September, and, gradually working to the southward, or perhaps seaward, disappear from Long Island Sound in November and December, from Chesapeake Bay in Decem-

ber, and from Cape Hatteras in January. They are found farther south in greater or less abundance throughout the entire year. Not enough is known of the movements or habits of these fish to determine the winter home of the great schools that summer along the New England and more southern shores, but one of the most plausible theories at present advanced is that they remain in temperate stratas of ocean waters known to exist under the Gulf Stream and between it and the American coast.

As the menhaden appear in early spring in Chesapeake Bay and farther north they increase rapidly in abundance until in some places the water is almost alive with them. They prefer the shallow places along shore, and in some years crowd in great numbers into the brackish sounds and inlets and ascend some of the larger rivers for a long distance, until the water becomes too fresh for them. They are accustomed to swim in immense schools with their heads close to the surface, packed side by side, and often tier above tier, almost as closely as sardines in a box.

The commercial importance of the menhaden has but lately come into appreciation. Thirty years ago, and before, it was thought to be of very little value. A few millions were taken every year in Massachusetts Bay, Long Island Sound, and the inlets of New Jersey. A small portion of these were used for bait, and a few barrels were salted for home use or for export to the West Indies. Large quantities were plowed into the soil of the farms along the shores and stimulated the crops for a time, but in the end filled the soil with oil, parching it and making it unfit for tilling. Since that time manifold uses have been found for this fish and its products. As a bait-fish it excels all others. For many years much the greater share of our mackerel were caught by its aid, while the cod and halibut fleets use it rather than any other fish when it can be procured. The total consumption of menhaden for bait in 1877 was not less than 80,000 barrels. Ten years before, when the purse-seine was not in general use in the mackerel fishery, the consumption of menhaden bait was very much greater.

As a food resource the menhaden is thought to have great possibilities, large quantities having been canned under the name of "American sardines" and "Shadines," but the superiority of small herring for canning purposes has led to an abandonment for the present of efforts to introduce menhaden "sardines." An extract of fish, said to possess all the properties of Liebig's "Extract of Beef," was some years ago discovered by Mr. S. L. Goodale, and may open up a vast field for future development. As a food for the domestic animals in the form of "fish meal" there may be a broad opening.

The great value of the menhaden, however, at present is the oil and scrap produced by cooking and pressing these fish. As a source of oil the menhaden is of more importance than any other marine animal. The annual yield of this oil usually exceeds the production of the American whale fisheries by about 200,000 gallons, and in 1874 did not fall far short of the aggregate of all the whale, seal, and cod oil made in America.

The number of menhaden taken has, in some years, been considerably more than 1,000,000,000 fish. In 1880 the weight of the catch was 576,000,000 pounds, equivalent to about 700,000,000 menhaden in number. The quantity of oil produced in 1880 was 2,066,396 gallons, and of guano 68,904 tons, having a total value of \$2,034,641. The capital invested in steamers and their outfit and in factories was \$2,362,841. As compared with previous years, the yield of oil in 1880 was small. In 1874 the number of gallons was 3,373,000; in 1875, 2,681,000; in 1876, 2,992,000; in 1877, 2,427,000. In 1874 the value of the oil and guano was \$1,809,000; in 1875, \$1,582,000; in 1876, \$1,671,000; in 1877, \$1,608,000; in 1878, \$1,050,000.

2. FISHING GROUNDS.

The menhaden fishery is carried on chiefly by fishermen of New England, New York, and New Jersey, along the coast, and by the fishermen of Virginia and a few from Maryland, in the waters of Chesapeake Bay. Prior to the year 1879, when menhaden suddenly disappeared from the region north of Cape Cod, the Gulf of Maine was one of the principal fishing grounds, and was resorted to by a very large fleet of sail and steam vessels. Since 1879 the cruising grounds have been south of Cape Cod, one of the best places being along the Long Island shore from Montauk Point westward. Other important fishing grounds are in the waters of Long Island Sound, along the New Jersey coast, and in Chesapeake Bay.

As soon as the fish make their appearance in spring, vessels start in pursuit of them and continue their capture until their disappearance in the autumn. From the menhaden oil and guano factories along the Southern New England, New York, and New Jersey shores the fleets of steam and sail vessels begin their cruises early in May, pursuing the fish along the shores and in the sounds wherever they can be found.

The regular fishing grounds at present extend from Chesapeake Bay to and including Long Island Sound, and in some seasons extending into Vineyard Sound, on the southern coast of New England. The vessels seldom cruise more than 10 or 15 miles from land. The total area of the grounds is estimated at 5,350 square geographical miles, divided as follows: Long Island Sound and the vicinity of Block Island, 1,200 square miles; off the south side of Long Island, from Montauk Point to Sandy Hook, with an average width of 15 miles, 1,575 square miles; off New Jersey, from Sandy Hook to Cape May, 1,575 square miles; Delaware Bay, 150 square miles; Cape Henlopen to Cape Charles, with an average width of 2 miles, 250 miles; Chesapeake Bay, from the Capes to Tangier Sound, 600 square miles.

The absence of menhaden north of Cape Cod during the last few years has caused a great loss to the capitalists interested in the numerous oil factories on the Maine coast and much distress among the men who depended on this fishery. Mr. R. E. Earll thus describes the effects of this scarcity in 1879:

“The total absence of pogies along the coast of Maine is causing no little loss to all interested. The shore fishermen have lost fully half of their time and over half of their usual catch from not being able to get any pogies to fish with, while the ‘George’s-men,’ from Cape Ann, have been driven far out of their way, going even to Rhode Island and Connecticut to obtain their usual supply of pogy bait. Some have ventured to seek bait here, in the ‘hedges’ and traps of the river fishermen, and have frequently taken river pilots and gone far up the Kennebec, often waiting fully a week before getting their supply. The oil and guano factories had gone to considerable expense in getting ready for the season’s work, and their property is entirely idle. The factory hands and steamers’ crews have been thrown entirely out of employment, and are perhaps less able than any of the other classes interested to bear such a loss. The general prosperity of the pogy fisheries, for some years past, has drawn to them a large class of workmen from other occupations. Some, in moving into this region, have built for themselves small houses and have been depending on the summer’s work for the means to pay for them or to complete them; others have spent their entire means in getting their families located, and almost none have money laid up to carry them through the winter, and but little employment can be had from this time forward. They were all on hand to begin work the first of June, and kept waiting, in hopes that the fish would ‘strike,’ until late in August. When they at last gave up the idea, it was too late to engage in any other occupation. A few of them have gone out in small boats to ‘hook’ for

mackerel, but have met with indifferent success. After waiting for a long time for the fish to appear, a few firms allowed the crews to take their steamers south and sell the fish to factories there."

Along the north coasts of North and South Carolina menhaden are abundant, but efforts to establish fisheries in that region have not been successful. Mr. R. E. Earll, in another place, discusses the possibilities of the menhaden fisheries of North Carolina. He says that an attempt was made to establish an oil and guano factory at Charleston, S. O., a few years since, but the plan was abandoned after the first day's fishing, on account of the abundance of sharks. Several efforts have been made to locate factories on the North Carolina coast, and some parties have prosecuted the business with varying success for several years. Thus far, however, no one has succeeded in making it profitable. It is, therefore, an open question whether this fishery can be prosecuted in the State. The currents are so strong at the inlets that sail vessels are often unable to enter them when the tide is unfavorable, and they are thus frequently delayed so long that the fish spoil before they reach the factory. Menhaden are quite abundant in the inner sounds, but the water is usually so shoal as to interfere seriously with the use of purse-seines, and the fish are so scattered that only a few barrels can be taken at a haul.

3. THE FISHERMEN.

The men engaged in this fishery are, as a rule, employed in agricultural or other pursuits after the fishing season is over. Along the Rhode Island and Connecticut shores many of them pursue the cod or other fisheries throughout the winter and the menhaden fishery in the summer, while the crews of menhaden vessels in Chesapeake Bay are farmers when the fishing is not in season. The number of men required to man a menhaden vessel varies from two or three on a carry-away boat or tender, to crews of twenty-seven or thirty on the double-gang steamers. The fishermen were formerly allowed a certain share in the results of a cruise, but most of them are now hired at fixed wages. On the steamers the crew receive from \$30 to \$40 per month and their board; the mate has wages and a share in the profits, and the captain receives no regular wages, but a share in the profits of the cruise. The owners of the vessel furnish provisions and all the requisites for fishing. In 1879 most of the owners of vessels engaged their crews on halves, the factory issuing printed regulations as to the price to be allowed for the catch. The prices paid in that year were 30 cents per barrel of 200 pounds, from the beginning of the season until August 1; from that date till the middle of September, 60 cents per barrel; and then 80 cents per barrel till the end of the season in Maine. The increase in price was because of a corresponding increase in the fatness of the fish.

One of the ordinary size menhaden steamers carries fourteen men, consisting of a captain, mate, cook, engineer, fireman, and a crew of nine men. The captain must, of course, be an experienced fisherman, and, as an incentive to hard work, he is frequently allowed a large share in the profits. He must be a good navigator, and have a pilot's license to permit his pursuing the fish into bays and sounds, and to allow his entering a harbor convenient for shelter. The mate also must be an experienced fisherman and "have a good eye for fish"; for, as he is generally stationed at the masthead to watch for schools, much of the success of the trip depends on him. A good fisherman can sometimes see the fish swimming even 1 or 2 fathoms below the surface and determine whether they are herring, mackerel, or menhaden. As soon as they show themselves at the top of the water he can judge the size and quality of the school. The duties of the mate are also to care for the gear and to superintend the landing of the cargo. The cook is in many cases hired

and paid by the crew at about \$40 per month. When the men are all out in the boats after fish the cook acts as pilot, guiding the vessel alongside the seine full of fish.

The engineer must be always at his post in the engine room, except when taking in the catch, when he tends the donkey engine, the vessel at that time not being under way. The engineer and fireman are paid regular wages, the former generally a larger sum than the fishing crew.

THE RELATION OF THE MENHADEN FISHERY TO THE FISHERMEN.

In discussing the relations between the fishermen and the fisheries, when the business was carried on along the coast of Maine, Mr. Maddocks says:

"The steamers return every night, if they have any fare, and are hardly absent more than two or three days. Operations are suspended in bad weather. The oil is manufactured at once, and meets ready market. The men can thus be promptly paid; whereas in the mackerel and cod fisheries the hands are sometimes obliged to wait until the end of the season for settlement; the service is dangerous and comparatively full of hardships. The Menhaden Association has never lost a man in its service, and not one of the steamers has ever burst a boiler. This is the more important, since the cod and mackerel fisheries have been and are grievously oppressed, and greatly reduced by the tariff regulation that admits English fish free to our markets. The Englishman can build his craft at less cost than the American, can fit and equip her cheaper, and can therefore afford to sell his fish at a lower figure than the home fishermen, and at the same time he pays none of our taxes while enjoying the benefit of our market. The menhaden fishery has afforded no little relief in this condition of things to the unemployed fishing population on our coast and elsewhere."

Mr. R. E. Earll thus describes the relations of the fishermen of Maine in 1879: "The factories have printed regulations as to the price to be paid for the fish, paying more toward the close of the season as the fish get fatter. In 1879 the prices adopted by the Maine Oil and Guano Association were 30 cents per barrel till August 1, 60 cents till September 15, and 80 cents till the end of the season in Maine. Mr. L. Maddocks says that the average amount of oil for the season to a barrel of fish is about 1 gallon from fish taken south of Cape Cod, and 2½ gallons from those taken later on the coast of Maine.

"The men are almost wholly Americans, will average about thirty years of age, and are, as a rule, the strongest and most energetic men of the section. The business being more remunerative than other kinds of fishing, men are anxious to engage in it, and thus the captains have a large list to select from; and as there is much hard work that at the same time requires quickness of movement, skill, and good judgment, the crews are selected on account of their fitness for the place.

"The captain not only has an average share with the crew, but is paid an additional 5 to 10 cents for each barrel of fish landed, as an incentive to extra exertions. He must be a practical fisherman, have an accurate knowledge of the coast, and a pilot's license to enable him to follow the fish into the rivers and bays of the coast and to take the steamer into any convenient harbor for shelter. In addition to this, he must, to use the language of the secretary of the Maine Oil and Guano Association, 'have a good eye for fish,' which means that he must have a sharpness of vision that will enable him to see the fish schooling at a distance or to detect their presence under water from a slight change of its color. Even when swimming at a depth of 2 or 3 fathoms an experienced eye will distinguish between pogies, mackerel, and even herring. The average captain will make \$1,000 while the fish are on the coast of Maine, which is an average of \$250 per month. The practice of hiring the captain outright is coming into favor, and in 1878 probably 10 per cent. of those from Maine were working upon salary, getting an average of \$1,500 for the season,

which begins in the vicinity of Long Island the 1st of May. The fish gradually work north to the coast of Maine in June, where they remain until October, when they go south as far as Long Island again, the season closing about the 1st of November.

"The mate must also 'have a good eye for fish,' as he generally goes to the masthead with the captain to look for them. His duties are to look after all the gear, superintend the salting, and mending of the seine, and tend to discharging the fish at the factory, keeping an accurate account of the number of barrels landed. He gets from 1 to 3 cents per barrel on all the fish landed in addition to his average share with the crew.

"The cook is hired outright at \$40 to \$50 per month, and is paid wholly by the crew. Formerly he had an average share, but of late this practice has been given up. He takes charge of the steamer when the men are out in the boats, and frequently brings it alongside the seine after it has been pursued up.

"The engineer must have a license, and is expected to remain at his post all the time, except when at meals and when running the donkey engine for hoisting the fish into the steamer. When the business first started he received \$100 per month, but the wages have kept falling, until the present season (1879) some of them get only \$50. The fireman generally receives from \$25 to \$30. Both are paid and boarded by the owners.

"The crew 'go at the halves' and board themselves. They live probably the most extravagantly of any class of fishermen, and in some cases go into foolish expenditures for the table.

"Mr. Maddocks cites instances of its costing them \$10 per week for provisions alone, and he estimates their average cost of living to be \$6 or \$7 per week, though, from what I learn from other sources, I should say \$4 would be nearer the figure. They also pay their cook's wages, thus bringing the expense of living perhaps a little above the figures stated. They are expected to get the steamer ready in spring, do the fishing, mend and care for the seine, and put steamer, boats and gear in order, to be left for the winter. They make on an average about \$50 per month, leaving a balance, after paying their expenses, of but little, if any, more than the ordinary fisherman."

4. THE VESSELS.

Schooners and sloops were the only vessels in this fishery until a few years ago, when steamers were introduced, and as they have been found preferable to sailing craft they are now very generally employed on the northern grounds, though a large fleet of sailing vessels continues in the business. In the year 1880 the menhaden fleet comprised eighty-two steamers and three hundred and seventy-four sailing vessels, aggregating 12,905.71 tons, and equipped with six hundred and forty-eight seine-boats. The value of the fleet, including seines and other outfit, was \$1,357,304. The average steamer is about 70 tons measurement, and costs \$16,000. They are about 90 feet long, 17 feet beam, 7½ feet depth of hold, and 7 feet draught aft. The largest steamers in the fleet are more than 150 feet long; these carry from 27 to 30 men, and cost \$30,000 and upwards. The cost of running the average steamer is about \$1,000 per month for wages, fuel and provisions. They are screw steamers, and are rigged with one mast forward, which is fitted with a crane used in taking in the catch. The quarters for the men are in the forecabin, under and forward of the pilot-house. A little forward of amidships is the main hatch opening into the hold, where the fish are stowed in bulk. The engine-house is astern the main hatch, with coal-bunkers opening on the deck on either side. Fitted to the bulwarks on either side, near the stern, are cranes for the boats, and towing-chocks are set in the deck on either quarter aft. The steamers are built of hard pine, with white-oak frames. The hold or tank for stowing the fish is water-tight, and is said to make the vessels exceedingly safe. The menhaden steamer *Jemima Boomer*, while at sea in rough

weather, had 50 feet of her keel knocked out, together with eleven of the bottom planks, yet she was run safely into port and taken upon a marine dock for repairs.

The steamers are so constructed that they are not fit for sea in rough weather, and they seldom venture from harbor at such times. This frequently delays them from going to and coming from the factory when fishing at a distance, though it does not interfere with the fishing in other respects, as a seine cannot be managed in rough water, and the fish are then not apt to come to the surface.

The sailing vessels are either schooner or sloop rigged, many of them being open boats of from 5 to 10 tons measurement, while the larger vessels are in some cases 80 or 90 tons.

Prior to 1879 fleets of vessels from Massachusetts ports were engaged in the capture of menhaden to be used for bait. From Gloucester, forty schooners of from 20 to 70 tons, employing four hundred men, were thus kept busy throughout the menhaden season in supplying the cod and mackerel vessels with bait. In the same employment there were also hundreds of boats fitted with gill-nets. It is probable that this branch of the menhaden business will be renewed when menhaden reappear on those shores.

With the advent of steam vessels the factories have increased their facilities for handling large catches. The first factory could work up only a few hundred barrels daily, while the large factories can now take from 3,000 to 5,000 barrels per day. The average catch of a steamer a few years ago was not more than 5,000 barrels, while now 20,000 barrels are not infrequently taken in a season.

The menhaden carry-away boat is a wide-beam, sloop-rigged open boat capable of heavy burden, and is used, when fishing with sailing vessels, to carry their catch to the factory. Steamers have no need of these boats, but take their fish direct to the factory.

5. APPARATUS AND METHODS OF CAPTURE.

Prior to 1860, when menhaden were of very small importance, the business of manufacturing oil and guano being still in its infancy, almost the only use for the fish was as a fertilizer in its raw state. This demand was then easily supplied by the use of haul-seines and gill-nets along the shore. The fish then swarmed the bays and inlets all along the New England coast, and there is good authority for a story that 1,300,000 were once taken with a single haul of a seine in New Haven Harbor. Constant fishing on the northern coast has driven the fish out to sea, though in the south their habits are much the same as of old. In New England the menhaden fishing has become, to a very considerable extent, sea-fishing and is carried on by the fleet of steamers and sailing craft.

The purse-seine is the most effective apparatus ever devised for the capture of either mackerel or menhaden. It has almost entirely superseded all other forms of apparatus in these fisheries. By its use, even in the open sea, immense schools of fish are easily secured in a small fraction of the time required when the hook and line and gill-net were chiefly employed. The purse-seine is, however, not adapted for fishing in very shallow water, unless on smooth bottom, so that gill-nets and haul-seines are still used in rivers and in hauling fish ashore. When set in the water the purse-seine is a flexible wall of twine hanging from a corked line on its upper edge and extending from 75 to 150 feet beneath the surface and from 750 to 1,800 feet long. This wall is made to encircle the school of fish, and then the lower edge is gathered up by a rope passing through rings, thus forming an immense bag. The largest seines are for use in water 45 to 60 feet deep, and the smallest in water about 20 feet deep. The usual size of mesh in the seines is $2\frac{1}{2}$ inches, that is, $1\frac{1}{2}$ inches square; some are only $2\frac{1}{4}$ inches, and in Chesapeake Bay, where the fish are small, they are

only 1½-inch mesh. The seines of 145 feet depth are about 700 meshes deep. A seine with 2½-inch mesh is the standard size for the average menhaden, which is estimated at 22 cubic inches.

The corks at the upper edge of the seine are strung on the cork-line at from 12 to 15 inches apart, two corks, known in the trade as Nos. 2 and 3, being put together, and are 4 inches in diameter. About 60 pounds of lead weights, each 2 ounces, are fastened along the bottom of the seine at intervals of 4 inches apart at the sides and farther apart at the middle. The lower edge of the seine is hung on six-thread manila line, and to this are attached the bridles, which are about 18 feet long and placed 18 feet apart. Upon each of these bridles slides one of the purse-rings, made of iron or brass, weighing 1½ to 2½ pounds and about 3½ inches in diameter. Many of the seines have less weight than that given above. In operating the seine a large, heavy weight, called purse-weight or "Long-Tom," is used, which is placed upon the vertical ropes at the end of the seine, by the use of snatch-blocks, and allowed to run down to the bottom of these ropes, thus holding together the ends of the lead-line before the pursing begins.

The purse-lines are arranged to pass obliquely from the last purse-rings which are about 6 feet from the lead-line. This has the effect of leaving large triangular flaps of netting at the end and closing the opening of the seine when it is pursed. The twine is of cotton, No. 20 to No. 12 thread, except the middle or "bunt" of the seine, which is of stronger twine, No. 14 to No. 9 thread, to prevent the escape of the fish when they are crowded into a small compass. The twine is prevented from rotting by being tared after the seine is knit and is preserved during the fishing season by sprinkling salt over it after each haul. The number of menhaden purse-seines in use in 1880 was 366, valued at \$138,400.

THE SEINE-BOATS.—The seine-boats were formerly square-sterned, lap-streak boats, about 28 feet in length, and resembling in shape an ordinary ship's yawl; but the boats now in use resemble the whale-boat in shape, differing from it, however, in some important particulars. According to Mr. Gifford, a practical seine-boat builder of Gloucester, the seine-boat must have three qualities: (1) It should tow well; consequently it is made sharpest forward; a whale-boat, on the other hand, is sharpest aft, to facilitate backing after the whale has been struck. (2) It should row well, and this quality also is obtained by the sharp bow; the whale-boat also should row well, but in this case it has been found desirable to sacrifice speed in part to the additional safety obtained by having the stern sharper than the bow. (3) It should be stiff or steady in the water, since the operation of shooting the seine necessitates much moving about in the boat.

The average length of the seine-boat is about 34 feet, its width 7 feet 5 inches, and its depth amidships 33 inches. At the stern is a platform measuring about 4 feet, fore and aft, on which the captain stands to steer. This is 6 to 8 inches below the gunwale. Another platform extends the whole length of the boat's bottom, from the after part of which the seine is set. In the bow is still another platform, on which stands the man who hauls the cork-line. There are four thwarts or seats, a large space being left clear behind the middle of the boat for the stowage of the seines. Upon the starboard side of the boat, near the middle, is arranged an upright iron support, about 18 inches in height, to which are attached two iron snatch-blocks, used in the working of the purse-ropes. On the opposite side of the boat, generally near the bow and stern, but with position varied according to the fancies of the fishermen, are fixed in the gunwale two staples, to which are attached other snatch-blocks used to secure additional purchase upon the purse-ropes. In the center of the platform at the stern of the boat is placed a large wooden pump, used to draw out the water which accumulates in large quantities during the hauling of the seine.

Most of the steamers carry four seine-boats, two being used in setting the seine, one called the purse-boat and the other the mate-boat.

Mr. Earll thus describes the methods of seining for menhaden:

"The steamer is put in readiness for starting by the engineer and fireman as early as 2 to 4 o'clock in the morning, depending wholly on the distance to be run before reaching the fishing grounds. When all is ready the captain is called and takes the steamer to the fishing ground. In the mean time the cook is preparing breakfast, and when ready the crew are called, giving them just time to finish their meal before reaching the grounds, which is generally about as soon as it is light enough to see the fish. After breakfast the captain and mate generally repair to the mast-head and keep a sharp lookout, while the steamer jogs slowly along in almost any direction. In the mean time the crew are busily engaged in transferring the seine to the two boats, one-half in each, and all is in readiness in a few moments.

"When a school is seen the crews take their places in the seine-boats, while two of the party known as 'drivers' go out in advance in little 13-foot boats to learn the direction in which the school is moving and to mark out its size. The captain generally takes his place at the inside bow oar in one of the seine-boats, the mate a corresponding position in the other, and by the time they reach the school the drivers give them information of the movements of the fish. They now begin throwing out the seine, each boat going in an opposite direction around the school, the drivers in the mean time doing what they can by splashing to check the fish in case they attempt to run out of the seine. Soon the boats meet and the captain and mate take their places in the middle of the boat, and with others begin hauling in the purse-line while the rest are hauling on the net and cork-line. The men from the drive-boats help in this, and after it is pursed up the captain frequently goes aboard and brings the steamer alongside, while the other boats go to the opposite side of the seine from the pursers and fasten their boats to the cork-line to prevent the fish from escaping over it. In the mean time the men are hard at work drawing the net in and bringing the fish nearer together. Four will pull corks, two bag or net, and the others lead. After the fish are driven well together the net is fastened to the steamer's side, and they are bailed into the hold by means of a large dip-net run by a donkey-engine.

"Mr. Maddocks says that 1,300 barrels were taken at one haul by the schooner *Wave*, Capt. C. A. Esterbrook, of Round Pond, while fishing off Muscongus Bay, in August of 1870 or 1871.

"After the fish are all taken from the seine, it is taken aboard the steamer to straighten (or 'clear,' as it is called), and again taken into the boats, when everything is ready for another set.

"Each steamer carries two seines—one 300 fathoms long, 20 fathoms deep, with a 3-inch mesh; the other, 200 fathoms long, 15 fathoms deep, with 2½-inch mesh. The larger seine has about 5,000 corks, and the smaller 4,000. Leads are not used, but in their place they have metal composition rings weighing about 2 pounds, through which the purse-line passes. The larger seine requires about 60 and the smaller 40 rings. A seine will last with proper care about two seasons.

"As soon as the steamer has been filled with fish, the captain generally takes the wheel and heads her for the factory, or, if fishing at a long distance off, he goes for a harbor, whence he ships his fish by a sailing vessel chartered for the purpose. In case few fish have been taken, the vessel continues to jog about till nearly dark, and then either returns to the factory or makes harbor in the vicinity for the night, but in very pleasant weather they will occasionally remain on the ground instead of running in. As soon as the vessel is headed for home the mate sets the men to salting and stowing the seine and putting things to rights. On reaching the factory, the steamer is made fast and the captain goes below to turn in, and the engineer and fireman, after banking their fires, do the same. The mate now takes charge of the unloading, and sets the crew to work taking out the fish at the rate of 250 barrels per hour, by means of a large hoisting-tub worked by steam from the factory.

"It is generally quite late when the last fish are out, and, after washing down the deck and hold, the crew lose no time in going to their bunks for the night."

MENHADEN FISHING ON A LONG ISLAND STEAMER.*

"Loitering in comfortable indecision, I was fortunate enough to get an invitation from Capt. 'Jed' Hawkins to take a fishing cruise in his 'bunker' steamer. The start was to be made at earliest dawn—an ungracious hour—and I was glad to leave the hotel in the evening and avail myself of a sofa in the captain's snug stateroom behind the pilot-house, so as to avoid the annoyance of getting up in the middle of the night. It was Sunday, and the little wharf was utterly deserted as I picked my way among the rubbish and piles of merchandise down to the steamer. Standing on the high deck, a picture of serene beauty spread before me. The air was perfectly still, the moon just fairly risen, and no sound was to be heard save the ticking of that mighty time-piece, the tide, as its wavelets swung gently back and forth under the weedy piers or divided against the sharp prows of the smacks. It was light enough to show the spars and ropes of every craft, and all lay as motionless as though fixed in rock rather than floating in liquid, save the tremulous blue pennons on the topmasts. Then I turned in; and when I emerged, after an hour's pounding on my door (as it seemed) by the chuggety-chugging engines, we were far down Gardiner's Bay.

"Last night the unruffled water was like bronze. Now, under the soft silvery haze of the morning, the dancing surface became frosted silver, opaque and white, save where the early sunbeams, striking through the mist, were reflected from the crests of the ripples in glancing ribbons of light. Shelter Island was an indistinguishable mass far astern; Long Beach light had ceased to twinkle; Orient Point was hidden in haze; Plum Island, where eagles used to make their metropolis, and many fish-hawks now live, nesting on the ground with the gulls, was only a low bank of blue; Gull Islands could not be seen at all; and I only knew that Little Gull, with its copper-bolted wall, was there from the dot in the horizon made by its lonely light-house, and an occasional gleam, imagined to be the surf, breaking on the reefs at the Race. All this was northward. Southward the wooded bluffs of Gardiner's Island, with its natural breakwater and light-house, like a long arm reaching out between the outer and the inner waters, limiting the view. But this was soon left behind, and as the deep indentation of Napeague came into view the steamer's head was turned south-eastward, toward Montauk, which, in the growing light, now stood out plain in every bleak feature of sandy dune and treeless moor. Now a very sharp lookout must be kept for fish; and after the substantial breakfast in the fore-castle, I took my pipe and a place in the shrouds. Even then I could not look across Montauk, but could easily see two great ponds of fresh water, which nearly served to make an island of the point. One of them, Fort Pond, was once a scene of sanguinary warfare between the Montauks and Narragansetts, the latter being beaten only by help from the Shelter Island Indians, who drove the invaders to their canoes.

"Off Calleden Point the lookout excitedly announced, 'Fish off the port bow.' The captain seized his glass and scanned the water. So did I. 'There's a big bunch,' he shouts. 'Watch 'em flirt their tails. Good color. See how red the water is.'

"'Oh, yes; to be sure,' I cry. 'By Jove, that's a good color.'

"My vacant face must have belied my words, but he didn't notice it. He was shouting, 'Lower away the boats; stand by to ship the nets;' furiously ringing signals to the engineer; giving hasty orders to the wheelsman; ensconcing himself in a pair of oil-skin trousers, so capacious I half expected he would disappear altogether; and so, amid the roar of escaping steam, the creaking of

* From an article entitled "Around the Poconies," by Ernest Ingersoll, in Harper's New Monthly Magazine for October 1, 1878, pp. 719-723.

davit tackle, the laughing excitement of the crews, and the rattle of rowlocks, I tumble head-foremost into a boat, and the steamer was left behind. Now the flirting of tiny tails was plainly visible, but I must confess that I did not learn to distinguish the reddish hue which indicates a school of these fish until much later in the day. The two large boats side by side were sculled rapidly toward the shore where the fish were seen, the forward part of each boat piled full of the brown seine, which extended in a great festoon from one to the other. There were four men in each boat, all standing up, and in our red shirts and shiny yellow oil-skin overalls we must have made a pretty picture on that sunny morning. Close by was a pound-net, where a porpoise was rolling gaily, notwithstanding his captivity; but by maneuvering we got the 'bunch' turned away from it and well inshore, where the water was not too deep. At last we were close to them, and now came a scene of excitement.

"'Heave it!' yelled the captain, and in each boat a sailor whose place it was worked like a steam-engine throwing the net overboard, while the crews pulled with all their muscles in opposite directions around a circle perhaps 100 yards in diameter, and defined by the line of cork buoys left behind, which should inclose the fish. In three minutes the boats were together again; the net was all paid out; an enormous weight of lead had been thrown overboard, drawing after it a line rove through the rings along the bottom of the seine. The effect, of course, was instantly to pucker the bottom of the net into a purse, and thus, before the poor bunkers had fairly apprehended their danger, they were caught in a bag whose invisible folds held a cubic acre or two of water.

"This was sport. I had not bargained for the hard work to come, to the unsportive character of which my blistered palms soon testified.

"None of the fish were to be seen. Every fin of them had sunk to the bottom. Whether we had caught 10 or 10,000 remained to be proved. Now, lifting the net is no easy job. The weight of nearly 10,000 square yards of seine is alone immense, but when it is wet with cold sea-water, and held back by the pushing of thousands of energetic little noses, to pull it into a rocking boat implies hard work. However, little by little it came over the gunwales, the first thing being to bring up the great sinker and ascertain that the closing of the purse at the bottom had been properly executed. Yard by yard the cork-line was contracted, and one after another the frightened captives began to appear, some folded into a wrinkle or caught by the gills in a torn mesh (and such were thrown back), until at last the bag was reduced to only a few feet in diameter, and the menhaden were seen, a sheeny, gray, struggling mass, which bellied out the net under the cork-lines and under the boats, in vain anxiety to pass the curious barrier which on every side hemmed them in, and in leaping efforts to escape the crowding of their thronging fellows. How they gleamed, like fish of jewels and gold. The sunshine, finding its way down through the clear green water, seemed not to reflect from their iridescent scales, but to penetrate them all, and illumine their bodies from within with a wonderful changing flame. Gleaming, shifting, lambent waves of color flashed and paled before my entranced eyes; gray as the fishes turned their backs, sweeping brightly back with a thousand brilliant tints as they showed their sides; soft, undefined, and mutable, down there under the green glass of the sea; while, to show them the better, myriads of minute medusæ hurried hither and thither, glittering like phosphorescent lanterns in gossamer frames and transparent globes.

"All possible slack having now been taken in, the steamer approaches, and towing us away to deeper water, for we are drifting toward a lee shore, comes to a stand-still, and the work of loading begins. The cork-line is lifted up and made fast to the steamer's bulwarks, to which the boats have already attached themselves at one end, holding together at the other. This crowds all the

bunkers together in a mass between the two boats and the steamer's side, where the water boils with the churning of thousands of active fins. A 20-foot oar is plunged into the mass, but will not suffice to sound its living depths. Then a great dipper of strong netting on an iron hoop is let down by tackle from the yard-arm, dipped into the mass under the guidance of a man on deck who holds the handle, the pony-engine puffs and shakes, and away aloft for an instant swings a mass of bunkers, only to be upset and fall like so much sparkling water into the resounding hold.

"How many does that dipper hold?"

"About a thousand."

"Very well, I will count how many times it goes after a load."

"But I didn't. I forgot it in looking down the hatchway. The floor of the shallow hold was paved with animated silver, and every new addition, falling in a lovely cataract from far overhead, seemed to shatter a million rainbows as it struck the yielding mass below, and slid away on every side to glitter in a new iridescence till another myriad of diamonds rained down. If you take it in your hand, the mossbunker is an ordinary looking fish, like a small shad, and you do not admire it; but every gleaming fiery tint that ever burned in a sunset, or tinged a crystal, or painted the petals of a flower, was cast in lovely confusion into that rough hold. There lay the raw material of beauty, the gorgeous elements out of which dyes are resolved—abstract bits of lustrous azure and purple, crimson and gold, and those indefinable greenish and pearly tints that make the luminous background of all celestial sun-painting. As the steamer rolled on the billows, and the sun struck the wet and tremulous mass at this and that angle, or the whole was in the half-shadow of the deck, now a cerulean tint, now a hot brazen glow, would spread over all for an instant, until the wriggling mixture of olive backs and pearly bellies and nacreous sides, with scarlet blood-spots where the cruel twine had wounded, was buried beneath a new stratum.

"How many?" I asked, when all were in.

"Hundred and ten thousand," replied Captain Hawkins. "Pretty fair, but I took three times as many at one haul last week."

"What are they worth?"

"Oh, something over \$100. Hard a-starboard! go ahead slow."

"And the labor of the engines drowned the spat, spat, spat of the myriads of restless little tails struggling to swim out of their strange prison, while I climbed to the masthead to talk with the grizzly old lookout, who had been round Cape Horn thirteen times, yet did not think himself much of a traveler.

"The cry of 'Color off the port bow!' brought us quickly down the ratlines and again into the boats.

"That day we caught 250,000 fish, and made a round trip of 100 miles, going away outside of Montauk Point, where it was frightfully rough after a two days' easterly gale. Great mountains of water, green as liquid malachite, rolled in hot haste to magnificent destruction on the beach, where the snowy clouds of spray were floating dense and high, and the roar of the surf came grandly to our ears wherever we went. Yet the difficulties were none too great for these hardy fishermen, who balanced themselves in their cockle-shells, and rose and sank with the huge billows, without losing their hold upon the seines or permitting a single wretched bunker to escape."

CERTAIN REQUIREMENTS OF PURSE-SEINE FISHING.

METHODS OF HANDLING THE NET.—Much care and expedition are necessary in handling a purse-seine full of fish. In the event of a very large draught, if the fish are left in the net too long they are killed by the confinement and close pressure and sink. In such a case the only alterna-

tive offered the fishermen is to cut open their seine. Sometimes the dead fish carry the net with them to the bottom. When there are more than enough fish in the seine to fill the vessel to which it belongs, and there is danger that they may be lost, other vessels which are near often take the surplus fish. In such a case, writes Mr. Babson, one-half the value of the fish is paid to the captors.

In calm or moderate weather, fishing is carried on from dawn till dark, though morning and evening seem most favorable. In rough weather the nets are not easily set, while the fish usually swim farther from the surface and cannot be seen. Cold northerly and easterly winds seem to affect the fish, causing them to slink toward the bottom. Southerly winds seem the most propitious.

Mr. Dudley states that in the fall, during the southward migration, the fish play at the surface with a northwest wind.

THE BEST TIME FOR SEINING.—The early morning is apt to be the stillest part of the day, and a large part of the fish are taken at that time.

So far as we can learn, the motions of the fish are not particularly affected by the tides, except that, like the *Olupeida*, they prefer to swim *against* strong tides and winds. An impression seems to hold among the fishermen that rather better success attends fishing on the flood-tide. This is no doubt the case where gill-nets are in use, for in localities where the fish have not been frightened off shore by constant fishing they like to play up into coves and bays with the rising tide, and are then easily taken by the gill-nets and the pounds or weirs.

Where the purse-seines are worked in deep water off the shore, as on the coast of Maine, little attention need be paid to the tides; but where they are used in bays or channels where the tide has much head, there is a practical difficulty in using them except at or near the time of slack water. In a swift current the seine is liable to accidents from being caught on rocks or other obstructions, or may be capsized or pulled out of position. In Narragansett Bay, the difficulties of this kind appear to be particularly great. According to Mr. Church, it is not uncommon for a gang to work all day without success, their net being capsized every time it is set.

GILL-NET FISHING.

Besides the purse-seine, which is the chief apparatus of capture, gill-nets, set-nets, and haul-seines are also employed along some parts of the coast. On the New Jersey coast gill-nets are shot ahead of the fish as they are swimming along and they are thus easily captured. This method is called gilling. Sometimes an ordinary haul-seine is used, the fish being dragged ashore.

Before the introduction of the purse-seine, gill-nets were the chief means of capture. Until within a few years most of the menhaden fishing east of the Penobscot River, in Maine, was carried on with gill-nets. These nets were usually of No. 12 to 14 4-thread twine, of $3\frac{1}{4}$ to 4 inch mesh, and from 30 to 180 feet in length by 10 to 24 feet in depth. Two men in an open sail-boat could tend a dozen of these nets, which were set in the night by being anchored in favorite haunts of the fish.

MENHADEN WEIRS.

In former years there were a few menhaden weirs along the Maine coast. In the pound-nets of Martha's Vineyard and other parts of the coast large quantities of menhaden are sometimes taken, but these nets are set specially for other species. The menhaden thus taken are generally sold for bait. Col. Theodore Lyman has given a very graphic account of the capture of bait menhaden in Vineyard Sound:

"The weir is hauled once a day, and always at slack water, because with a strong tide running east or west it is impossible to handle the bottom lines. The men pull out in two parties, of which one in a large scow passes around the outside of the bowl, casting off the bottom lines, while the other in a yawl-boat pushes inside the bowl, pulls up the sliding poles, and closes the entrances. The slackening of the bottom line allows the bowl-net to hang free, and the crew inside begin to haul up the bottom of this net in such a way as to work the fish toward one corner, letting the net as it comes to the surface pass under their boat, which is thus slowly drawn across the bowl toward the corner where the capture is to take place, and where the scow is already waiting outside.

"The scene now becomes an exciting one. The menhaden in thousands begin to show the upper lobes of their tails above the water; here and there darts a feverish mackerel like a blue and silver flash; great leathery skates, looking like pigs rolled out flat, raise their snouts in slow astonishment; here a shark suddenly works his way through the crowding mob; hundreds of goggle-eyed squid, smothered in the press, feebly ply their force pumps; and there the murderous bluefish, undismayed by imminent death, glares fiercely and snaps his savage jaws to the last. All these, with flat-fish, sea robins, butterfish, and many more, are taken and rolled in a fluttering mass, iridescent with changing colors, and shower their silver scales high in air. It moves even the weirmen, in their oilskin clothes, with a slight excitement as they cull out from the menhaden the choice and the odd fish. There is Uncle Abishai smiting sharks with a spear, like so many Sauls, and he smiteth them not twice; and Captain Ed'ard endeavoring, with a swift scoop-net, to capture a dodging shad, because Mrs. Asa has boarders and needs a fish dinner; and Captain Charles, with the air of one who gets a toy for a good child, diligently striving after some of them ere striped robins that the professor wanted. All this is strange and entertaining, even to a commissioner, who, by the motion of a long swell and the evil piscatory odor, is somewhat afflicted with what the local satire terms 'white-ears.'

"And now the menhaden, bushels on bushels, are scooped all quivering into the great scow, for a little outside lies a mackereler who has just let go her anchor with a rattle, and a boat is pulling in with the skipper to buy bait. 'What you got?' cries he, in an indifferent tone. 'Menhaden,' retorts Captain Warren, as if speaking of a new and scarce fish. (A pause.) 'I don't know but I might take a few barrels if they are low,' says the skipper. (No reply.) 'What do you want for 'em?' 'Eighty-five cents,' shouts Captain Warren, and then (sotto voce), 'I don't believe he's got a scale.' At this answer the man of mackerel pushes over the tiller and steers off indignantly; but presently pauses, 'Give you sixty-five for seventy barrels.' 'Seventy-five cents is the lowest,' replies Captain Warren. 'Call it seventy cents for seventy-five barrels.' 'Waal, Waal.' And by this time the scow is full, and the weirmen pull for the vessel, whose numerous crew is ready to hoist the bait on board and salt it down. They stand with knives, barrels, and chopping-blocks, and rapidly cut off the heads and tails of the fish, and the thin parts of the sides, then give a gash in the shoulder, and throw them into the barrel for salting. A mackereler will take as many as 120 barrels of such bait, which is minced fine in a hand-mill and thrown over to toll the fish."

The change in the method of taking mackerel has well-nigh done away with the use of toll-bait so extensively employed in the days of mackerel hooking.

6. OIL AND GUANO FACTORIES.

As stated in a previous paragraph, the chief products of the menhaden are the oil and guano, to be obtained by a process of cooking and pressing. A limited quantity is used for food along

the New Jersey coast, and formerly they were salted down in New England for export to the West Indies. They are also used as bait in various fisheries.

The factories are located at various points along the coast, convenient to the fishing grounds. At the eastern end of Long Island there are a large number of factories, fitted to handle great quantities of fish. One of the largest and best-equipped factories is that of Joseph Church & Co., at Tiverton, R. I. Along the Connecticut and New Jersey shores there are several factories, and in Chesapeake Bay upwards of sixty, many of them, however, very small. The processes of manufacture are fully described in another part of this report.

METHODS OF OIL MANUFACTURE.

THE PRINCIPLES INVOLVED.—The manufacture of menhaden oil is simple in the extreme, consisting of three processes—boiling the fish, pressing, and clarifying the expressed oil. The apparatus absolutely needful is correspondingly free from complication, consisting, for the first process, of a cooking vessel; for the second, a press; and for the third, a shallow vat or tank. These were used twenty-five years ago by Mrs. Bartlett, the manufacturer of the first menhaden oil, who produced an article little inferior to the best now in the market. Very few patents for improved methods of manufacture have been granted. Mr. W. D. Hall's patent for steam-rendering is the most important. The principal changes have been in the introduction of labor-saving appliances, which enable manufacturers to carry on their business with the smallest possible force of workmen. Steam is of course an important auxiliary in handling the fish and in working the presses, and is also used to great advantage in heating the cooking-tanks, as well as for pumping the water and oil. The hydraulic press has replaced the old-fashioned screw-press in most of the larger establishments, and the size, shape, and arrangement of the bleaching vats, as well as the methods of drawing and pumping the oil from one to the other, have been perfected.

PROCESSES EMPLOYED IN MANUFACTURE.—The process of oil-making at the larger works is essentially as follows: The fish are conveyed to the upper story of the factory on wooden tramways in cars containing about 20 barrels each, and are dumped into large reservoirs, from which the cooking-tanks are replenished from time to time, or are emptied directly into the cooking-tanks, which are filled to the depth of 6 inches with sea-water. From 50 to 75 barrels are placed in each cooking-tank, and then steam is turned on and they are boiled for half an hour or more. In this way about two-thirds of the oil is separated; the remainder is expressed by means of the hydraulic presses, under a pressure of 50 to 150 tons or less, the fish having been placed in circular curbs of half inch iron, perforated with holes an eighth of an inch in diameter, each curb having a capacity of 3 to 10 barrels. The oil, mixed with water, is now run into the "drawing-off tanks" while it is still hot, and is passed through several of them, the water separating and sinking to the bottom. The oil is now drawn off into a "settling-tank" of 4,000 or 5,000 gallons capacity, where it remains a few hours to allow impurities to sink to the bottom. Finally, it is pumped into "bleaching tanks," containing several thousand gallons, where it becomes clearer and whiter in the rays of the sun, and after one or two weeks of exposure is ready for shipment.

PROCESSES EMPLOYED IN REFINING.—Boardman & Atkins make the following statements about processes of refining:

"The oil and water running together into the receivers separate by the oil rising to the top, whence it can be drawn or skimmed off. Great pains must be taken to separate the oil from the water before the impurities contained in the latter begin to ferment, for if this happens the quality of the oil suffers much. Moreover, in what appears at first to be pure oil there is a variable amount of finely divided fleshy substance that must be allowed to settle, as it will after a while, and the

clarified oil drawn off before putrefaction sets in. In order to effect the separation the oil is commonly passed through a number of settling-vats, and a portion of the impurities deposited in each, and finally, before barreling, the oil is, if practicable, exposed some hours to the sunlight in a broad, shallow tank. If all these processes are successfully carried through, the oil is light-colored, sweet, and of prime quality; but if it is exposed at any time to the influence of putrefying animal matter, it becomes dark and 'strong.' The very strongest of oil is made from the 'gurry' or settlings of the oil, after fermentation, by steaming or boiling it over.

"It naturally happens that every manufacturer makes several grades of oil, of very different quality, of which the best is very sweet, fine oil, bringing 10 cents a gallon more than a strong article. Notwithstanding this fact, it is said to be the common practice of dealers to pour all grades into the same vat, and this has led manufacturers to take less pains to keep them separate.

"It is a curious fact that oil made from early fish is not so good as that made later. It is called 'weak,' and brings in market five cents per gallon less."*

Gurry oil is sold for one-third less than the other grades.

Perhaps the most satisfactory way of indicating the processes now in use will be to describe three or four of the principal factories in detail.

THE FACTORY OF THE GEORGE W. MILES COMPANY.—The factory of The George W. Miles Company at Milford, Conn., is said to have been the first one built after the model now universally followed, with the cooking-tanks and oil-presses upon the second floor of the building.

When the fishing fleet comes in, the fish are hoisted from the holds of the vessels into cars, in which they are carried over an inclined tram-way to the upper story of the factory building. Here they are turned into tanks, 20,000 fish in each, and cooked by steam-power. Then the water is drawn off and the cooked fish are placed in perforated iron curbs, which are so arranged upon rail-ways that they can be pushed under a hydraulic press. Each curb-load of fish is subjected to a pressure of sixty or seventy tons, by which the greater part of the oil is extracted. The scrap is then dropped into the cellar below.

THE COST OF AN OIL-FACTORY.—The larger part of the cost of an oil-factory consists in the machinery, as the buildings are always of wood, substantial but cheap. The amount invested in factories by different manufacturers appears to range from \$2,000 to \$65,000. The average amount invested in the fourteen factories of the Maine Association is \$22,600, but the general average will not probably exceed \$12,000 or \$15,000.

Mr. Church, of Tiverton, R. I., speaking of the establishments on Narragansett Bay, remarks that a factory ready for business, including buildings, tanks, boilers, hydraulic presses, oil-room, &c., of a capacity to cook and press 800 barrels (200,000 fish) in a day, costs not far from \$14,000. A hydraulic press costs about \$1,200; in 1877, \$700.

Mr. Miles, of Milford, Conn., states that boilers cost from \$2,000 to \$4,000, hydraulic presses with curbs and fixtures \$2,000; engines, pumps, shafting, and pulleys, together with the necessary buildings, bring the cost of the factory to from \$10,000 to \$50,000.

Capt. B. H. Sisson, of Greenport, N. Y., estimates the cost of boilers, engine, piping, hydraulic press worked by steam, steam drying machines, and steam hoisting apparatus, to be from \$10,000 to \$25,000 for each factory.

Mr. Dudley states that a factory running three or four gangs of fishermen costs from \$20,000 to \$30,000.

The capital invested in the factory is one-half of the whole amount. The fourteen establishments of the Maine Association had in 1874 \$316,000 in buildings and machinery and \$390,000 in

* *Op. cit.*, p. 27.

"gear"; that is, in steamers, sailing vessels, small boats, and nets; an average of \$27,800 to each for gear against \$22,600 for factory. In Connecticut, according to Mr. Dudley, about the same proportion holds.

ORGANIZATION OF THE FISHING GANGS.—"In the early days of the business," says Mr. Dudley, "the manufacturers did not own the fishing vessels, nor were they interested pecuniarily in the fishery; they bought the fish from independent fishermen. This method was found unsatisfactory; the fishermen sold to the highest bidder, and the supply was uncertain. Of late years the company owns the vessels which supply it with fish. The crew work upon shares, as in other fisheries. In the settlement, at the end of the season, a sailing vessel, with seine and gear, draws one-third of the net proceeds; a steamer, one-half; the remainder is divided by the crew, the captain receiving an ordinary share, in addition to which he is paid a salary by the company, either fixed or proportionate to the success of the season's work. It is not uncommon for a successful captain to receive a bonus of \$500, or sometimes \$1,000. In settling the season's account, the total catch is paid for at a rate proportionate to the yield of oil. In 1876, the Quinipiac Fertilizer Company paid \$1.25 per thousand. The company usually advances pay to the men to the extent of \$1 a thousand, and at the end of the season a final settlement is made. The crew of a sailing vessel will average from \$35 to \$75 a month; the crew of a steamer somewhat more."

ADVANTAGES CLAIMED FOR FLOATING FACTORIES.—Floating factories were in use until recently chiefly on Long Island Sound; in whose protected waters they operate to great advantage. They have now gone out of use on account of the introduction of steamers. They were usually built upon the hull of some old vessel, and towed from point to point, gathering the fish from the smacks and working them up into oil and guano as they moved. Some of them were fitted up with machinery for very extensive manufacture. Two important objects were attained by the owners of floating factories: The objection to their business arising from the offensive odor was to a considerable extent removed; by following the movements of the fish time and expense were saved, for by bringing the factory to the fish they obviated the necessity of having a fleet of lighters to carry the fish to the factory, which might often require two or three days. There were five of these factories in 1878; one owned at Milford, Conn., and four at Greenport, N. Y.

7. THE MENHADEN AS A BAIT FISH.

THE USE OF MENHADEN FOR BAIT.—Menhaden bait, when obtainable, is extensively used in the cod fisheries of New England. Its popularity is no doubt chiefly due to the ease with which it may be obtained in large quantity, though its oily nature and strong odor render it particularly well adapted for use as a toll bait for mackerel. "Slivered pogies" are carried by the vessels fishing for cod on the Grand, Western, and George's Banks. According to Capt. N. E. Atwood, salted menhaden are good bait for haddock, but inferior for cod.

In the days of hooking mackerel thousands of barrels of menhaden were used for toll bait, but the purse-seine has done away with the need of such bait, except in special cases.

The menhaden were said to be superior to all other mackerel bait. They were ground up fine in a bait-mill and then thrown over with a bait-dipper. A great deal of testimony concerning the use of menhaden as mackerel bait was given before the Halifax Commission.

THE TESTIMONY OF CANADIAN OFFICERS.—Mr. H. W. Johnson, of the Department of Marine and Fisheries, wrote, in 1868, a "Special Report on the Distress among the Nova Scotia Fishermen." One of the reasons assigned by him for the failure of the fisheries is that "the pogies, the only real mackerel bait, is not caught east of Portland, and must all be imported for our fleet, the increased cost of which, added to the American duty, the fisherman has to pay on his share of

fish, besides charges of transportation place him in the position that if he catches during the season, to his own share, forty barrels of mackerel in one vessel, he has not made as good a season by about \$100, gold, as if he had been in an American bottom."*

Capt. P. A. Scott, R. N., commanding the marine police of the Dominion, reported, in 1870, to the Commissioner of Marine and Fisheries: "For mackerel fishing the Americans use pogies and clams, chopped fine, as bait. The pogies are found only on the coast of the United States, and when imported into the Dominion cost about \$6 per barrel."†

Capt. Charles G. F. Knowles, R. N., commanding H. M. S. *Lapwing*, cruising on fishing station No. 4, which includes the west coast of Cape Breton and the east coast of Prince Edward Island, reported to Vice-Admiral Fanshawe, November 7, 1870, in these words: "The bait with which the Americans are supplied is far superior to any which can be procured in this country, to which may be attributed, in a great measure, the success of the Americans previously to the recent restrictions, although even now the local fishermen complain that they have no chance while an American schooner is fishing near them."‡

Professor Hind, in his treatise on "The Effect of the Fishery Clauses of the Treaty of Washington on the Fisheries and Fishermen of British North America" (part 1, p. 75), remarks that its value as a bait for cod is, in a considerable degree, superseded by the herring; but as a bait for "tolling mackerel" it is still in repute, although other fish, similarly treated and finely ground, appear to be equally useful in this respect. The first part of this statement is undoubtedly true, at least as far as the fishermen of the British colonies are concerned. In regard to the comparative value of herring and menhaden for toll-bait, there is still room for difference of opinion.

An average of perhaps 250,000 barrels of mackerel were annually caught by the United States vessels, using menhaden bait solely, against 110,000 caught by the Provincial fleet, which used menhaden bait when it could be obtained, buying it at the rate of \$6 a barrel in preference to herring bait, which costs only the labor of catching and the salt for preserving.

SLIVERING MENHADEN.—The method of preparing menhaden for salting, to be used as bait, is very simple. The head of the fish is taken in the left hand of the workman, and with a knife held in the right hand he cuts a slice, longitudinally, from each side of the body, leaving the head and vertebræ to be thrown away, or, occasionally, to be pressed for oil. The slivers (pronounced *styers*) are salted and packed in barrels. The knife used is of a peculiar shape and is called a "slivering knife."

THE PREPARATION OF MACKEREL BAIT.—The use of menhaden bait for mackerel fishing was inaugurated in 1835 or 1840; the bait is ground up into a mush and salted, to be used as a "toll-bait," and to be thrown over the side of the smack to attract the school to the surface and keep it alongside; this is called "chumming up the fish," and the bait is called "chum" or "stosh." To prepare it for use the "slivers" are passed through a "bait-mill," which is a machine like a farmer's feed-cutter; the fish are thrown into the hopper, from which the fish pass between a roller armed with small knives in rows, and a series of similar knives arranged along a board which slopes toward the bottom. The bait is usually ground at night, by the watch on deck; when the vessel has no "bait-mill," the fish are cut up with a hatchet or scalded with boiling water in a tub. Bait-mills were first introduced about the year 1824. In fishing for mackerel, one man throws over the bait while the rest ply their lines. "Toll-bait" is also used by the smacks, which use purse-seines and drift-nets, to attract the fish to the surface.

* Proceedings Halifax Commission, 1877, Appendix F, p. 67.

† Third Report Commissioner Marine and Fisheries, 1871, p. 312.

‡ *Ibid.*, p. 342.

THE USE OF MENHADEN BAIT IN THE COAST FISHERIES.—Menhaden bait is also used in the coast fisheries for sea bass, on the "bull-tows" or "trot-lines," and in the eel and lobster pots. They are not much in favor for the latter use, however, for the oil of the fish is thought to permeate the flesh of the lobster, imparting to it an unpleasant flavor.

Menhaden have also been used as bait for bluefish in the same manner as in the mackerel hook-fishery, the menhaden being chopped up fine and thrown in the water to attract the schools of bluefish. This method of catching bluefish is called "chumming."

EXTENT OF BAIT-FISHERY IN NEW ENGLAND.—Captain Babson, of Gloucester, whose account of the bait-fishery of Cape Ann is quoted elsewhere, and who has given much other valuable information, states that there were over 60,000 barrels of "round-fish" taken in his district in 1873. Vessels belonging to the companies of the Maine Oil and Guano Association sold in 1873 for bait 2,977 barrels; in 1874, 10,400; in 1877, 10,795. From the bait fisheries about Marblehead, in the vicinity of Provincetown, 1,000 to 2,000 barrels were taken for bait in 1873, according to Mr. Loring. At Chatham, for the past five years, the average catch has been about 5,000 barrels, a large portion of which are sold to the *George's Bank codfish vessels*. There are some bait fisheries about Nantucket, which are, however, quite unimportant.

Most of the fish taken at Martha's Vineyard are used for bait; in 1873, according to Jason Luce & Co., there were 5,000 barrels.

At Gloucester, according to Capt. F. J. Babson, the 60,000 barrels of round fish make 20,000 barrels of "slivers," worth \$4 per barrel to the producer. At Marblehead it averages \$1 per barrel for fresh and \$6 for salt; at Chatham, \$1.50 fresh; at Nantucket, 50 cents to 75 cents, and at Martha's Vineyard 50 cents, as I am told. In Narragansett Bay, according to Mr. J. M. K. Southwick, bait sold in 1871 for \$1 and \$1.50.

BAIT-FISHERY IN MERRIMAC RIVER AND SALEM HARBOR.—Fisheries of some importance were formerly carried on at the mouth of the Merrimac River. The menhaden thus obtained were used chiefly to supply the Cape Ann fishing fleet with bait, although they were salted for food to a considerable extent. Ten seines and about seventy men were engaged in this fishery during its continuance, which usually lasted about one month—from the middle of June to the middle of July. The seines were 100 to 200 yards long and 5 to 8 fathoms deep, requiring six to eight men to manage them. The boats from which they were worked were light scows, about 25 feet in length and 8 feet in breadth of beam. The seine was set from the stern of the scow, and was worked from the shore by means of long warps.

Capt. Moses Pettingell, of Newburyport, to whom we are indebted for the above facts, states that the seine-gangs have occasionally taken 2,000 barrels of fish in a single day.

Boston and Gloucester vessels were accustomed to anchor at the mouth of the river and wait for their supplies of bait. At one time in 1877 there were 25 fishing schooners waiting. Captain Pettingell estimates that 500 supplies of bait from 10 to 60 barrels were sold annually by the Merrimac seine-gangs.

The regular price of fresh bait for ten years prior to 1873 was \$1 per barrel. Probably 1,000 barrels of slivered fish were prepared in 1876; these sold for \$5 per barrel. Captain Pettingell estimates the catch for 1876 at 2,000 barrels to a boat, making an aggregate catch of 20,000 barrels, or perhaps 6,600,000 fish. The returns were probably not far from \$20,000 in a good season.

The following table is from the Report of the Commissioners of Inland Fisheries for 1877 (p. 65). It is possibly not complete.

TABLE.—*Seine-fishery at mouth of the Merrimac.*

Name.	Menhaden.
E. Thurlow.....	} 2,013,675
R. Pierce.....	
B. M. Perkins.....	
W. H. H. Perkins.....	
N. Lattime.....	
B. Stevens.....	

A similar fishery, though of much less extent, was carried on by Gloucester vessels in Salem Harbor. There being no considerable body of fresh water, the schools were small and easily dispersed. July 15, 1877, I observed six or seven gangs busily plying their seines opposite The Willows. After a day or two the menhaden were driven away, and the fishing ceased until the following week, when they returned and were soon followed by the same boats.

AN ESTIMATE OF THE TOTAL CONSUMPTION OF MENHADEN BAIT.—It is not practicable to make, from the data to which we have access, any very accurate estimate of the total quantity of menhaden bait used in one year. We give below a number of estimates for individual ports or fisheries; 60,000 round barrels are thus accounted for. It is no doubt correct to estimate the total consumption for 1877 at 80,000 barrels, or 26,000,000 of fish.

CONSUMPTION BY THE GEORGE'S BANK FLEET.—The George's Bank cod fleet is owned entirely in Gloucester. There are about 130 vessels, making usually one trip every twenty days. When they can get slivered menhaden they carry no other bait. Early in the summer they go to Vineyard Sound for their bait, where they buy it from the pounds; later they have usually been able to buy nearer home. Each vessel carries about forty round barrels of menhaden, iced. Mr. Joseph O. Proctor estimates the annual number of trips made with this bait at 600. This gives a total amount of 24,000 round barrels, or about 8,000,000 of fish; 24,000 round barrels are equivalent to 8,000 barrels of slivered fish.

Ten years ago, according to the estimate of the same gentleman, the George's-men did not carry menhaden bait on so many trips, nor did they carry so much. He estimates 300 trips, at 30 barrels, giving an aggregate of 9,000 round barrels, or about 3,000,000 fish.

CONSUMPTION BY THE GRAND BANK FLEET.—Mr. Proctor estimates that the Grand Bank cod vessels of Gloucester use in all about 600 barrels of slivered menhaden bait.

Major Low's statement of the outfit of the schooner *Madam Roland*,** copied from the trip-book, shows that she was supplied with 5 barrels of pogy slivers, at \$8 per barrel, making \$40; and 5 barrels of slack-salted clams, at \$11, making \$55. His model table, to show the cost of a new schooner fitted at Gloucester, 1875, for a four months' trip to the Grand Bank for codfish and halibut, with 14 hands, estimates for 12,000 pogies or herring, at \$100.

CONSUMPTION BY THE MACKEREL LINE-FISHERMEN.—Each mackerel vessel engaged in line-fishing consumes during the course of the season about 20 barrels of salted menhaden slivers. In 1867, when the entire fleet fished with hooks, the amount consumed by Gloucester alone amounted, by Mr. Proctor's estimate, to 6,500 barrels, and the total consumption in the United States of mackerel bait must have exceeded 25,000 barrels. In 1877 the purse-seiners are in a large majority. The whole amount consumed by a seining vessel does not exceed 5 or 6 barrels in a season. Gloucester

* Sailed for the Grand Banks August 26, 1873; arrived at Gloucester October 10, 1873; time absent, one month fourteen days; gross stock, \$2,758.27. Doc. and Proc. Halifax Commission, vol. iii, p. 2,600.

ter had in 1877 about 60 "mackerel-hookers," using about 2,400 barrels of slivers, while its seining fleet used about 2,000 barrels more.

Capt. Sylvanus Smith, of Gloucester, stated to the Halifax Commission that a vessel fitting out for a four months' trip to the Gulf of Saint Lawrence would need to be supplied with 40 barrels of poggy bait, worth \$6 a barrel, making \$240, and 10 barrels of salt clams, worth \$8 a barrel, making \$80.*

Major Low's statement, copied from the trip-book of the schooner Oliver Eldridge,† shows that she fitted out with 55 barrels of slivered pogies, at \$6.50 a barrel, making \$357.50, and 7 barrels of clams, at \$6, making \$42.‡

The amount of these outfits is much greater than that upon which the above estimate was made.

The entire amount used in the mackerel fishery in 1877 probably did not exceed 8,000 or 9,000 barrels of slivers, or 24,000 to 27,000 barrels of "round fish."

CONSUMPTION BY THE CONNECTICUT SMACKS.—In 1878 there were seven Connecticut smacks fishing for the flounder (*Chænopsetta ocellaris*) in Long Island and Block Island Sounds. Five of these hailed from Noank, one from Mystic, and one from New London. Captain Ashby states that these smacks average one trip every four or five days for five months (May to September inclusive). They use only menhaden bait; about one barrel each trip, or perhaps 150 barrels in the season.

About sixteen Noank and four New London smacks fish for sea-bass. Each carries two or three barrels of menhaden bait each trip, making an aggregate annual amount of about 1,000 barrels.

CONSUMPTION BY THE NEW YORK HALIBUT FLEET.—The New York halibut fleet of eleven vessels, owned at Noank, New London, and Greenport, uses only menhaden bait, which is iced fresh in the vessels' holds. A vessel carries from 6,000 to 10,000 fish on each trip, and makes five or six trips. The aggregate number of menhaden thus used is perhaps 480,000, or 1,400 barrels. The usual price is \$4 a thousand.

ANNUAL SALE OF BAIT BY THE MAINE MANUFACTURERS.—The Menhaden Oil and Guano Manufacturing Association of Maine sold for bait:

	Barrels of fish.
In 1873.....	2,977
In 1874.....	10,400
In 1875.....	10,752
In 1876.....	8,432
In 1877.....	10,795

THE CONNECTICUT METHOD OF ICING BAIT.—A peculiar method of preserving the unsalted menhaden is made use of on board the Connecticut halibut-catchers. The fish, after being very carefully cleaned and eviscerated, are packed with pounded ice in bins holding about 125 cubic feet (about 5 feet in each dimension). A ground-layer of ice-blocks 12 inches thick is first laid, then a tier of fish consisting of two layers and about 4 inches thick, then a layer of 4 inches of pounded ice, and so on until the bin is filled, after which its sides are packed with pounded ice and covered with canvas. Seven to ten thousand fish are thus stowed in one bin. The stowing having been completed, the fish and ice freeze together in a solid mass, which is left untouched until the fishing-banks are reached.

Their supply of bait being thus secured, the vessels are never obliged to make harbor in search

* Documents and Proceedings of the Halifax Commission, 1877, Vol. III, p. 2547.

† Which sailed for the Bay of Saint Lawrence August 5, 1875 (absent two months and twenty-eight days), arrived at Gloucester November 2, 1875, stocking \$1,771.83, or 224 barrels of mess mackerel.

‡ Documents and Proceedings of the Halifax Commission, 1877, Vol. III, p. 2602.

of a new supply. They often catch their fare upon La Have or Brown's Bank, and return home without having anchored. The bait is good for three weeks. Captain Ashby states that he has used it on the thirty-third day.

THE CAPE ANN METHOD OF ICING BAIT.—On board the Gloucester vessels the menhaden are not eviscerated, nor are they packed with so much care; consequently they never last more than three weeks. Since twenty-four hours or more are usually occupied on both outward and home voyages, there is only a short time left for which the supply of bait can be counted upon. If by any means this time could be doubled an important advantage would be acquired. Vessels would often be able to complete their fares on the eastern banks without going to Newfoundland for bait. Does the Connecticut method fulfill this requirement? Captain Hurlbert, one of the most experienced fishermen of Gloucester, says no. He claims that neither cod nor halibut will bite well at a fish which has had its blood removed. He says that a half-decayed fish, with the blood still in it, is better bait than a perfectly sweet one kept by cleaning it. He says, still further, that Gloucester fishermen formerly followed this method, but that it was abandoned many years ago, as early as 1866.

THE COMPARATIVE VALUE OF VARIOUS METHODS OF ICING.—The comparative value of the different methods of preserving bait was discussed by Professor Baird in his testimony before the Halifax Commission, which is quoted:

“Question. Now will you state what observation you have made respecting the method of preserving fresh bait from the start all the voyage through?—Answer. As a general rule it is now preserved either by salting or freezing. Of course they keep it as long as it will remain without spoiling, and when you have to carry it beyond that time either ice it or salt it. Salting, of course, is a very simple process, but it alters materially the texture and taste to such a degree that fish or other bait that under certain circumstances is highly prized by the fish is looked upon with a great deal of indifference when salted. Now, there are special methods of preserving the fish or bait by some chemical preparation, which preserves the fish without giving the saline taste. There are preparations by means of which oysters or clams or fish can be kept in solutions for six months without getting any appreciable taste, and without involving the slightest degree of deterioration or destruction. One process submitted to the group of judges, of whom I was chairman, was exhibited by an experimenter, who placed a jar of oysters in our room prepared in that way. I think about the 1st of August those were placed in our room, and they were kept there until the middle of September, for six weeks during the hottest part of the Centennial summer, and that was hot enough. At the end of that time we mustered up courage to pass judgment upon this preparation, and we tasted these oysters and could not find them affected. We would have preferred absolutely fresh oysters, but there was nothing repugnant to the sensibilities, and I believe we consumed the entire jar. And we gave the exhibitor, without any question, an award for an admirable new method. That man is now using that process on a very large scale in New York for the preservation of fish of all kinds, and he claims he can keep them any length of time and allow them to be used as fresh fish quite easily. I don't suppose any fisherman ever thought of using any preservative except salt.

“Q. That is entirely experimental?—A. It is experimental, but it promises very well. Now, borax is one of the substances that will preserve animal matter a great deal better than salt, and without changing the texture. Acetic acid is another preparation, or citric acid will keep fish a long time without any change of the quality, and by soaking it in fresh water for a little while the slightly acidulated taste will be removed. I don't believe a cod will know the difference between a clam preserved in that way and a fresh clam.

"Q. Now, about ice. We know a great deal has been done in the way of preserving bait in ice. How far has that got?—A. It is a very crude and clumsy contrivance. They generally break up the ice into pieces about the size of pebble stones, or larger; then simply stratify the bait or fish with this ice, layer and layer about, until you fill up a certain depth or distance. The result is that if the bait can be kept two weeks in that method it is doing very well. They generally get a period of preservability of two weeks. The ice is continually melting and continually saturating the bait or fish with water, and a very slow process of decomposition or disorganization goes on until the fish becomes musty, flabby, and tasteless, unfit for the food of man or beast.

"Q. Well, there is a newer method of preservation, is there not?—A. There is a better method than using ice. The method described by the Noank witness, by using what is equivalent to snow, allows the water to run off or to be sucked up as by a sponge. The mass being porous prevents the fish from becoming musty. But the coming methods of preserving bait are what is called the dry-air process and the hard-freezing process. In the dry-air process you have your ice in large solid cakes in the upper part of the refrigerator and your substance to be preserved in the bottom. By a particular mode of adjusting the connection between the upper chamber and the lower there is a constant circulation of air, by means of which all the moisture of the air is continually being condensed on the ice, leaving that which envelopes the bait or fish perfectly dry. Fish or any other animal substance will keep almost indefinitely in perfectly dry air about 40° or 45°, which can be attained very readily by means of this dry-air apparatus. I had an instance of that in the case of a refrigerator filled with peaches, grapes, salmon, a leg of mutton, and some beefsteaks, with a great variety of other substances. At the end of four months in midsummer, in the Agricultural Building, these were in a perfectly sound and prepossessing condition. No one would have hesitated one moment to eat the beefsteaks, and one might be very glad of the chance at times to have it cooked. This refrigerator has been used between San Francisco and New York, and between Chicago and New York, where the trip has occupied a week or ten days, and they are now used on a very large scale, tons upon tons of grapes and pears being sent from San Francisco by this means. I had a cargo of fish-eggs brought from California to Chicago in a perfect condition. Another method is the hard-frozen process. You use a freezing mixture of salt and ice powdered fine, this mixture producing a temperature of twenty degrees above zero, which can be kept up just as long as occasion requires by keeping up the supply of ice and salt.

"Q. How big is the refrigerator?—A. There is no limit to the size that may be used. They are made of enormous size for the purpose of preserving salmon, and in New York they keep all kinds of fish. I have been in and seen a cord of codfish, a cord of salmon, a cord of Spanish mackerel, and other fish piled up just like cord-wood, dry, hard, and firm, and retaining its qualities for an indefinite time.

"Q. Well, can fish or animals be kept for an unlimited period if frozen in that way?—A. You may keep fish or animals hard dried frozen for a thousand years or ten thousand years perfectly well, and be assured there will be no change.

"Q. Have geologists or paleontologists satisfied themselves of that by actual cases of the preservation of animal substances for a long period?—A. Yes; we have perfectly satisfactory evidence of that. About fifty years ago the carcass of a mammoth, frozen, was washed out from the gravel of the river Lena, I think, one of the rivers of Siberia, and was in such perfect preservation that the flesh was served as food for the dogs of the natives for over six months. Mr. Adams, a St. Petersburg merchant, came along on a trading expedition, and found it nearly consumed, and bought what was left of it for the St. Petersburg Academy of Science—the skeleton and some portion of the flesh—which were preserved first in salt and afterwards in alcohol. Well, we know the

period of time that must have elapsed since the mammoth lived in the arctic circle must be very long. We know we can talk with perfect safety of ten thousand years. The geological estimate of it is anywhere from fifty to a hundred thousand years; we cannot tell. There is no unit of measure; we know it must have been some hundreds of thousands, and probably it would have remained in the same condition as much longer.

“Q. Now, to come to a practical question, is this a mere matter of theory or of possible use? For instance, could this method be adapted to the preservation of bait for three or four months if necessary?—A. The only question of course is as to the extent. There is no question at all that bait of any kind can be kept indefinitely by that process. I do not think there would be the slightest difficulty in building a refrigerator on any ordinary fishing vessel, cod or halibut or other fishing vessel, that should keep with perfect ease all the bait necessary for a long voyage. I have made some inquiries as to the amount of ice, and I am informed by Mr. Blackford, of New York, who is one of the largest operators of this mode, that to keep a room ten feet each way, or a thousand cubic feet, at a temperature of 20° above zero would require about 2,000 pounds of ice and two bushels of salt per week. With that he thinks it could be done without any difficulty. Well, an ordinary vessel would require about seventy-five barrels of bait—an ordinary trawling vessel. That would occupy a bulk something less than 600 feet, so that probably four and a half tons of ice a month would keep that fish. And it must be remembered that his estimate was for keeping fish in midsummer in New York. The fishing vessels would require a smaller expenditure of ice, as these vessels would be surrounded by a colder temperature. A stock of ten to twenty tons would, in all probability, be amply sufficient both to replace the waste by melting and to preserve the bait.”*

CONFLICTS BETWEEN BAIT-FISHERMEN AND OTHERS.

EARLY FEUDS.—Some jealousy has naturally arisen at times between the bait-fishermen and the manufacturers, as is shown by the following extract from Professor Johnston's “History of the Towns of Bristol and Bremen, in the State of Maine:”

“A special branch of the fishing business has of late been undertaken quite largely here (in Bristol), as at other places on the New England coast, called the ‘porgey fishery.’ The fish are taken in seines, usually several miles from the coast, and are used for the oil they produce and for manure.

“These fish, the common menhaden of the coast, have been caught for use as bait in the cod fishery from the earliest times; and at first the new branch of industry, in which such immense quantities are consumed, was viewed by the old fishermen with no little suspicion, as likely to interfere with the important and older branch of the fishing business by depriving them of bait. Some riots were at least threatened, and one oil factory was actually destroyed, as was believed, by the old fishermen or at their instigation; but the opposition has ceased, and the general opinion seems to be that it is best to foster such an extensive branch of business, giving profitable employment for a part of the season, as this does, to so many men, even though it may be attended by some disadvantages, which in the end may prove more imaginary than real.”

THE PRESENT ASPECTS OF THE CONFLICT.—In 1877 and 1878 a determined effort was made by the Maine line-fishermen to secure the passage of a legislative act forbidding the use of seines near the shores. Their claim was that the present methods employed in the fishery interfered with their legitimate privilege of catching menhaden for bait, and that their tendency was to drive away all other fishes as well and to destroy the fisheries.

To this movement the manufacturers made strenuous opposition, claiming that the menhaden

* Proceedings Halifax Commission, Appendix L, p. 457.

fishery is practically inexhaustible; that the habits of the species have not been changed by the fishery, and that so far from making it difficult to obtain bait, the large fishery made it easier, capturing it in great masses and selling it to the fishermen in any desired quantity cheaper than they could obtain it for themselves.

The absence of the menhaden from the Maine coast has rendered protective legislation useless there, though in New Jersey and other States there is still considerable opposition to the wholesale capture of these fish by the use of steamers. A Congressional committee has recently investigated the subject, and in their report recommend: "First, that the use of purse-seines and pound-nets, fyke or weir, in the waters of the Atlantic outside of low-water mark, be absolutely prohibited within 3 miles of the shore prior to the 1st day of June in each year south of a line drawn east from the south cape of Chesapeake Bay, and prior to the 1st day of July north of that line, with suitable penalties for any violation of the law in this respect; second, that the use of meshes in such nets of less than 1½ inches in size, bar measure, should in like manner be prohibited at all seasons, so as to prevent the taking of young and immature fish."

MENHADEN BAIT AS AN ARTICLE OF COMMERCE AND THE CONSIDERATION OF ITS VALUE, BY
THE HALIFAX COMMISSION OF 1877.

THE EXPORT OF BAIT TO THE DOMINION.—Allusion has been made to the extensive exportation of menhaden for use in the fisheries of the Dominion of Canada.

The evidence of several witnesses at the Halifax Commission shows that menhaden bait was preferred to any other kind by the Provincial fishermen. It is said that a considerable number of the vessels of the New England fleet fishing in the Gulf of Saint Lawrence were accustomed to carry partial cargoes of salted menhaden to sell in the Straits of Causo. There are, however, no satisfactory statistics of this exporting trade. This is doubtless due to the fact that every mackerel vessel carries twenty barrels or more of salt slivered fish, and there being no law requiring their entry in the custom-house or for reporting sales after the return of the vessel, no one has the data upon which to found an estimate. More than 5,000 barrels of slivered menhaden, worth more than \$30,000, were carried to Dominion waters during the season of 1878. Many vessels doubtless expended all the bait which they carried; many others sold their surplusage to the Provincial mackerelmen. It is probable that these sales amounted to not more than \$8,000 or \$10,000, and very possibly they are even less extensive.

THE CLAIM OF THE ENGLISH GOVERNMENT.—The subject of the alleged trade in menhaden bait was referred to frequently in the course of the proceedings of the Halifax Commission of 1877. The subject was first introduced by the English counsel in the "Case of Her Majesty's Government,"* as follows:

"The question of bait must now be considered, as some importance may, perhaps, be attached by the United States to the supposed advantages derived in this respect by British subjects. It might appear at first sight that the privilege of resorting to the inshores of the Eastern States to procure bait for mackerel fishing was of practical use. Menhaden are said to be found only in the United States waters, and are used extensively in the mackerel fishing, which is often successfully pursued with this description of bait, especially by its use for feeding and attracting the shoals. It is, however, by no means indispensable; other fish-baits, plentiful in British waters, are quite as successfully used in this particular kind of fishing business, and very generally in other branches, both of deep-sea and inshore fishing, as, for example, fresh herrings, alewives, capelin, sandlance, smelts, squids, clams, and other small fishes caught chiefly with seines close in shore. British fish-

* Proceedings of the Halifax Commission, Appendix A, p. 28.

ermen can thus find sufficient bait at home, and can purchase from American dealers any quantities they require much cheaper than by making voyages to United States waters in order to catch it for themselves. It is a remarkable fact that for six years past American fishermen have bought from Canadians more herring bait alone than all the menhaden bait imported into Canada during the same period. The menhaden bait itself can also be bred and restored to places in the Bay of Fundy, on the western coast of Nova Scotia, where it existed up to the time of its local extermination."

And again: "It is notorious that the supply both of food and bait fishes has become alarmingly scarce along the United States coast. At Gloucester alone some thirty vessels are engaged during about six months in each year catching menhaden for bait. They sell about \$100,000 worth annually, and, by catching them immoderately in nets and weirs for supplying bait and to furnish the oil mills, they are rapidly exterminating them. The Massachusetts Fish Commissioners, in their report for 1872, state that 'it takes many hands working in many ways to catch bait enough for our fishing fleet, which may easily be understood when it is remembered that each George's man takes 15 or 20 barrels for a trip, and that each mackereler lays in from 75 to 120 barrels, or even more than that.' One of the principal modes for the capture of bait and other fishes on the New England coast is by fixed traps or pounds on the shore. By means of these, herrings, alewives, and menhaden are caught as bait for the sea-fishery, besides merchantable fish for the markets, and the coarser kinds for the supply of the oil factories. There are upward of sixty of these factories now in operation on the New England coast. The capital invested in them approaches \$3,000,000. They employ 1,197 men, 383 sailing vessels, and 29 steamers, besides numerous other boats. The fish material which they consume yearly is enormous, computed at about 1,191,100 barrels, requiring whole fishes to the number of about 300,000,000. These modes of fishing for menhaden and other bait are, furthermore, such as to preclude strangers from participating in them without exceeding the terms of the treaty; and even without this difficulty it must be apparent that such extensive native enterprises would bar the competition and suffice to insure the virtual exclusion of foreigners."

THE REPLY OF THE AGENT OF THE UNITED STATES.—In the "Answer on behalf of the United States of America to the case of Her Britannic Majesty's Government,"* Judge Foster states: "Off the American coast are found exclusively the menhaden or porgies, by far the best bait for mackerel."

This is well stated by Sir John MacDonald (in a debate in the Dominion Parliament, May 3, 1872), who says:

"It is also true that in American waters the favorite bait to catch the mackerel is found, and it is so much the favorite bait that one fishing vessel having this bait on board would draw a whole school of mackerel in the very face of vessels having an inferior bait. Now, the value of the privilege of entering American waters for catching that bait is very great. If Canadian fishermen were excluded from American waters by any combination among American fishermen or by any act of Congress, they would be deprived of getting a single ounce of the bait. American fishermen might combine for that object, or a law might be passed by Congress forbidding the exportation of menhaden; but, by the provision made in the treaty, Canadian fishermen are allowed to enter into American waters to procure the bait, and the consequence of that is that no such combination can exist, and Canadians can purchase the bait, and be able to fish on equal terms with the Americans."

These statements were based upon the Canadian official reports previously published, which say:

* Proceedings of the Halifax Commission, Appendix B, pp. 18, 19.

"For mackerel the Americans use 'pogies' and clams, chopped fine, as bait. The 'pogies' are found only on the coast of the United States, and, when imported into the Dominion, cost about \$6 per barrel.

"The bait with which the Americans are supplied is far superior to any which can be secured in this country, to which may be attributed in a great measure the success of the Americans previously to the recent restrictions, although even now the local fishermen complain that they have no chance while an American schooner is fishing near them."*

"The menhaden fishery has within ten years grown into an immense business. Formerly they were taken only for bait, and were either ground in hand-mills, for mackerel, or used in what is called 'slivers,' for codfish bait. There is now a large fleet of steamers and sailing vessels engaged in this fishery. Large factories have been erected on shore for extracting the oil. As these fish are not valuable until they are fat, which is in August and September, they are not much taken in their spawning time, and they will not therefore be exterminated. They are caught solely with seines, near the shore, their food being a kind of marine seed which floats upon the waters; consequently they will not take the hook. This fishery is one of the most profitable of all the fisheries, the oil being used for tanning and currying, extensively at home, and being exported in large quantities. The refuse of the fish, after being pressed, is used for manufacturing guano or fish phosphate, and is very valuable as a fertilizer. This fishery is purely an American fishery, no menhaden ever being found north of the coast of Maine. It is entirely an inshore fishery, the fish being taken within two miles from the shore."

THE REPLY OF HER BRITANNIC MAJESTY'S GOVERNMENT.—The "Reply on behalf of Her Britannic Majesty's Government to the Answer of the United States of America" responds:

"The answer (pp. 18 and 19) lays much stress on the importance to Canadian fishermen of the menhaden bait fishery on the coast of the New England States. The menhaden is here represented to be the best bait for mackerel, and is said to inhabit exclusively the American coast. An entirely fictitious value has been attached to this fishery. British fishermen do not frequent United States waters for the purpose of catching bait of any kind or for any other purposes connected with fishing; consequently the privilege of entering those waters to catch menhaden is of no practical value. Any bait of that description which they may require may be purchased as an article of commerce.

"There are not now, nor have there ever been, treaty stipulations to prevent British fishermen from entering American waters to buy bait, if they prefer to do so. As a matter of fact, whatever menhaden bait British fishermen use is either purchased from American dealers or from Canadian traders, who import and keep it for sale like any other merchandise. Reference is made in the Answer to the possible contingency of legislation prohibiting the export or sale of menhaden-bait, the implied consequence being a serious disadvantage to Canadian fishermen in prosecuting the mackerel fishery. It would, in such contingency, be necessary to use other baits equally good, or resort to some other method of fishing, such as that described at page 30, enabling the fishermen to dispense with bait. Moreover, it is well known that menhaden are now caught in the open sea, many miles distant from the American coast. The Answer asserts, at page 19, that 'it is entirely an inshore fishery.' It can be proved that menhaden are chiefly caught off shore, frequently 'out of sight of land.'

"Mr. S. L. Boardman, of Augusta, Me., in an interesting report to the State Board of Agriculture, of which he is secretary, published in 1875, at page 60, says:

"Parties engaged in taking menhaden now go off ten or twenty miles from shore, whereas they

* Annual Report of the Department of Marine and Fisheries for the year ending June, 1870, pp. 312, 342.

formerly fished near the coast, and they now find the best and 'most profitable fishing at that distance.' This fish is included among the shore fishes described by Prof. S. F. Baird as having suffered 'an alarming decrease' along the inshores of the United States, owing partly to excessive fishing throughout their spawning time in order to supply the oil-factories.

"Chapter 5 of the Answer deals with 'the specific benefits which the treaty directs the Commission to regard in its comparison and adjustment of equivalents.' The admission of British subjects to United States fishing grounds has been dealt with at length in the third chapter of the Case. There is nothing in the Answer on this subject calling for any reply excepting the statement, at page 20, that Dominion fishermen 'have in the United States waters to-day over thirty vessels equipped for seining, which, with the American fleet, are sweeping the shores of New England.' Leaving out of question the 'American fleet,' which has nothing whatever to do with the matter, the correctness of the statement is directly challenged in so far as it implies that these thirty vessels, or any of them, are British bottoms, owned by Dominion fishermen; and the United States is hereby called upon to produce evidence in its support."

S. VALUE OF MENHADEN FOR MANUFACTURING PURPOSES.

PRICES OF FISH AT DIFFERENT SEASONS.—The price of fresh menhaden cannot be definitely stated, since it varies from week to week with the abundance and fatness of the fish and the needs of individual manufacturers.

Many factories rely entirely upon their own "gangs" for their supplies; some others buy the fish of the vessels engaged in the trade, though this practice is less common than it formerly was. Still every factory buys fish in greater or less quantity, and the answers to question 47 of the circular are important in exhibiting the variations in abundance at different points on the coast. Perhaps it may not be amiss to quote fully from the letters, it being quite impossible to tabulate the facts.

In the report of the committee on statistics from the United States Association for the meeting of 1875 the estimate was put at 3 barrels to the thousand fish, or 333 fish to the barrel.*

Captain Tuthill estimates 22 cubic inches to each fish, Captain Sisson 21, making 3½ barrels to the thousand. In Long Island Sound the fish are sold by the thousand; farther east, always by the barrel.

Mr. Condon, of Belfast, estimates the price for 1873 at 60 cents; Mr. G. B. Kenniston, of Booth Bay, at 75 cents, stating that in previous years the price has ranged from 50 cents to \$1.25. Mr. B. F. Brightman says that in 1872 and 1873 the average has been 65 cents, but that when oil was high they have brought \$1. Mr. J. Washburn, of Portland, estimates the price at \$1 for 1873; during the war, much higher. Mr. Eben B. Phillips estimates the price at from 60 to 70 cents in 1873, 56 in 1874, and about 60 in previous years. Fall fish, for trying, bring 40 to 50 cents in Wellfleet, Mass., according to Mr. Dill. At Nantucket, according to Mr. Reuben C. Kenny, the fish are worth from 50 to 75 cents as taken from the nets; only about half are used in the manufacture of oil.

Mr. Church gives the average price on Narragansett Bay at 40 cents, and to this correspond very nearly the estimates of the southern shore of Cape Cod and the Vineyard Sound, which find market for their menhaden at the Narragansett factories.

*A "round barrel" is a barrel of undressed fish, and weighs about 200 pounds. The number of fish in a barrel necessarily varies with their size. Estimates range from 180 to 280; but that made by Mr. Fairchild, at the meeting of the "United States Menhaden Oil and Guano Association," in 1874, is perhaps fair, putting 4 barrels to a thousand fish, or 250 fish to a barrel.

Captain Crandall, of Watch Hill, R. I., thinks \$2 to the thousand a fair estimate for 1873 and 1874. Captain Beebe, of Niantic, Conn., agrees with this, giving \$2.50 for previous years. Mr. R. E. Ingham, of Saybrook, says \$1.25 to \$2. Mr. Miles says that in 1873 the prices ranged from \$1 to \$2.50, according to the yield of oil. Mr. F. Lillington, of Shattford, puts it for 1875 at from \$1.50 to \$2. Captain Sisson, of Greenport, says that in 1873 the price was \$2.25; in previous years, \$1.75; in 1874 the price was lower. Collector Havens, of Sag Harbor, N. Y., estimates it at 30 cents per barrel. In the vicinity of Atlantic City, N. J., M. A. G. Wolf gives the price at \$1.25 to the thousand; and Mr. Albert Morris, of Somers Point, at 39 cents per barrel (about \$1.50 to the thousand). Mr. Hance Lawson, of Crisfield, Md., states that the Chesapeake factories pay 15 cents per bushel.* Mr. Dudley says that in 1877 the average price in the Chesapeake was 50 cents a thousand.

PRICES PROPORTIONATE TO AMOUNT OF OIL CONTAINED IN FISH.—These prices are simply those paid for fish used in the manufacture of oil and guano, the prices of those sold for bait or food being given under other heads. No satisfactory conclusions can be drawn from these statements except the very general one that the fish are more valuable on the eastern than on the southern coast of New England; in Maine bringing from \$2.40 to \$3.20 to the thousand; on Long Island Sound, \$1 to \$2.25. As the expense of capture is necessarily as great in Southern as in Northern waters, we must seek the reason of the difference in price either in the methods of manufacture, the abundance of the fish, or in the intrinsic value of the fish for the purposes of the manufacturer.

OIL YIELD OF NORTHERN FISH PRIOR TO 1879.—On the first arrival of the schools in Northern waters the fish are thin and do not yield a large quantity of oil; but they rapidly gain until the time of their departure in the fall, so that the late fishing is by far the most profitable. It is the general opinion of fishermen that Northern fish yield a larger proportionate amount of oil than Southern.

Mr. Sargent, of Castine, Me., says that 3 quarts of oil to the barrel is the smallest yield he has ever known from the first school, and 6 gallons the most from the last school. When the fish are very poor, about the 1st of June, it takes 250 to make 1 gallon of oil; when poor, in July, 200; when fat, in August, 150; when very fat, in October, 100. About 1 ton of scrap is obtained in making 3 barrels of oil. Mr. Condon states that when the fish arrive in the spring they will produce but 1 gallon to the barrel, while in October the yield is 4 or 5 gallons; the average for the season being 3 gallons. Mr. Friend states that the least yield, in June, is 2 quarts to the barrel; the greatest, in August, 4 gallons. Mr. Kenniston states that May fish yield 3 pints to the barrel; October fish, 6½ gallons. These are no doubt intended as the extreme figures. The average yield is 2½ gallons to the barrel, an estimate in which Mr. Brightman concurs, though placing the lowest at 3 quarts; the highest, in August and September, at 4 gallons. He estimates the yield of a ton of scrap at 30 to 40 gallons, according to the season. Judson Tarr & Co. put the early fish at less than a gallon, the September fish at 4 gallons to the barrel. Mr. Babson thinks that the early fish yield about a gallon, the last 4 gallons; an estimate in which he is confirmed by Mr. E. B. Phillips.

Mr. Erskine Pierce, of Dartmouth, Mass., states that in 1877 the average yield at his factory was 1½ gallons to the barrel.

According to Mr. Church, the fish are fattest generally in the fall, though after a warm winter he has known them, after the first arrival, to yield 2½ gallons. After a cold winter the opposite is true; and he has seen them so poor in the summer that out of 100 barrels of fish not a pint of oil could be extracted. The first 18,000 barrels taken by Church & Co., on the coast of Maine, in 1873, did not make over 14,000 gallons of oil (about 3 quarts to the barrel). On Narragansett Bay, in 1873, the yield was 1½ gallons less than on the coast of Maine; on Long Island Sound, half a gallon.

*About 50 cents per barrel, or \$2 to the thousand.

Mr. Reuben Chapman informed us that at his factory, on Mason's Island, opposite Noank, Conn., the yield of early fish was sometimes as low as a gallon to the thousand, later in the season reaching 14 or even 18 gallons; which would be equivalent to 5 or 6 gallons to the barrel.

Mr. Maddocks, writing of the Maine fish, states: "The yield of oil sometimes doubles, per head, in thirty days after their coming. The fish taken on the coast of Maine yield a considerably larger supply of oil than those taken at points farther south, around Long Island, off the Jersey shore, &c. The amount of oil per barrel of fish is there about 1 gallon, against $2\frac{1}{2}$ here, for the whole season in each case."

And again: "The amount of oil realized varies from 1 gallon per barrel of fish early in the season to 4 or 5 gallons in September. The scrap contains, on the average, as it comes from the press, 55 to 60 per cent. of its weight in water, and sometimes more. This is, of course, worthless for fertilizing purposes. It also contains from 12 to 20 per cent. of fat or oil, which is equally worthless for manure."

Mr. Dudley considers that the first taken in Long Island Sound yield, on an average, about 4 gallons to the thousand. At Pine Island it is somewhat greater; one season averaged $3\frac{1}{2}$, another $6\frac{1}{2}$. In 1877 the average to June 12 was 5 gallons; to November 1, 3 gallons. On November 1 the fat fish made their appearance, and the average has since doubtless greatly increased. There is usually an increase in the yield of oil after July 1, but since 1874 this has not been the case in Southern New England. Mr. Dudley has cooked fish which would not yield a quart of oil to the thousand. Again, in November, the yield has been 18 gallons. It is the opinion of Mr. Dudley that dark oil only is yielded by fish taken in brackish water; light oil by those taken outside.

The George W. Miles Company, of Milford, states that the largest amount made by them in one factory in any one year was in 1871, when they produced 100,000 in about fifty working days; the largest quantity in the shortest time was 21,000 gallons in seventy-two hours, or 7,000 gallons to each day of twenty-four hours. In 1872 they produced 60,000 gallons, and in 1873 105,000 gallons in their two factories, one factory not operating all the time on account of a pending lawsuit.

According to Capt. J. L. Stokes, of the Salt Island Oil Company, the average yield of oil is 4 gallons to the thousand, 9,000 fish making a ton of scrap. Captain Beebe and Mr. Ingham put the highest for the region about the mouth of the Connecticut River at 8 gallons, or perhaps 3 gallons or less to the barrel.

Mr. Miles writes: "All depends upon the quality of the fish, whether fat or poor. In July, August, and September we only get fish that come into the Sound to feed, and they fatten after they get here. If they are poor, we have the largest catch in June and July. If they are increasing in fat or yield of oil, we cannot capture them successfully until August and September. The fat fish in the Sound are usually wild and hard to take until late, perhaps owing to the fact that their food is plenty and low in the water. When the season is unusually dry, the fish are sure to be fat; but in a wet season they are found to be below the average in yield of oil. After the fish get here, if their food is plenty, they grow fat very fast. In the past season (1873), in May and June, 1,000,000 of fish would make only 800 gallons. In August the yield was from 8 to 10 gallons per thousand; and in September, 10 to 12."

At Greenport, in 1873, the average yield, on Captain Sisson's estimate, was $8\frac{1}{2}$ gallons to the thousand; the smallest yield, half a gallon, in spring and late fall; the greatest, 22, in September and October; 8,000 fish make 1 ton of green scrap. Hr. Havens puts the lowest yield at 1 quart to the barrel; the highest at 4 gallons, an estimate much below Captain Sisson's, which would make over 6 gallons to the barrel.

Hawkins Bros. estimate the lowest yield at 1 gallon to the barrel in midsummer, and $4\frac{1}{2}$ in

October and November, putting the average quantity of fish to the gallon at one-third of a barrel on Gardiner's Bay, one-half at Barren Island, and 65 gallons to a ton of scrap on Gardiner's Bay, 57 at the island.

At Atlantic City, N. J., according to Mr. A. G. Wolf, the average yield is 4 gallons to the thousand, the greatest in November, 11; a ton of scrap corresponding to 46 gallons of oil.

On Great Egg Harbor, states Mr. Morris, July fish yield 2 quart of oil to the barrel; those of October and November yielding 4 gallons. A gallon of oil is the average to each barrel of fish, and 45 gallons to a ton of scrap.

The yield to each barrel of fish was thus estimated by Rhode Island manufacturers in 1877: Joseph Church & Co. and W. H. H. Howland, 1 gallon; Charles Cook, Job T. Wilson, Isaac G. White, and James Manchester, 1½ gallons; Isaac Brown & Co., 1½; and William J. Brightman, 1½.

Connecticut manufacturers estimated as follows: The George W. Miles Company, 2½ gallons to the thousand; Leander Wilcox & Co., 2 gallons; G. S. Allen & Co., 3½ gallons; Waley & Co. and Luce Brothers, 3½ gallons; the Quimipiac Fertilizer Company, 3½ gallons; J. H. Bishop, 3½ gallons; and Fowler & Colburn, 3½ gallons.

New York manufacturers estimated the yield in 1877 as follows: The Barren Island Manufacturing Company, G. H. Clark, W. V. Fithian & Co., 2½ gallons to the thousand; Smith & Yarrington, 2½ gallons; S. Jones & Co., 4½ gallons; eleven factories in Gardiner's Bay, 3 gallons.

New Jersey manufacturers estimated as follows: Morris & Efield, 2 gallons to the thousand; James E. Otis, Griffen & Vail, Cyrus H. Smith, 2½ gallons.

Maine manufacturers in 1877 were reported as follows: Albert Gray & Co., 1½ gallons to the barrel; Gallup, Morgan & Co., 2½ gallons; Fowler, Feot & Co., 2½ gallons; Suffolk Oil Company, 2½ gallons; R. A. Friend, 2½ gallons; Gallup & Holmes, 2½ gallons; Lord's Island Company, 3½ gallons.

Mr. Madlocks declares that on the coast of Maine "135 pounds of fish make a barrel. One barrel yields about two and a half gallons of oil, or eighteen and three-quarter pounds. One barrel yields about eighty pounds of chum or scrap."

OIL YIELD OF SOUTHERN FISH PRIOR TO 1879.—Mr. Kenniston makes the following statement: "Corresponding with the successive appearance of the menhaden from South to North there is a progressive improvement in size and fatness. When they arrive in Chesapeake Bay, in the spring, they are thin and lean, and appear to be sluggish and stupid, so that they are easily caught—can almost be taken out by the hand along the shore, which many of them follow closely. Between Virginia and Maine the increase in weight is thought to be one-third. In the fall the increase still continues, but the order of it is reversed, the fish appearing to grow larger the farther South they go, and on reaching Virginia again are twice as heavy as in the spring, and have so gained in strength, swiftness, and wariness that they are very hard to catch."

Mr. Dudley says that from his experience of two years he knows that the first runs of fish in the Chesapeake are fat. This is in March and April.

Mr. A. C. Davis states that the June fish at Beaufort yield from ¾ to 1 gallon, those in October and November 4 to 5 gallons.

Mr. W. F. Hatesel, of Body's Island, states that the average yield is 1½ gallons to the barrel, 75 gallons to the ton of scrap.

COMPARISON OF YIELD IN DIFFERENT LOCALITIES.—These statements indicate in a general way that the yield of Northern is greater than that of Southern fish, though the disparity is not so great in the latter part of the season. Mr. Davis's estimate for Beaufort is, however, not much

* Boardman and Atkins, op. cit., p. 6.

below the average of the coast south of Maine, and it is quite possible that the apparent disparity of the yield on the Southern coast (of which we are not really entitled to judge with the meagre returns before us) would be in part explained by differences in the modes of manufacture. Florida menhaden are many of them very fat in the winter season, and there is no apparent reason why the manufacture of oil and guano may not be successfully carried on on our Southern coast.

The official returns of manufacturers may add some additional facts in reference to the yield of fish in oil and guano and the comparative advantages of location.

The following table and statement, quoted from Mr. Maddocks, give a comparative view of the manufacture as carried on by the Maine Association and by all the rest of the United States for the year 1876:

Locality.	No. of men.	No. of vessels.	No. of steamers.	Total capital.	Barrels fish used.	Gallons oil manufactured.	Tons crude guano manufactured.
Other States.	1, 029	291	3	\$1, 767, 000	826, 885	848, 727	29, 831
Maine.....	1, 129	29	43	983, 000	769, 000	2, 143, 273	21, 414

The most striking fact brought out in the comparison is that Maine realized, from 46 per cent. of the fish, 71 per cent. of the oil. To this it may be added that from the use of \$983,000 capital Maine turned out a total product of \$1,071,449 value, whereas the rest of the country realized \$637,600 from \$1,767,000.

9. STATISTICS OF THE FISHERY AND OF THE MANUFACTURE OF OIL AND GUANO.

Tables showing statistics of the manufacture of menhaden oil and guano in the United States in the years 1873 to 1882.

[Compiled from the Annual Reports of the United States Menhaden Oil and Guano Association.]

	1873.	1874.	1875.	1876.	1877.
Number of factories in operation.....	62	64	60	64	56
Number of sail vessels employed.....	363	283	304	320	270
Number of steamers employed.....	26	25	39	46	62
Number of men employed in fisheries.....	1, 166	871			
Number of men employed in factories.....	1, 197	1, 667			
Total number of men employed.....	2, 366	2, 438	2, 633	2, 756	2, 631
Amount of capital invested.....	\$2, 388, 000	\$2, 500, 000	\$2, 650, 000	\$2, 750, 000	\$2, 647, 612
Number of fish taken.....	397, 700, 000	492, 873, 000	563, 327, 000	512, 450, 000	587, 624, 025
Number of gallons of oil made.....	2, 214, 800	3, 372, 837	2, 681, 487	2, 962, 000	2, 426, 589
Number of tons of guano made.....	36, 299	50, 976	53, 625	51, 245	55, 444
Number of gallons of oil held by manufacturers at the end of the year.....	484, 520	648, 000	125, 000	264, 000	94, 000
Number of tons of guano held by manufacturers at the end of the year.....	2, 700	5, 290	1, 650	7, 275	2, 840
Value of oil, at 37 cents.....	\$819, 476	\$1, 247, 950	\$992, 180	\$1, 107, 040	\$907, 838
Value of guano, at \$11.....	\$399, 139	\$560, 736	\$589, 875	\$503, 695	\$608, 884
Total value of manufactured products.....	\$1, 218, 615	\$1, 808, 686	\$1, 582, 015	\$1, 670, 735	\$1, 516, 722
	1878.	1879.	1880.	1881.	1882.
Number of factories in operation.....	56	60	79	97	97
Number of sailing vessels employed.....	279	204	306	286	212
Number of steamers employed.....	64	81	82	73	83
Number of men employed.....	3, 337	2, 296	3, 261	2, 605	2, 313
Number of fish taken.....	767, 779, 250	637, 053, 750	774, 000, 000	454, 192, 000	346, 628, 555
Number of gallons of oil made.....	3, 809, 233	2, 258, 991	2, 035, 000	1, 266, 549	2, 021, 312
Number of tons of crude guano made.....	63, 719	67, 059	45, 000	7, 592	10, 029
Number of tons of dried guano made.....	19, 377	29, 563	26, 006	25, 027	17, 552
Amount of capital invested.....	\$2, 350, 000				

CENSUS STATISTICS OF THE MENHADEN INDUSTRY FOR 1880.

In 1880 the total number of persons employed in the menhaden fishery and in the manufacture of the oil and guano was 3,635; the capital invested was \$2,362,841; and the value of the products was \$2,116,787. The detailed statistics for each State were as follows:

Number of persons employed.

State.	Fishermen.	Factory hands.	Total.
Massachusetts.....	251	20	271
Rhode Island.....	416	192	608
Connecticut.....	504	327	831
New York.....	756	325	1,081
New Jersey.....	174	130	304
Maryland.....	15	6	21
Delaware.....	8	3	11
Virginia.....	419	289	708
Total.....	2,543	1,092	3,635

Capital invested and apparatus employed.

State.	Vessels.				Boats.		Turse-slines.		Value of factories and fixtures.	Total capital invested.
	No.	Tons.	Value.	Outfit exclusive of nets and boats.	No.	Value.	No.	Value.		
Maine.....	5	320.89	\$20,000						\$279,187	\$299,187
Massachusetts.....	35	1,269.70	106,400	\$17,105	57	\$7,000	34	\$13,600	15,000	179,105
Rhode Island.....	61	2,168.58	171,650	24,600	114	10,750	59	20,000	77,900	304,300
Connecticut.....	72	2,304.76	181,950	27,600	114	11,820	55	22,000	139,000	392,370
New York.....	147	4,053.87	391,750	42,696	225	20,240	126	50,400	315,000	619,990
New Jersey.....	31	560.08	35,400	12,000	52	6,350	20	8,000	67,500	129,250
Maryland.....	3	71.20	2,900	1,200	4	275	1	300	8,000	12,775
Delaware.....					5	200				1,700
Virginia.....	102	2,130.03	90,200	18,714	80	4,800	80	24,000	84,450	222,164
North Carolina.....									2,000	2,000
Total.....	456	12,905.71	1,609,650	143,819	648	65,435	306	128,400	1,009,537	2,362,841

Quantities and values of products.

State.	Pounds of menhaden taken.	Gallons of oil made.	Value of oil.	Tons of guano made.	Value of guano.	Value of compost.	Total value of products.
Massachusetts.....	26,066,077	50,400	\$17,640	1,971	\$23,652		\$41,292
Rhode Island.....	68,693,800	270,482	84,648	19,590	127,086		211,734
Connecticut.....	65,982,000	256,300	89,705	9,060	166,500		256,205
New York.....	288,891,200	1,186,692	415,338	32,210	658,520	\$40,300	1,114,158
New Jersey.....	29,064,600	87,747	30,711	4,545	113,625	1,950	146,286
Maryland.....	3,903,000	10,575	3,701	300	6,200	1,950	11,851
Delaware.....	499,000	450	157	15	180	604	941
Virginia.....	88,213,800	263,769	81,504	10,273	205,460	16,865	353,829
Total.....	870,434,377	2,066,306	733,424	68,904	1,361,217	61,669	2,116,787

*Includes \$20,477, the value of menhaden sold to factories outside the State or used for bait.

A COMPARISON OF THE YIELD OF THE WHALE AND OTHER FISHERIES.—In 1875, the total amount of sperm oil from the American whale fisheries was 1,000,951 gallons; of other whale oil, 1,414,186 gallons; in all, 2,505,137 gallons. The amount of menhaden oil for the same year was 2,618,487 gallons, an excess of 176,350 gallons. In 1874, the amount of menhaden oil was 3,372,837 gallons, exceeding that of whale oil by 1,115,597 gallons.

In 1876, 2,992,000 gallons of menhaden oil were made, and in 1877, 2,426,589. For the year ending June 30, 1877, the production of whale oil was 2,140,047 gallons, and for the year 1877, 2,151,765 gallons.

In the Oil, Paint, and Drug Reporter for January 14, 1874, the following statement is made:

"It is asserted that while the amount of oil produced is equal to that derived from the whale fisheries in this country, the menhaden interest is ahead of the whale; for though the menhaden oil sells at a less price per gallon, for every barrel of oil made there is three-quarters of a ton of scrap, which readily commands \$15 per ton at the factory."

This is not true. In 1874, for instance, the value of the sperm oil alone was \$1,250,987; that of other oils from the whale fishery, \$775,919. Total value of oils from the whales, \$2,026,906; the value of the total products of the whale fishery, \$2,291,896.

By way of further comparison, the cod and seal-oil fishery of Newfoundland and Labrador may be instanced. The latest figures at hand show the product of the seal-oil fishery to be 1,500,000 gallons, and of the cod-oil fishery 900,000.

COMPARISON OF YIELD OF NITROGEN FROM GUANO ISLANDS.—The refuse products of the oil-factories, together with the fish used in a crude state for manure, are estimated to have yielded in 1875 over 10,000,000 pounds of ammonia in the best possible organic forms. This quantity of ammonia is equivalent to at least 60,000,000 pounds of Chircha Island guano, formerly imported from Peru, the gold value of which would be not far from \$1,920,000.

In addition to ammonia, the phosphate of lime derived from this source and convertible into agricultural products amounted to nearly 1,430,000 pounds, which is the equivalent of nearly 60,000,000 pounds of Peruvian guano.

ASSOCIATIONS OF OIL AND GUANO MANUFACTURERS.—The Association of the Menhaden Oil and Guano Manufacturers of Maine was formed in the year 1870. The objects were such as are usually sought by organizations of the sort—harmony of action on points affecting the common welfare of the business, social acquaintance, and the communication of information as to improved processes, &c. The annual meeting is held the second Tuesday in January of each year. The United States Menhaden Oil and Guano Association was organized in 1873.

Extent of the menhaden fisheries of Maine for the years 1873 to 1878.

[Compiled from annual reports of Maine Association.]

	1873.	1874.	1875.	1876.	1877.	1878.
Capital in factories	\$278,500	\$316,000	\$307,000	\$431,000	\$459,812	\$467,812
Capital in vessels and gear	\$335,000	\$390,500	\$482,000	\$552,000	\$623,800	\$584,000
Number of fishermen	523	561	771	758	727	692
Number of factory hands	249	304	373	371	300	324
Number of sail vessels	38	87	36	29	13
Number of steamers	17	22	31	43	48	48
Barrels of fish taken at the factories.....	429,413	621,861	635,771	709,000	567,145	616,851
Barrels of fish sold for bait	2,977	10,400	19,752	8,432	10,795	14,190
Gallons of oil made	1,294,855	1,991,037	1,514,587	2,143,273	1,366,213	1,714,384
Tons of crude guano made.....	12,965	19,295	16,305	21,414	16,666	18,328

10. THE USES OF MENHADEN OIL; THE OIL MARKET.*

THE USES OF MENHADEN OIL.—The uses of menhaden oil are manifold. It is chiefly employed as a substitute for the more costly and popular oils and to adulterate them. It is sold largely to tanneries for currying leather. After the hide has been "dressed," *i. e.*, after its coarser fleshy parts have been pared off, the oil, mixed with tallow, is applied. This is technically called "stuffing," and results in qualifying any residue of alkali left from the "liming" process and in filling

the pores and softening the leather. Mr. L. C. d'Homergue states that this oil is largely used in the tanneries of Russia.

A considerable quantity is used as a burning oil in coal-mines to fill the small lamps, one of which is fastened to the cap of each miner. It is then mixed with paraffine or some of the heavier oils. Some is also sold to be used in the manufacture of rope. A small quantity is used annually for lubricating purposes, but on account of its gummy nature it is not much in favor among machinists.* It is used in adulterating linseed oil, and is also sold as a substitute, its cheapness and durability rendering it especially valuable for rough outside work and for painting ships. Mixed with other oils, it is found to be very serviceable for the painting of interiors, and its use is attended with decided economy, its price being about one-half that of the best linseed oil. Some of the most pure is said to be put into the market as olive oil.

Most of that which is exported is used in the manufacture of soap and for smearing sheep, after they have been sheared, to keep off ticks. Mr. L. C. d'Homergue states in the *Manufacturer and Builder* that a bright fish oil, cut with some alcohol and mixed with paint, forms a far more lasting covering than linseed oil.

The *Oil, Paint, and Drug Reporter* for October 21, 1874, implies that much of the whale oil now sold is really menhaden oil. "It is well known that the chief use for menhaden oil is for currying leather, but with the low prices ruling of late and the scarcity of whale oil it has found new channels, and very much of the whale oil sold probably consists of two-thirds or more of menhaden, for it comes when crude nearly as handsome as any whale, and in appearance when bleached is quite equal. It is reported as a fact about the street that one concern alone sells more 'winter-bleached whale oil' than is caught of crude, and they do not by any means get all the crude."

The refuse from the cooking tanks and the settling tanks is dried and ground for sale to the guano factories, where it is mixed with phosphates and other substances. The quantity of this refuse, called scrap, amounted, in 1880, to 68,904 tons, valued at \$1,301,217. A discussion of the uses of this scrap and the methods of preparing it will be found in another part of this report. The subject is also discussed by Prof. W. O. Atwater in the Annual Report of the United States Fish Commission for 1877. He says: "As a result of the profitable utilization of fish for the manufacture of oil, the use of the whole fish as a fertilizer has gradually and (in Maine) almost entirely ceased, and given place to the refuse from which the oil has been expressed or otherwise extracted. This is known in its crude state as 'fish scrap,' 'fish pomace,' or 'chum,' and, when more carefully prepared, as 'dry fish,' 'dry ground fish,' and 'fish guano.' Still, farmers have been slow to avail themselves of this more concentrated material. * * * It is worthy of note that in the European fish guano factories the liquid coming from the steamed or boiled fish, and containing considerable nitrogenous matter in solution, is utilized for the manufacture of a low quality of glue, while in this country the practice is to throw it away. The Norwegian guanos have generally smaller percentages of fat than occur in the menhaden guanos in this country."

THE MARKETS.—The principal market for menhaden oil is in Boston and New York; some is also sold in New Bedford, and considerable quantities are shipped to London, Liverpool, Glasgow, and Havre direct.

GRADES OF OIL.—Several grades are recognized. The *Oil, Paint, and Drug Reporter* usually quotes under the heads of "select light strained," "select light," "choice brown," and "inferior to dark," and "gurry."

THE PRICES OF OIL.—The highest price ever obtained for menhaden oil was \$1.40 a gallon—

* Mr. Isaac Bow, of Springfield, Mass., devoted several years to experimenting, with a view to the preparation of a good lubricating oil from menhaden oil, but the results were not satisfactory.

this was a war price. The following table shows the average prices of the different grades of oil in the New York market for a period of seven years.

Table showing highest and lowest prices of menhaden oil for the years 1871 to 1877.

[Compiled from Oil, Paint, and Drug Reporter.]

Years.	Select light.	Choice brown.	Inferior to dark.	Gurry.	Strained.	Pressed.	Select light, strained.	Bleached.
1871.....	53 to 55 40½ to 41	50 to 52½ 39½ to 40	47½ to 50 25 to 38	35 to 40 20 to 25	60 to 62½ 58 to 60			
1872.....	62½ to 65 40 to 42½	60 to 62½ 40 to 41	55 to 57½ 35 to 38	45 to 50 25 to 30	60 to 65 58 to 65	64 to 66 45 to 50		
1873.....	60 to 62 32½ to 35	59 to 60 30 to 32	52 to 58 29 to —	48 to 50		55 to 57½		
1874.....	45 to 47½ 32½ to 35	45 to 46 35 to 35½	42½ to 45 32 to 34				52½ to 55 40 to 42	
1875.....	45 to 47½ 32 to 33	43 to 44 31 to 32	38 to 40 20 to 30				49 to 50 38 to —	65 to 66 44 to 45
1876.....	48 to 50 32½ to 33	46 to 48 32½ to 33	36 to — 34 to 35				50 to 52½ 40 to 41	55 to 60 45 to 47
1877.....	46 to 47 35 to 34	45 to 46 33 to 34	40 to 42 30 to 32				48 to 50 38 to 40	63 to 64 42½ to 45

REVIEWS OF THE MARKETS.—In January, 1874, the manufacturers composing the "United States Menhaden Oil and Guano Association" had on hand 484,520 gallons of oil, or about 21 per cent. of the amount manufactured in 1873; in January, 1875, 648,000 gallons, or about 19 per cent.; in January, 1876, 125,000, or over 4 per cent.; in January, 1877, 264,000, or over 8 per cent.; and in January, 1878, 94,000, or over 4 per cent. These figures seem to indicate that the demand for oil quite keeps pace with the supply.

The following editorial on the value of menhaden oil appeared in the Oil, Paint, and Drug Reporter, October 21, 1874:

"Prices for menhaden oil have ruled very low this year, and it has probably been relatively the cheapest grease in market. This fact, together with a poor run of fish part of the season, caused several of the weakest of the manufacturers to close their works, and the natural result has been less than an average season's production, except in Maine. The Maine season ended some time since, and the fall catch of the other States, which is usually the best, has thus far been comparatively nothing, and, as it will soon close, cannot be improved much. To-day we should estimate the stock in the hands of fishermen as fully one-quarter less than last year, and with one exception the dealers in this city are almost without stock.

"The entire failure of the Arctic whaling fleet, the high price of all other grease, and the advance in the price of Newfoundland cod oil point to advanced prices for menhaden. We said early in the season that menhaden oil was cheap at 40 cents, and it ought not to have gone below that price. At the present time some parties talk of 50 cents as the point the market will reach, but we hope that manufacturers will not hold for such high prices. This would be as much too high as 35 cents was too low, and as soon as you get an article above its real value something takes its place and you cannot get it into the same channels until it becomes so low that it is forced back."

II. HISTORY OF THE MENHADEN OIL INDUSTRY.

THE CLAIMS OF MAINE TO THE DISCOVERY OF MENHADEN OIL.—The manufacture of menhaden oil has been prosecuted for a few years only. Several individuals claim the honor of having been first to discover its value. About the year 1850 Mrs. John Bartlett, of Blue Hill, near Mount

Desert, Me., while boiling some fish for her chickens, noticed a thin seam of oil upon the surface of the water. Some of this she bottled, and when on a visit to Boston soon after carried samples to Mr. E. B. Phillips, one of the leading oil merchants of that city, who encouraged her to bring more. The following year the Bartlett family industriously plied their gill nets and sent to market 13 barrels of oil, for which they were paid at the rate of \$11 per barrel, in all \$143.*

Mr. Phillips gave them further encouragement, furnishing nets and large kettles, which they set up out of doors, in brick frames, for trying out the fish. It was thought that much oil was thrown away with the refuse fish or scrap, and the idea of pressing this scrap was suggested. This was at first accomplished by pressing it in a common iron kettle with a heavy cover and a long beam for a lever; afterward by placing it under the weight of heavy rocks, in barrels and tubs perforated with auger holes. Mr. Phillips subsequently fitted out some fifty parties on the coast of Maine with presses of the model known as the "screw and lever press."

ERECTION OF FACTORIES IN MAINE.—The first factory in Maine was built by a company from Rhode Island, in 1864, at Blue Hill, and the next by another company from Rhode Island, at Bristol, on John's Bay, the same season. Operations being successful, home parties in Booth Bay, Bristol, Bremen, and Southport went into the business. In the spring of 1866 eleven factories were built, all using steam. This may be regarded as the beginning of the industry in Maine on a scale at all in ratio with its capabilities.

The following table, taken from Mr. Maddock's pamphlet, gives the dates at which the factories of the several firms named were built, and the cost of the same. The titles of some have since been changed by incorporation with others, change of ownership, &c. Of the eleven factories specified before as built in 1866, one has been burned, and two absorbed by now existing corporations; they have all been idle since 1879.

Date of building of factories in Maine.

Names.	When built.	Where.	Cost of buildings and equipment.
Gallap & Holmes	1869	Booth Bay	\$15,000
Gallap, Morgan & Co	1869	do	15,000
Suffolk Oil Works	1866	do	30,000
Kenniston, Cobb & Co	1867	do	15,000
White Wine Brook Company	1867	do	12,000
Maddocks' Factory	1866	Southport (now Booth Bay) ..	25,000
Bristol Oil Works	1866	Bremen	10,000
Albert Gray & Co	1870	do	12,000
Round Pond Company	1866	Bristol	15,000
L. Brightman & Sons	1866	do	15,000
Pemaquid Works	1869	do	15,000
Jos. Church & Co. Works	1871	do	40,000
Loud's Island Works	1873	do	6,000
Brown's Cove Works	1874	do	10,000
Tuthill, French & Co	1868	do	10,000
Wells & Co	1864	do	12,000
Fowler, Foote & Co	1874	do	2,000
South Saint George Factory	1876	South Saint George	1,500
Total			260,500

*As this account is somewhat different from those hitherto published, we give the story in the words of Mr. E. B. Phillips himself: "In about 1850 I was in the fish-oil business in Boston. An elderly lady by the name of Bartlett, from Blue Hill, Me., came into my store with a sample of oil, which she had skimmed from the kettle in boiling menhaden for her hens. She told me that the fish were abundant all summer near the shore, and I promised \$11 per barrel for all she could produce. Her husband and sons made 13 barrels the first year, and the following year 100 barrels."

THE CLAIMS OF RHODE ISLAND. — Mr. R. E. Earll obtained from Mr. B. F. Brightman the following account of the beginning of the menhaden industry in Rhode Island:

“During the war of 1812 paint oils became very scarce and high, and people in the vicinity of Southern New England and Long Island conceived the idea of using fish-oil for this purpose. Among the first to go into this business was a family of Gardiners living at Mount Hope Bay, Rhode Island.

“The first method was to drag the pogies ashore with seines and put them into large casks or hogsheds brought down to the water for the purpose. After filling the casks with fish, salt water was added to cover them, and boards, weighted with stones, put on top of the fish to press them down. The fish were then left to rot for a few days, after which they were thoroughly stirred with a long stick daily to break up the fish and liberate the oil, so that it might come to the surface of the putrid mass. This process was kept up for from two to three weeks, the oil being dipped off daily, after which the barrels were emptied into the water.

“About 1820 they commenced boiling the fish in large kettles, stirring them frequently, and skimming the oil off by hand. Among the first to do this was John Tollman, at Black Point, East River.

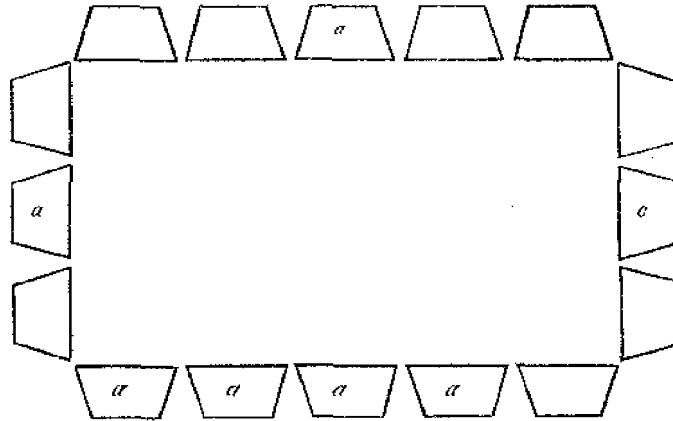
“Soon the business reached such dimensions that the kettles were too small, and they were obliged to build large cooking tanks, and with these steam was introduced for cooking, the pipes being laid at the bottom, as now, but wholly unprotected. The fish were thoroughly cooked and stirred, and, after standing for a time, the oil was skimmed off, and a plug pulled from the bottom of the tank and the whole mass allowed to run off on the ground near by. Quantities of scrap or chum accumulated in this way and found a ready sale for manure to the farmers. The cooking by steam was introduced about 1830, when John Tollman had works at Black Point, East River, John Herreshoff at Providence Island, and a number of parties on Long Island Sound.

“About 1835-40 the chum was coming to be of such value that a false bottom made of wood was introduced above the steam pipes to keep it in better condition, and after skimming it was pitched out on an inclined platform and allowed to press itself by its own weight. Thus an additional amount of oil was obtained from the drainings, and the chum was in better condition for market. At this time the water was drawn off into a separate tank in drying the chum for pitching on the platform. Probably Mr. Herreshoff was among the first to introduce the incline-plane platform, though other parties at Greenport and Shelter Island used it about the same time.

“This gave a great start to the pogy business, as it utilized a far larger per cent. of the oil and also saved the chum in a marketable condition.

“The next great improvement was the introduction of the press for taking the oil and water from the chum. This came about in the following way: Between 1855 and 1860, Mr. Charles Tutill went from New York to Greenport for his health, and while there he visited the factory of Mr. Wells and saw the scrap-draining on the inclined platform, and it occurred to him to press the chum. Accordingly he proposed the subject to Mr. Wells and built a small press or curb in the following manner:

"The blocks were 5 inches wide on the inner face of the press, 4 inches on the outer, and 4 inches thick. The spaces between the pieces were one-half inch on the inside of the press. The plan shows a top view. There was a large follower made to fit snugly into the press, and the power



was applied by means of a 20-foot lever. The press was found to work admirably, and Mr. Tuthill at once built a larger one and arranged with one of the largest Long Island factories to press their scrap for one-half of the oil obtained by pressing, he to furnish himself and press, and they to furnish chum and the balance of the labor.

"It is reported that he made \$1,800 in five weeks in this way.

"Soon all the factories began pressing their scrap, and in 1858 the first steam-works with hydraulic presses were built at Greenvport, known as the Atlantic Oil Works. In 1860 the Narragansett Works were built on Narragansett Bay. At first they used very coarse manila cloths or blankets for pressing, putting a shovel of chum in a folding so as to make a sort of bag, and three of these were placed side by side and pressed at once. They put about 80 to 100 tons pressure, and got about the same amount of oil to the barrel of fish as now.

"One of the first steam-factories on the coast of Maine was owned by Wells, De Blois & Co., and located at South Bristol, about 1863.

"At first pogies were taken by the farmers along the coast by means of drag-seines, and used almost wholly for manure. They had a whale-boat to shoot the seine, and would row along looking for schools of fish, or more frequently would wait for them on the shore, and, making one end of the haul-rope fast as the school came opposite the beach, would surround them with the seine and haul them in by hand. When rowing along shore with seine in the boat, they would, on seeing a school, land a man, who would make one end of the 60-fathom haul-line fast on shore; two would row the boat, and one man throw seine. Men living near the shore would often have three of the "gang" working on the farm, while one would stay on the shore and would call them when a school put in an appearance.

"As early as 1820-'30 a small schooner was used for carrying and shooting the seine, and the fish were taken aboard instead of being hauled clear up on shore, and sold to the farmers at 15 cents per barrel. These schooners were generally from 5 to 10 tons burden, and would carry from 50 to 150 barrels. They used seines from 60 to 100 fathoms long and 30 to 50 feet deep.

"The practice of using schooners to carry fish to any point where the vessel could go for a

market soon threw this trade into the hands of the fishermen largely, and farmers all along the coast began buying and using fish on their land.

"The introduction of the purse-seine by Mr. Benjamin Tollman, of Portsmouth, R. I., about 1845, (?) entirely revolutionized the pogy fishery, and from that time fish could be taken at any distance from shore. The first method, as with the drag-seine, was to row out from shore when fish were seen, but it was not long before they began using a fleet of four small boats for catching them. One was called the seine-boat, another the "mate," and the remaining two the "tenders," or "carry-away boats." The four boats would start out together, and sail about near each other looking for fish.

"As soon as a school was seen the seine-boat and mate would start for the windward side and the tenders to leeward. The masts were unstepped, as soon as the seine-boat and tender reached their position, and elevated above the boats. The boats were then fastened together, and one-half of the seine transferred to the mate-boat, after which they rowed for the school, the captain standing in the bow and keeping close watch of them. As soon as they reached the school the word was given, the boats separated, and the captain and mate took the steering oar of their respective boats and brought them around the fish as the net was shot, the tenders generally marking the leeward boundaries of the school. As soon as they met, all hands got into one boat, and allowed the other to drop astern out of the way. The fish were dipped into the tenders and carried to market.

"The next change was to introduce a schooner to carry the seine and afford accommodations for the men. This method was first employed in Long Island Sound.

"The first pogy steamer built was the Seven Brothers, belonging to James Church, of Newport, R. I., in 1870. Tug-boats had been engaged the previous year during calm weather to tow the boats to and from the fishing grounds. L. Brightman & Sons employed the steam-tug Fairy for this purpose in 1869."

THE CLAIMS OF CONNECTICUT AND NEW YORK.—Others claim to have manufactured oil at an early date.* It is said that as early as 1850 or 1852 there was an establishment for the manufacture of whitefish oil near old Fort Hale, New Haven Harbor. Elisha Morgan, of Poquannock Bridge, Conn., is said to have made oil from bony fish previous to the year 1850. He owned seines with which he caught fish to be spread upon land fresh. When he could not sell all his fish to the farmers he extracted their oil by boiling them.

Whether the value of the article and the methods of manufacture were first brought to notice in Maine or not, the people of that State were slow to improve their opportunities and the trade first assumed its importance on the shores of Long Island Sound. Whether the fisherman's wife of Blue Hill is the sole discoverer of the properties of menhaden oil is not evident; perhaps the facts were also known to others. At any rate the tradition of the Bartlett family is not current on Long Island. In the year 1850, according to Captain Sisson, D. D. Wells and his son Henry E. Wells started the first factory in the vicinity of Greenport, using steam for making oil and scrap. "At that time there were some few pots (whalemen's try-pots) used by other parties in boiling the fish in water and making a very imperfect oil and scrap, but were not very successful. The first oil made by D. D. Wells & Son was very black, impure, full of fleshy matter, and had a very offensive smell. It did not come much into use, and for a long time the profits of the business were small; but by persistent effort in perfecting machinery the quality of the oil was so much improved as to

* The manufacture of oil and of artificial guano from fishes has long been practiced in France, where the fish called merlan (*Gadus merlangus*) is employed for the purpose, yielding 1½ to 2 per cent. of oil. In France the fish cake remaining after the extraction of oil is dried at a steam heat and is then ground fine and packed in air-tight casks for sale as manure.

come into general use for certain purposes, such as painting, tanning, manufacture of rope, and adulterating other oils. The scrap was also very much improved by grinding and drying, pulverizing, &c., so that during the war the business was quite remunerative. At that time quite a number of factories were established and for a time the business was somewhat overdone, which caused some to abandon it altogether, and others to consolidate; and at the present time there are ten factories in operation, doing a fair business, giving employment to a large number of people and bringing up a hardy race of boatmen and sailors."

Professor Baird, visiting this region in 1857, wrote: "Quite recently several establishments have been erected on Long Island for the manufacture of oil from the moss-bunker. The fish, as brought in, are chopped up and boiled, and the oil skimmed off; a heavy pressure on the residuum expresses the remaining oil, and what is left is still useful as a manure. The oil finds a ready market. It has been estimated that a single fish will furnish enough oil to saturate a surface of paper 18 inches square."†

Notwithstanding the fact that the coast of Maine was adapted for much more profitable prosecution of the oil manufacture, nothing of importance was done there until 1865. The trade grew rapidly for about four years, but has not augmented considerably since 1870. Twenty factories were built in a short period, fourteen of which are still in operation, though several have failed from the too sudden expansion of their business. As has been seen, the only points at which the trade has had any statistical importance are within a limited area on the coast of Maine, on Narragausett Bay, on Long Island, on the New Jersey coast, and in Chesapeake Bay. Some of the factories are but half worked, and many of them have been abandoned. Efforts have been made to establish factories on Cape Cod and on the coast of South Carolina.

Great improvement has been made in the processes of refining and clarifying the oil, and the clear, yellow, nearly odorless substance now produced is vastly different from the article manufactured in early days.

The process of extracting oil by steam was patented in 1852 or 1853 by William D. Hall, of Wallingford, Conn., the originator of the Quinipiac Fertilizer Company. Mr. Hall was engaged in bone-boiling and tallow-rendering at Wallingford; he had a load of whitefish carted to his factory from Branford, 16 miles distant. At night, after his men had left the factory, he cleaned out his tallow tanks, steamed his fish, and extracted the oil; his experiment was satisfactory and the process was immediately patented. The priority of his discovery is challenged by Mr. D. D. Wells, of Greenport, who claims to have used the process for some years previous to this time. After securing his patents, Mr. Hall visited numerous "pot works," which had by this time been established, for the purpose of introducing his new methods. At this time he also secured a patent for the process of drying fish scraps upon platforms by solar heat.

THE INDUSTRY IN CHESAPEAKE BAY.—The menhaden fishery in Chesapeake Bay is said to have been inaugurated in 1865, by Mr. David G. Floyd, of Greenport, L. I. He bought a sail vessel and put oil works on board it, and went down to Chesapeake Bay. The business was new, and having no experience he did not do much.

The first persons to successfully engage in the Chesapeake menhaden fishery were Mr. E. W. Reed, of Maine, and Mr. G. Terry, of Long Island, together with Mr. G. T. Owens, of Fairport, Va. These men, in the spring of 1869, put up a six-kettle factory, using one seine to take the fish. The first season they took 2,750,000 menhaden, averaging 3 gallons of oil to the 1,000 fish. The next year Mr. Owens withdrew, and with a man from Long Island put up a second factory. The industry

† Fishes of the New Jersey Coast, 1855, p. 33.

gradually grew in importance until in 1880 there were upwards of sixty large and small factories in that region, that employed seven hundred and eight fishermen and factory hands, and that produced oil and guano valued at \$303,829.

11. PROTECTIVE LEGISLATION.

The States of Maine and Massachusetts have enacted several laws for the protection of the menhaden fishery. The most important law in Maine, passed in 1865-'66, prohibited the setting of any seine within three miles of the shore for the purpose of taking menhaden, but "a net of no more than one hundred and forty meshes shall not be deemed a seine."

In Massachusetts "fishing with seines in the Merrimac, when the menhaden stand in, is forbidden by law. The *mouth* of the river has, however, never been defined by the governor as permitted by statute; and it was represented to the commissioners that valuable menhaden fisheries existed in this neutral ground of brackish water. Therefore, under the personal promise of the fishermen to capture no shad or salmon, and with the guarantee of responsible persons in Newburyport, the commissioners agreed to defer the definition of the river mouth, and to assume that these menhaden were not positively included in the river proper."*

Since the general adoption of the purse-seine there has been considerable opposition to this apparatus on the ground that it is destructive to the fishery. Congress and State legislatures have been petitioned to prohibit the use of menhaden seines within certain specified tracts of water, such as the Chesapeake Bay and the coast of New Jersey. During the winter of 1882 the legislature of the latter State passed restrictive laws, but the governor of the State vetoed the laws as unconstitutional, since, by the law, the State claimed jurisdiction within three miles of the coast, whereas the attorney-general of that State decided that no jurisdiction could be claimed beyond low-water mark.

Congress having been petitioned to pass laws prohibiting the capture of menhaden during the spawning season, a sub-committee of the Committee on Foreign Relations was appointed by Senate resolution of July 26, 1882, to examine, in conjunction with the Commissioner of Fish and Fisheries, into the subject of the protection to be given by law to the fish and fisheries on the Atlantic coast. This committee, during the season of 1882 and 1883, visited various parts of the coast and took considerable testimony from fishermen and menhaden oil manufacturers. The report of the committee,† submitted June 17, 1884, recommends (1) "That the use of purse and pound-nets, fyke or weir, in the waters of the Atlantic outside low-water mark should be absolutely prohibited within 3 miles of the shore prior to the first day of June in each year south of a line drawn east from the south cape of the Chesapeake Bay and prior to the 1st of July north of that line, with suitable penalties for any violation of the law in this respect; (2) That the use of meshes in such nets of less than 1½ inches bar measure should in like manner be prohibited at all seasons so as to prevent the taking of young and immature fish."

12. THE MENHADEN FISHERY AT THE EAST END OF LONG ISLAND; 1793 TO 1880.

The capture of menhaden for fertilizing purposes at Long Island, N. Y., began about a hundred years ago. Mr. B. F. Conklin, of Jamesport, N. Y., a veteran fisherman of more than fifty years' experience, gives the following account of the early history of the fishery at the eastern end of Long Island. He says:

"According to the best information I have been able to gather from old inhabitants, the use

* Report of the Commissioners of Inland Fisheries for 1877, p. 55.

† Senate Report No. 706, 46th Congress, 1st session, pp. xxiv, 377.

of menhaden for fertilizing purposes upon Long Island commenced about a century ago. At that time they were taken near the head of Peconic Bay, in short draw-seines, made from twine manufactured by the farmers' wives from flax grown upon the farms."

Mr. Conklin quotes the following extracts from the journal of Mr. David Warner, one of the old fishermen:

"1793. *May 29.*—Left my bed early; went down to the nets and caught 14 fish. After school went out with Mr. Payne gunning. Went to the ship-yard; saw Jason, who had made a draught of bass." "Mr. Warner was at this time," says Mr. Conklin, "engaged in teaching school, and used a set-net evidently on Saturday. When he went to the Point he used a haul-seine."

"1826. *May 15.*—Went down to the fishing ground before daylight. Went over to Red Creek Point and made a haul of upwards of 100,000 [menhaden]. In evening came home with one boat.

"*May 16.*—Attended to the fishing. Boated over the above haul. Got to the fish-house and reeled our seine and shifted our clothes, when we discovered fish on the east side of the Point. In a great hurry got the seine onto the boats and made a draught of 150,000 fish by estimation.

"*May 17.*—Attended to fishing. Spent the day in getting out the last-mentioned haul. I acted as clerk, and had a very busy day. The weather extremely warm. The ground is becoming very hard.

"1827. *May 4.*—Up very early. Went down to the fish house on foot. All the seines out but ours. Got the seine on the boat and rowed to Miamogue. When there discovered fish to the eastward. Rowed on, and soon put off the seine a great distance from the shore and were about six hours a-drawing. I labored hard at whipping the rope [to keep the fish from passing over the seine]. We began to scoop out, and before sun-setting quit the seine and rowed up to Simeon's Point. Retired about 9 o'clock and slept about four hours.

"*May 5.*—Left our beds before day, rowed down to our fish, and carried out until almost high water. Labored all day. The haul will amount to about 500,000, we judge. We shored the fish at Old Mill. Came home about sunset greatly fatigued.

"1830. *May 17, Monday.*—Rain this morning and wind easterly, and like for a stormy day. Shot one blackbird in defense of my corn, for the birds pull it up. Much water fell in the course of the day. Carted three loads of fish from Old Mill landing. The draught of fishes made partly on Saturday evening will amount to several hundred thousands, perhaps 500,000. The fishermen have had a day of hard labor, and the weather has been uncomfortable.

"1833. *May 17.*—Cloudy in the morning and a little misty. Rode down to Miamogue. Our gang put their seine around a number of porpoises and saved or got ashore 24 of them. A number made their way through the seine and escaped. Rode home between one and two o'clock and took dinner. Then rode down to Miamogue again and attended to the porpoises. Divided some of them and sold some. It was in the evening when I got home. Clear all the afternoon. The northern lights showed bright in the evening. [The fish-house, at the time Squire Warner was fishing, was located at Simeon's Point, which is at the head of the bay. Miamogue is where the village of Jamesport now stands, and Old Mill Landing is in the bend just east of Jamesport.—CONKLIN.]"

"These fish," continues Mr. Conklin, "proved so valuable as a fertilizer that the business was gradually enlarged, until, in my boyhood, nearly every farmer owned a right in a seine, and it was a part of the yearly business to go or send a hand fishing from the first of April until haying time, or about the middle of June. These seines at this time were made of cotton twine, and were nearly a mile in length, with about the same length of rope on either end. They were used to sweep large semicircles of surface, and the fish inclosed were drawn to the shore by means of

capstans. The capstans were formerly manned by men, *but as they increased the size of the seines they commenced using horses to draw them.* Each fishing company comprised sixteen men, and used four boats about 24 feet in length and 8 or 9 feet wide. These boats were propelled by oars, and were used for carrying the seine ropes and capstans, and also for carrying fish from one side of the bay to the other when occasion required.

"Very large draughts of fish were sometimes taken in these seines. My earliest experience as a fisherman was in assisting in making a haul of 1,200,000 fish. It was a pleasant morning, and we were lying off Old Mill, just east of Jamesport. I was anxious to row and the steersman said we might row as much as we liked; he would steer. So we went off-shore about half a mile from where our boats lay, and we discovered a large shoal of fish and hoisted a signal to our captain, who immediately came to us, and I recollect asking one of the old fishermen how many he thought were in the bunch. He said about 300,000. Our captain concluded they were so far off-shore we could not reach them with our seine and line and signaled another gang, when we joined staffs or ends of seines together and laid the seine outside of them and went for shore with seines and lines. I staid at the staffs with the steersman of the boat I was in and kept the fish away from the seine, as the seines were narrow at the ends. The fish kept in a solid body all day. As near as I can remember it was sundown before we had the staffs on shore. They divided the fish before we shored them; one seine had 600,000, and the other a few thousand over that amount.

"I fished on the haul-seines two or three seasons and helped catch a number of good hauls, but no other as large as the above. The continued use of these shore-seines, as they were called, had the effect to make the fish keep off-shore in the wider and deeper parts of the bay until it became difficult to reach them, and in the year 1848 or 1849 the first purse-seines were used in Peconic Bay by S. M. Petty and Joshua Cleves. This mode of fishing had been adopted in Rhode Island a few years previous. In 1850 my father built part of a purse-seine. We knit it by hand during the winter, and this first seine was about 30 rods long and 275 meshes deep. We used cedar wood for corks, but used them only a few years when we exchanged them for cork. Our seine was carried on two small skiffs, and we used a little sloop of about seven tons burden to tow the seine and carry fish. The first few years of our fishing we crealed up the seine on the sloop. Our crew consisted of four men. We commenced fishing the first of June, 1850, and I remember well my first experience. We pursed the seine and got the sloop alongside to clear the seine, when the wind rose suddenly and blew a gale from the southeast, and we were obliged to hoist the seine on board the sloop the best we could and run for a harbor under a jib. We used this fishing rig for several years."

Mr. Conklin's daily journal covers the period from 1852 to 1880, giving the record of the days when he went fishing and when prevented from fishing by unfavorable weather, and omitting the days when he remained ashore to hoe corn or to attend to other work. In 1852 he took charge of the fishing himself. As the entire journal covers more than three hundred pages of manuscript it is inexpedient to print it entire, but the following synopsis of the record of most of the years, together with a tabulated statement of the results of each day's fishing during the entire period, will indicate the seasons and growth of the fishery and some of the changes in methods during those twenty-eight years:

1852.

May 27th, Thursday: Commenced fishing for the season; caught nothing. Saturday, 29th: Went fishing p. m.; caught none.

June 1st, Monday: Went fishing; saw none. Tuesday, 2d: Saw fish just at night, but caught none. Wednesday, 3d: Went fishing; caught none; shower just at night. Thursday, 4th: Raining a. m.; p. m. caught 11,000 fish;

the first of the season. *Monday, 7th*: Wind blowing hard from southwest. *Tuesday, 8th*: Blowing and raining. *Wednesday, 9th*: Windy weather. *Thursday, 10th*: Windy. *Friday, 11th*: Caught 7,000 fish. (Our fishing was nearly all done at this time in Great Peconic Bay, above Robins Island, and when we go in the bay below it will be mentioned.) *Saturday, 12th*: Caught 1,500 fish p. m.; tore the seine on a snag. *Monday, 14th*: Caught 10,000 fish p. m. *Thursday, 17th*: Caught 6,000 fish; very warm weather. *Monday, 21st*: Went out and about 1 o'clock p. m. saw a shoal of drum-fish in about the middle of Peconic Bay and put the seine around them. After pursuing the seine we found it impossible to raise the bunt of the seine to the surface, on account of the weight of fish enclosed; we hoisted it up as well as we could with the throat halyards and commenced at one end of the seine and tried to take it on, but could make no headway on account of the quantity of fish; then we loaded the sloop with the fish that were in one end of the seine, and with great difficulty we succeeded in emptying the seine of fish and getting it on the boats. I presume we let from 40 to 50 tons go; we saved one striped bass and saw another in the seine, but were unable to secure it. It is said to be almost invariably the case that one or more bass are found in a shoal of drum-fish. Our seine was so badly torn, or chafed, that it took several days to mend it, and our next fishing was on June 28. *Monday, 28th*: Went out in p. m.; caught 8,000.

July 1st, Thursday: Went fishing in p. m.; caught 3,000; we had to attend to buying and harvesting; did not fish any more until the 9th. *Friday, 9th*: We caught 9,000 and spread them in the corn. *Wednesday, 14th*: We went out fishing; caught none; getting in wheat, &c. *Wednesday, 21st*: Went fishing; caught 1st, 000. *Thursday, 22d*: Caught 7,000 and carted them out. *Friday, 23d*: Went out; caught 12,000 fish; sold a part of them and carted part. We were busy with our farm work and did not fish any more until—

August 9th, Monday: Went out; caught 3,500 fish. *Tuesday, 10th*: Went out; caught 21,000 fish. *Wednesday, 11th*: Wind east; carted fish and plowed them under. *Thursday, 12th*: Went fishing; caught 11,000. *Friday, 13th*: Caught 12,000 fish. *Monday, 16th*: a. m. windy; p. m. went out; caught 8,000 fish. *Tuesday, 17th*: Went out; caught 17,000 fish; landed them on shore for some farmers at Franklinville. *Wednesday, 18th*: Went out; caught 8,000 fish. *Thursday, 19th*: Went fishing; caught 18,000; landed them for farmers in Franklinville. *Friday, 20th*: Wind east; came to Jamesport with sloop and seine. *Monday, 23d*: Went out fishing; caught 11,300; landed them just west of Jamesport for a farmer. *Tuesday, 24th*: Went out; caught 2,500 fish; they were very wild; we had great difficulty in surrounding them. *Thursday, 26th*: Rainy day; we went out fishing in p. m., but the wind blew hard and we caught nothing. *Friday, 27th*: Went out fishing; caught 11,000; we joined seines; thought we could get around them better, but made hard work of pursuing. *Saturday, 28th*: We carted fish and mended seine; came on to rain in p. m. *Sunday, 29th*: An east storm. *Monday, 30th*: Wind continues to the east, so we did not fish. *Tuesday, 31st*: Went out fishing; caught 13,000.

September 1st, Wednesday: Went out fishing; caught nothing. *Thursday, 2d*: Went out; caught 7,000. *Friday, 3d*: Windy; did not fish. *Saturday, 4th*: Went out fishing; caught 10,000. I have a sore foot and the fall work coming on, potatoes to dig, &c., so we quit for the season.

1853.

In 1853 they started out in search of fish on April 28, but none were taken until June 6. The fishing was abandoned each year when farming was more important and when there was no longer use for manure.

1854.

In 1854 the season began on May 30 and ended September 27.

1855.

In the spring of 1855 the small sloop was sold and a larger one of about 12 tons was purchased.

We now take another man to sail the sloop while we go to catch the fish. Previously we had been obliged to anchor the sloop until we could parse the seine. And about this time we increased the width of the seine to 300 meshes. On the 22d of May got out and varnished the seine (up to this time we had used bright varnish on the seine), and on May 29 went out to look for fish, but caught none.

1856.

In 1856 the seine was again varnished and hung, and the fishing began June 2 and ended October 13.

The catch taken June 30, 1856, was sold at Jesse Terry's pot works. They were the first I ever carried to a factory. Mr. Terry had put up a small pot works on Red Creek Point to try out the fish that he caught with his draw-seine. Formerly we had boated most of them over to Jamesport and sold to the farmers. Mr. Henry Wells says he commenced trying out fish in July, 1850, at Shelter Island, and some parties in Greenport commenced fishing with a purse-seine about the same time that Mr. Petty and Cleves commenced in Peconic Bay, which was in 1848 or 1849.

1857.

We used tar on the seine this year, instead of bright varnish, which we had formerly used, and have made the seine 350 meshes instead of 300 meshes deep.

1858.

In 1858 tarred the seine again. Fished until September 29, and as the work at the farm was urgent, we went no more until October 13, when we went out, but caught no fish. November 1 we started down bay with two sloops to fish for the factory at Southold. They have just built a factory there and wish to purchase fish. We heard there were plenty of fish in Gardiner's Bay, so we took two sloops, expecting the crew to live in one and have the other to carry the fish to the factory. And it was calm nearly all day. We arrived at Southold late in the evening; came to anchor, and before morning it was blowing a gale from the east; so we came back to Jamesport. The wind blew hard from the east for several days. And that ended our fishing for this season. This factory had been taking fish all the season, and a purse-seine gang from Connecticut had been fishing for them. I think it was the Luce Brothers. They did not fish in small boats towed behind a sloop, as we did, but used large double-end boats, and had to lower the sails to the purse and mate boats some ways to windward of the fish, and haul half of the seine from the purse to the mate boat while dropping down to the shoal of fish. They also used one or two boats, a trifle larger, to carry fish. They had six men on seine and a man in each car'way boat.

1859.

In 1859 tarred and hung the seine again, and went out for the first time on June 1. Sold the fish to the factory at Southold for most of the season. October 24, took 20,000 fish.

1860.

In 1860 we had a much larger purse-boat built, as I intended to clear up the seine in future on the seine-boats. It is sharp at both ends, and 20 feet long. [Some of the fishermen laughed at me and said it will not work, but in two years they all cleared up on the seine-boats and now (1875) would think a man crazy who tried to clear the seine as we used to the first years of my fishing; and when I commenced to purse fish they scooped them all on board the sloop with hand-nets, but we soon thought of a better way. I was the first that used a large net with a handle, the same that is used at the present time.] I have enlarged my seine this year (1860) and now have it four hundred meshes wide, and use six men instead of four, and have employed a small sloop, so that I can have a car'away. We had the boats and seine ready, so that we were ready to fish on May 23, when we caught 7,200 fish; on the 24th we took 21,000; on the 26th, 5,000; on the 29th, 12,700; on the 30th, 10,200, and the 31st, 12,000. In the latter part of July and first part of August fish were very scarce. August 9 took 28,000 fish off Bridgeport, Conn. Had previously fished nearly all the time in Peconic and Gardiner's Bays. August 13 tarred and hung the seine. September 11 the sloop I have had to use has started for home to-day, so I have only my little sloop now.

1861.

May 31, 1861, I fixed up bunks and table in a small house we have rented, as my little sloop is not large enough for us all to live on board and carry the fish, consequently I will be obliged to confine our operations in Peconic Bay fishing for the farmers.

July 25 and 26 fishing at Cold Spring and Northport. July 30 took 66,000 fish off Bridgeport, Conn., and August 2 took 70,000 at same place. August 24, off Milford, Conn., we saw fish in every direction as far as the eye could reach, and good shoals. We went to work with a will, and we soon had the sloop loaded and then headed her for Wading River. The farmers were looking for us, and we soon carted the fish out. We had 77,000 fish.

1862.

In 1862 we purchased a larger sloop called the William Hatfield, which will carry 20 tons; expect to have her to tow the boats and seine, and for the crew to live; also to carry fish, using the little sloop, the Accordeon, for a carry-away. We have fixed and painted the sloops and boats; tarred and hung the seine, and have everything ready to commence fishing the 4th of June, but the wind came on to blow and we had a violent east storm.

June 5th, Thursday: Wind continues east, so we did not fish, but fixed the deck boards and bunks on board the William Hatfield. *Friday, 6th:* Went down bay; wind continues east; went in Noyack Bay, but caught no fish; just at night went up and anchored in the cove near New Suffolk. *Saturday, 7th:* Went out; caught 3,000 fish; landed them at Jamesport. *Monday, 9th:* Wind blows strong from the east; we did not fish. *Tuesday, 10th:* Went out in Peconic Bay; caught 6,500 fish; sent them to J. Applie's factory; pleasant. *Wednesday, 11th:* Wind blew strong; did not fish. *Thursday, 12th:* Went out in Peconic Bay; caught 4,150 fish; sent them to Jamesport for the farmers; pleasant. *Friday, 13th:* Caught in Peconic Bay 18,950 fish; landed them at Jamesport; pleasant. *Saturday, 14th:* Caught in Peconic Bay 22,500 fish; landed them at Jamesport; pleasant. *Monday, 16th:* Went out in Peconic Bay; caught 18,900 fish; landed them at Jamesport; pleasant. *Tuesday, 17th:* Caught in Peconic Bay 23,050 fish; landed at Jamesport. *Wednesday, 18th:* Wind blew hard SW.; we did not go fishing; we fixed the reel. *Thursday, 19th:* Went out fishing; caught none. *Friday, 20th:* Went down through Peconic Bay, and were bound down into Gardiner's Bay, when, abreast of Greenport, we saw a good shoal of fish; went around it, but, the water being deep, they dove the seine and came up back side in good shape; we took the seine on as soon as we could and tried them again; they dove the second time, and while we were getting our seine on the boats they had moved into shaller water; we tried them the third time, when we caught them; we saved 27,500; sent them to J. Applie's factory; pleasant day. *Satur*

day, 21st: Came to Jamesport. *Monday, 23d:* Started very early in the morning, intending to go into Gardiner's Bay, but it was calm; so we caught 11,000 fish in Peconic Bay; sent them to J. Appie's factory; pleasant day. *Tuesday, 24th:* An east storm; we made a harbor in Kirkle Harbor. *Wednesday, 25th:* Went out in Gardiner's Bay; caught 31,750 fish; sent them to J. Appie's factory; pleasant day. *Thursday, 26th:* Caught in Gardiner's Bay 22,500 fish; sent them to J. Appie's factory; pleasant day. *Friday, 27th:* Went fishing in Gardiner's Bay; caught none. *Saturday, 28th:* Went out in Gardiner's Bay; caught 44,000 fish; sent them to J. Appie's factory; pleasant weather. *Monday, 30th:* Went out in Peconic Bay; caught 26,500 fish; sent them to J. Appie's factory; pleasant day.

July 1st, Tuesday: Went in Peconic Bay; caught 13,500 fish; sent them to Appie's. *Wednesday, 2d:* Went out in Peconic Bay; caught 21,700 fish; landed them at Jamesport; pleasant day. *Thursday, 3d:* Wind east and stormy; did not fish. *Monday, 7th:* Went out in Peconic Bay; caught 39,000 fish; sent them to J. Appie's factory; pleasant. *Tuesday, 8th:* Went out in Peconic Bay; caught 35,000 fish; sent them to Jamesport in the Accordeon; caught 23,000 more and carried them to the factory in the William Hatfield; pleasant day. *Wednesday, 9th:* We caught 12,000 fish and brought them to Jamesport in the William Hatfield; the wind blew quite hard. *Thursday, 10th:* Went in Peconic Bay; caught 22,000 fish; brought them to Jamesport; pleasant weather. *Friday, 11th:* Caught in Peconic Bay 32,000 fish; sent them to J. Appie's factory; pleasant day. *Saturday, 12th:* Caught in Peconic Bay 10,000 fish; landed them at Jamesport; pleasant. *Monday, 14th:* Caught in Peconic Bay 20,000 fish; landed at Jamesport; pleasant. *Tuesday, 15th:* Went down in Little Peconic Bay; caught 40,000 fish; landed them at Clark's factory (small works in Noyack Bay); J. Appie could not take them; pleasant weather. *Wednesday, 16th:* We made one set in Noyack Bay and tried to sell them to the factories, but could not; so sent the Accordeon to Sag Harbor and sold them to the farmers; at night we went to Greenport. *Thursday, 17th:* Went down in Gardiner's Bay; caught 15,000 fish; landed them at J. Appie's factory; pleasant. *Friday, 18th:* Wind blew hard from the east, so we came to Jamesport. *Monday, 21st:* The wind east; so we did not fish; I took a horse and went down to the Southold factory to see Mr. Brundred, and he engaged to take our fish, for we do not like to catch fish without knowing where we can dispose of them; just at night we started down bay; left the Accordeon at Jamesport; we sailed all night, and in the morning anchored in Orient Harbor. *Tuesday, 22d:* The wind continues to blow from the east; we got under way and beat down under lee of Gardiner's Island; caught 32,000 fish; went to Brundred's factory at Southold with them. *Wednesday, 23d:* Went out in Gardiner's Bay; caught 22,000 fish; landed them at factory; pleasant day. *Thursday, 24th:* Caught in Gardiner's Bay 8,000 fish; factory; pleasant. *Friday, 25th:* Caught in Gardiner's Bay 26,500 fish; factory; pleasant. *Saturday, 26th:* Came to Jamesport. *Monday, 28th:* Went down in Gardiner's Bay; caught a large haul, and while clearing up the seine drifted so near Crow Island Shoal that the seine caught on the rocks; we saved only 21,000 fish; tore the seine bad; pleasant. *Tuesday, 29th:* Came to Jamesport with the seine and carted it up in the lot. *Wednesday, 30th:* Worked on the seine. *Thursday, 31st:* Worked on the sloop and seine.

August 1st, Friday: Worked on the seine. We did not start out until *Monday, 4th:* We carted the seine down to the boats, and started down bay; pleasant. *Tuesday, 5th:* Went out in Gardiner's Bay; caught 7,000 fish; sent them to factory at Southold; pleasant. *Wednesday, 6th:* Caught in Gardiner's Bay 24,000 fish; sent them to Southold; pleasant day. *Thursday, 7th:* Went below Gardiner's Island; caught no fish; at night came up to Greenport; pleasant. *Friday, 8th:* We hauled the William Hatfield out on the ways and cleaned her bottom, corked, &c. *Saturday, 9th:* Had the William Hatfield painted. *Monday, 11th:* Went down in Gardiner's Bay, caught about 2,000 fish, and anchored at night just east of Fire Place Point; pleasant. *Tuesday, 12th:* We went below Gardiner's Island and into Fort Pond Bay; caught none; wind blew quite hard from the southwest; went into Napeague Harbor and threw the 2,000 fish that we caught on Monday overboard, after which we went on shore and walked over to the surf. *Wednesday, 13th:* We went out of Napeague and went west of Gardiner's Island, in Gardiner's Bay; caught 88,000 fish; put them in both sloops and took them to the factory at Southold; pleasant day. *Thursday, 14th:* Went out in Gardiner's Bay, caught 18,000 fish and \$5 worth of bluefish; wind blew quite hard. *Friday, 15th:* It rained in the morning; we went to Jamesport and carted the seine in the lot. *Saturday, 16th:* We worked on the seine, mending holes; the bluefish bit off a great many single bars, and it makes a great deal of mending. *Monday, 18th:* Started down bay early in the morning, but did not get into Gardiner's Bay until most night. Anchored in Orient Harbor; pleasant day. *Tuesday, 19th:* Went out in Gardiner's Bay; caught 29,200 fish; sent them to the Southold factory; pleasant day. *Wednesday, 20th:* Went below Gardiner's Island; caught 26,500 fish; sent them to the factory at Southold; pleasant. *Thursday, 21st:* Went out in Gardiner's Bay; caught 44,000 fish; factory; pleasant. *Friday, 22d:* Caught in Gardiner's Bay 30,000 fish; wind blew very hard. Went to Jamesport with the fish. *Saturday, 23d:* Attended to the fish; laid the William Hatfield on the shore to clean her bottom, and carted the seine out in the lot and mended it. *Monday, 25th:* We went down bay; went around a shoal of fish off Three-Mile Harbor, which is on the south side of Gardiner's Bay, and caught the seine on the rocks, lost the fish, and tore the seine; came to anchor, mended the holes, and lay there through the night; pleasant day; light wind southwest. *Tuesday, 26th:* Caught in Gardiner's Bay 17,000 fish; sent them to the Southold factory; pleasant day. *Wednesday, 27th:* Went below Gardiner's Island, then came up in Gardiner's Bay and caught 20,000 fish off Three-Mile Harbor; pleasant day. *Thursday, 28th:* A. M. it rained; p. m. we went out in Gardiner's Bay; caught a good haul of fish, but the sharks made holes in the seine and let them all out except 6,000. *Friday, 29th:* Wind blew hard from the northwest; we went out and lay under the lee of Ram Head, thinking the wind might die out, but as it continued to blow we came up to Greenport and hauled the William Hatfield on the ways to stop a leak.

September 1st, Monday: A windy day; it rained in the morning; we did not fish. *Tuesday, 2d:* Went out in the morning, but the wind came on to blow hard from the northwest; so we anchored under Long Beach, and lay there all day and night. *Wednesday, 3d:* Went out in the morning below Gardiner's Island; caught about 15,000 fish; staid in Napeague through the night; pleasant. *Thursday, 4th:* Got under way in the morning; looked below Gardiner's

Island; then went up in Gardiner's Bay; caught 30,000 fish; sent them to factory; pleasant day. *Friday, 5th*: Went down in Gardiner's Bay; caught 12,000 fish; sent them to the factory and we came to Greenport; pleasant. *Saturday, 6th*: Went down in Gardiner's Bay, off Plum Gut, but caught no fish; then came to Jamesport with the sloops; it took us all day, as the wind was southwest; we carted the seine up in the lot. *Monday, 8th*: We worked on the sloops and seine; in fact we spent the whole week tarring and hanging the seine, and working on the farm a part of the time; did not go out fishing until *Monday, 15th*: When we went down bay; caught 5,000 fish; landed them at the factory; pleasant day. *Tuesday, 16th*: Went out in Gardiner's Bay; caught 15,000 fish; sent them to the factory; pleasant. *Wednesday, 17th*: Caught in Gardiner's Bay 6,000 fish; factory; fine day. *Thursday, 18th*: Caught in Gardiner's Bay 15,000 fish; took them to the factory at Southold; pleasant. *Friday, 19th*: Went out in Gardiner's Bay; caught 10,500 fish; factory; fine. *Saturday, 20th*: Came to Jamesport with the sloops. *Monday, 22d*: We went down bay; caught none; pleasant day. *Tuesday, 23d*: We went out very early in the morning; went below Gardiner's Island; caught 30,000 fish; sent them to Southold to the factory; pleasant. *Wednesday, 24th*: Went out, but the wind came on to blow very hard; so we went into Napeague Harbor and went beach-plumming. *Thursday, 25th*: A. M. the wind blew very hard from the east; we went beach-plumming again; at noon the wind slacked down, so that we thought it would do to go out; went out east of Gardiner's Island and went around a shoal of fish; the seine caught on a rock, and we saved only 3,000 fish and tore the seine, so we went into Napeague and mended it. *Friday, 26th*: Went out below Gardiner's Island; caught 10,500 fish; we did not get to the factory until most daylight next morning; very calm day. *Saturday, 27th*: Went to Jamesport; pleasant. *Monday, 29th*: Went down bay; caught none; very fine day. *Tuesday, 30th*: We went out in Gardiner's Bay; caught 3,000 fish; sent them to factory; pleasant.

October 1st, Wednesday: Wind east and stormy; did not fish. *Thursday, 2d*: East storm continues. *Friday, 3d*: Went out in Gardiner's Bay; caught 17,500 fish; sent them to the factory at Southold; pleasant day. *Saturday, 4th*: Came to Jamesport; the wind blew quite strong from the southwest; did not go out again until *Wednesday, 8th*: We started down bay early in the morning; went down in Gardiner's Bay, but it was so late we caught none; pleasant. *Thursday, 9th*: Went down in Gardiner's Bay; caught 26,500 fish; sent them to Southold factory; pleasant day. *Friday, 10th*: An east storm; we lay in the basin at Greenport. *Saturday, 11th*: A. M. it rained; did not fish. *Monday, 13th*: A storm from the east. *Tuesday, 14th*: Wind continues; did not fish. *Wednesday, 15th*: Went out in Gardiner's Bay; caught 46,600 fish; sent them to Southold; pleasant, but blew quite hard from the southwest in p. m. *Thursday, 16th*: Went down in Gardiner's Bay; caught 24,000 fish; took them to the factory; pleasant day. *Friday, 17th*: Went out in Gardiner's Bay; caught 33,000 fish; sent them to the factory; we anchored under Gardiner's Island; fine. *Saturday, 18th*: In the morning we went around east of Gardiner's Island, but found no fish; then we went up to Southold with the William Hatfield, and reeled our seine on one of the haul-seine reels; got a team and went home. *Monday, 20th*: Went to Southold, then went to Greenport with the William Hatfield; the wind blew very hard from the northwest, so that we could not fish; mended seine, &c. *Tuesday, 21st*: Went out in Gardiner's Bay; caught 63,000 fish at one set; sent them to Southold factory; the wind came on to blow southwest. *Wednesday, 22d*: Started out of Greenport in the morning, but we had got no farther than Hay Beach when it commenced to blow so hard from the northwest that we came back to Greenport; it was as much as we could do to get back; some of the double-end fish-boats (Rhode Island gangs) could not get back, but got under the land and anchored. *Thursday, 23d*: Wind continued at the northwest; we laid in Greenport. *Friday, 24th*: Went out in Gardiner's Bay; caught 51,000 fish; sent them to Southold factory; pleasant day. *Saturday, 25th*: We went out in Gardiner's Bay; caught 60,000 fish at one set; the carry-away sloop did not get to us in time, so we took them on the William Hatfield; it was calm all the p. m., so we did not arrive at Southold with them until eight o'clock in the evening. *Monday, 27th*: Went to Greenport; it stormed, so we did not fish. *Tuesday, 28th*: A pleasant day, but some of my men have failed to come; therefore we cannot fish. *Wednesday, 29th*: Found two men in Greenport and went down below Gardiner's Island; made one set just at night, and as it was calm came to anchor east of the island and lay there until morning. *Thursday, 30th*: In the morning it blew quite hard from the northwest, but as soon as it slacked we got under way and soon found a nice red bunch; by the looks of it I should think it contained near 100,000; we set the seine around it and commenced pursing, but we soon found it had caught on rocks and we could not purse it; but as we were out of the tide, we took a boat and pulled the seine up, clearing it, and saved a part of the fish—saved, with the few we caught the day before, 40,500 fish; took them to the factory, and as I was bothered to get men to make out a crew, thought I would lay up. *Friday, 31st*: Went to the factories and had a settlement, and the next day went to Jamesport and stowed boats and seines away.

1864.

As the business has increased in importance, we have enlarged our capacity of catching and carrying the fish by getting another carry-away sloop. Now we have the William Hatfield for towing the boats and seine and for the fishing-crew to live in, and if necessary can carry a few fish on deck; the Accordeon, which will carry about 45,000 fish; and the Black Bird, which will carry about 40,000. We have fixed and painted the sloops and boats, and started out fishing in Peconic Bay May 31, when we took 40,000 fish, and sent them to J. Apple's factory in the Accordeon.

June 13th: Sold \$7.50 worth of fish to a smack; most of our fish are now sold to the factories. *June 15th*: Sold \$26.75 worth of fish to a smack.

October 18th: The wind has slacked up so that we started out in the morning, and as soon as the gangs were by Long Beach they began to drop off, and when we were just by Long Beach, looking off toward where the sun had just risen, we could see fish breaking as far as the eye could reach. I never saw such a show of fish. We dropped

off from the sloop with our boats and rowed down to where we saw them playing; and they were playing to the west, and to the east, and to the south, as far as we could see, just as fast as they were near us. So we rowed right in where they were playing and encircled as many as we could and caught about 75,000 the first set, after which we made two more sets not so large. We sent the Accordeon, with 41,000 fish, and the Black Bird, with 59,000, to J. Applie's factory, and we put 7,875 on the William Hatfield, which we took to the Atlantic Works, as they were nearer. These were large eastern fish, and had just struck in the bay. There were about ten gangs fishing there that morning, and I think they all loaded their boats before night. It was a pleasant day, but cool in the forenoon. *October 26th*: It blew quite hard in the morning from the northwest, but it soon died out and we made a set just north of Crow Island Shoal, in Gardiner's Bay. We pursued them up without any trouble, but when we came to take on the seine we found we had something. We found the fish had made three large "cods" and twisted the seine so we could not clear them. We worked a long time on them, and then we took the Black Bird alongside: took a boat-hook and hooked into the "cod," pulled it up on the side of the Black Bird, and cut a large hole in the seine, and nearly loaded her out of that "cod." We served another "cod" the same way, and while we were attending to this, "Mr. Shark" made a hole in another "cod" and so saved us the trouble of scooping them. Then we cleared the seine and scooped what was left in the bunt. We were at work on them nearly all day and saved 44,000 fish, which we sent in the Black Bird, and 12,000 in the Accordeon, to J. Applie's factory. All the fish we have caught since the 18th of October have been fat eastern fish.

The fish brought us \$2.50 per thousand this year. In the fall they run \$3 per thousand, and a few as high as \$5 per thousand. It was a hard matter to get a good cotton seine. I bought some for \$1.35 per pound, and it was so poor and the knitting so bad that we would not think of using it now (1878) if we could get it for nothing. [I don't recollect just what menhaden oil was bringing at this time, but I think it was \$1 per gallon, perhaps a little more.]

1865.

Painted the sloops and got the seine ready and commenced fishing May 31. *June 27th*: Sold 10,500 fish to a smack for \$31.50. *July 21st to 28th*: Fishing off Milford, Conn. *September 29th*: Went to Boston to see about getting a new seine; it was impossible to get a cotton seine without paying a very large price; so I bargained for a seine made of flax or hemp, and it was to be done so that I could have it soon, for our seine was getting very poor; got the seine October 30.

1866.

September 25th: We took off the sails and lined them. From that date to October 17 weather bad or fish scarce, so that there was no fishing.

1867.

As the Accordeon was getting old and we saw the need of having a larger sloop, I have sold her and built a new sloop that will carry about 60,000, which I have named the U. S. Grant. I had her built near my house and moved her to the bay on big wheels. So now we have the William Hatfield to tow the seine and the U. S. Grant and Black Bird for carry-away sloops. We have the sloops and boats ready, and on the 6th of May we put things on the William Hatfield and bent the sails on the U. S. Grant. *May 7th*: I sent to Riverhead for the U. S. Grant's anchors, and took the seine on board and had everything ready to go out fishing. We started out, thinking to go down to Greenport, but when we had sailed about half way to Robin's Island we discovered a number of bunches of fish. They were not playing much, but we saw the color of them. Then we prepared the seine as soon as we could and went to work at them. We made three sets, and caught about 20,000 each set. We sent 45,000 fish in the U. S. Grant and 16,000 in the Black Bird to Jamesport for the farmers. A pleasant day; wind light, southeast. *May 14th*: Went out in Peconic Bay; caught 22,400 fish, which we sent in the Black Bird to Hallett's Works. We came into Jamesport and came to anchor and hauled the seines out on deck, as we are in the habit of doing, to allow the air to come to it, to prevent its heating. We had one of the greatest hail-storms I ever witnessed; the hail-stones were four or five inches deep in some places next morning. Saw no fish again till the 22d, but we caught none till the 27th of May.

October 15th: We started out of Gardiner's Bay; it was a pleasant morning.

There was one gang a mile or two to the east of us; and about sunrise we saw them drop off and set the seine; when we came up to them the captain called out to me and said, "They are large eastern fish"; and about that time the man at mast-head cried out, "I can see them off to the east, playing as thick as rain-drops"; and we could soon see them from the deck (just after sunrise you can see fish a long way off to the eastward). In a little while we came up with them. It was a large, solid body of fish and showed a good color. We dropped off from the sloop and went around just one end of the body and commenced pursuing. We pursued the seine without much trouble and took it on, running the fish all in the hunt; but when the carry-away came alongside, and we tried to get them up, so as to scoop, we found we could not raise them. As the wind was light we got both sloops alongside and had carry-away men to help us, but still we were not able to bring them up; then we lashed a pole on the scoop-net handle, but the fish were so far down we could make no headway in hoisting them out. At last the wind breezed up from the northwest, and the bunt, not being able to stand so heavy a strain, began to rip, when we were obliged to slack the seine down and let the fish out; there were four or five good shoals went out. One gang came along and caught one shoal and nearly loaded his boats. After all had run out that would, we raised up enough to make 49,100 fish, which

we sent to Hallett's Works. We were all of us about beat out; we had worked and pulled with all our might for four or five hours to try to save the fish, but we had too many for one gang to handle. I have no doubt but what we pursued up between 300,000 and 400,000. The fish at this time, as I well remember, were selling for \$3 a thousand.

1868.

We have tarred and hung the seine and got the sloops out of the creek and had them painted, and have everything ready to commence work. *May 15th*: Went out in Peconic Bay, but caught none. *May 16th*: Caught in Peconic Bay 26,224 fish, which we sent in the U. S. Grant to Jamesport for the farmers. *June 19th*: I have purchased a part of the Smith's Island Works at Norwalk Islands, and we are preparing to go there to fish. Arrived at Norwalk Islands June 24. On the 29th we caught 33,180 fish in the mouth of the Sauganuck River.

1869.

April 26th, Monday: We started up to the Smith's Island Works, with the U. S. Grant and Black Bird, to make some improvement on the works, and also to set a pound that had formerly been used by the parties we purchased of. Taking what help we needed, we overhauled the works and put in the pound, but did not catch fish enough to amount to much.

May 29th: We started for home with the U. S. Grant; arrived at Mattituck next morning, and hired one of the farmers to take us home; we had the William Hatfield prepared, and, carting the seine on board, started from Jamesport.

June 2d, Wednesday: Arrived at Greenport evening; pleasant. *Thursday, 3d*: We laid in a store of wood, oars, and provisions, and had the sloop's papers renewed; then taking the reel on board, started for Norwalk Islands; in the evening we arrived at Mattituck Creek, where we came to anchor, to wait until morning and to get the U. S. Grant out of the creek; weather pleasant; light wind SW.

July 20th: We caught off Hog Island 7,700 fish, which we sent in the U. S. Grant to Luce's floating factory, which is anchored behind Hog Island Point, at the entrance of Oyster Bay.

1870.

May 3d: Started out, but saw no fish. *May 4th*: Saw no fish in shape to catch. *May 9th*: The wind continues to the east, but does not blow very hard, so we went out in Peconic Bay and off Cancee Place. Saw a nice round shoal of fish that we judged might contain 30,000. We encircled them with our seine and pursued them up without any trouble, and run them into the punt ready to scoop, when we found we could not raise them. So another gang came to our assistance. When we got them up enough to scoop we loaded the Black Bird. As the U. S. Grant did not come out, we got the other gang's carry-away boat alongside. Many of the fish being dead, we could not hold them up. They tore the bunt nearly in two, and run out until we thought they were nearly gone; then we succeeded in getting up the rent in the bunt so that we got 60,000 fish in the other gang's carry-away. We sent to Jamesport in the Black Bird 42,390 fish; so we saved over 100,000, and I presume we lost more than we saved.

October 28th: Was too windy to fish. We staid at Greenport waiting for weather suitable to fish until the 4th of November, but the wind blew hard every day, from the northwest most of the time, and on the 4th of November we concluded we had better lay up.

1871.

I have made some changes; I am to fish for the floating factory, Algonquin, owned by C. H. Futhill & Co. I am to have a sloop called the Starlight, which is a larger and faster sailer than the William Hatfield, to live in and tow the boats and seine. I have taken the forward house off and put in new ceiling, and given the William Hatfield a thorough overhauling, and am expecting to use her for a carry-away instead of the Black Bird, and now I think we have a pretty good rig. We have taken the sloops to Greenport and had them painted, and were prepared to start out fishing on the 1st of May, when all hands came on board the sloops.

May 2d, Tuesday: We started down bay; the wind was very light from the east; we saw a few fish above Robins Island, but they were going before the wind, so that I could not catch them very well; there was a sail-boat put off from the north shore of the bay—where there is a haul-seine located—with a number of men in it, and followed us to Robins Island; I had heard that there had been a law passed in Albany prohibiting purse fishing in some part of the bay, but was not able to learn whether it was Little or Great Peconic Bay; we caught on our way down 4,000 fish in Noyack Bay, which we sent in the U. S. Grant to Glover's Works, as our factory was not ready to take fish yet; I went to Greenport, and thought to find out for certain which bay we were not to be allowed to fish in; so I went up to the office of the Suffolk Weekly Times, and the editor told me he had just received a letter from our assemblyman at Albany; he wrote that purse fishing was not prohibited anywhere in this State except Little Peconic Bay. *Wednesday, 3d*: We went down in Gardiner's Bay; caught 8,000 fish, which we sent in the U. S. Grant to the Miamogno works; pleasant day. *Thursday, 4th*: A hard east storm; did not fish. *Friday, 5th*: The storm continues; we lay in Greenport. *Saturday, 6th*: We came up to Jamesport with the sloops, and worked on the seine; wind blew hard.

Monday, 8th: Wind blew hard, northwest; did not fish. *Tuesday, 9th:* Went out in Great Peconic Bay, which is the bay above Robins Island; we found fish scattered—a play here and there—ali over; we made one set, but caught none; our friends in the sail-boat lay off in the bay watching us; but I paid no attention to them, as I thought the law prohibited fishing in Little Peconic Bay, which is below Robins Island. (But I afterwards learned that our assemblyman had made a mistake, and that it was *Great* instead of *Little* Peconic Bay, as he had written.) Very calm and fine. *Wednesday, 10th:* We went out in Great Peconic Bay and found a good bunch of fish, and set around them about sunrise; pursued them up and had them scooped into the William Hatfield; there were 51,000 fish, which we sent to the Miamogue Works before my friends in the sail-boat could get to us; it was quite calm; they went immediately to the district attorney and made a complaint against us; we dropped off a number of times during the day, but, fish being so scattered, we caught no more; pleasant. *Thursday, 11th:* Went out in Peconic Bay; caught none; the fish continue in very bad shape for catching with a purse-seine; the haul-scines are doing quite well; at night we went to Greenport to get some things we needed; fair. *Friday, 12th:* Went out fishing, but caught none; weather fine. *Saturday, 13th:* Caught none; came home; weather continues fine; the sheriff came down to see me, and read some papers to me that I suppose he thought would interest me.

The full record from 1872 to 1880 is as follows:

1872.

I have purchased a small carry-away called the New York in the place of the William Hatfield, which I have lost. I let the man that was expecting to sail her for me during the fishing season take her and go to New York and get a load of merchandise, and during a heavy squall, while reefing, a schooner came up from astern, ran into and sunk her off the south point of Heart Island. The crew of the William Hatfield saved themselves by springing on board the schooner, losing their clothes and effects, except what they had on their persons. I afterwards saw the owners of the schooner, but could make no settlement with them, when I employed a lawyer and libeled the schooner, compelling them to pay for the sloop and cargo. We have the sloops painted, and commence fishing in May.

May, 13th, Monday: We went down bay; caught in Noyack Bay 37,000 fish, which we sent in the New York to the Algonquin; fine. *Tuesday, 14th:* We caught in Peconic Bay 47,000 fish, which we sent in the U. S. Grant to the Algonquin; pleasant day. *Wednesday, 15th:* Caught in Peconic Bay 29,500 fish, which we sent in the New York to the Algonquin; weather pleasant. *Thursday, 16th:* Went out in Gardiner's Bay; caught 36,300 fish, which we sent in the U. S. Grant to the Algonquin; fine. *Friday, 17th:* Caught in Gardiner's Bay 27,500 fish, which we sent in the U. S. Grant to the Algonquin; pleasant. *Saturday, 18th:* We came to Jamesport with the sloops; weather is pleasant; have had no rain in some time and the ground is getting very dry. *Monday, 20th:* The Algonquin is to be fixed, so we will have to take our fish elsewhere until they get her in readiness. We went out in Peconic Bay, caught 9,096 fish, which we sent in the U. S. Grant to Jamesport for the farmers; pleasant weather. *Tuesday, 21st:* Caught in Peconic Bay 22,750 fish, which we sent in the New York to Jamesport; fine weather. *Wednesday, 22d:* We caught in Peconic Bay 59,300 fish, which we sent in the U. S. Grant to Jamesport; fine weather. *Thursday, 23d:* Caught in Peconic Bay 35,000 fish, which we sent in the New York, and 38,091 in the U. S. Grant, to Jamesport; weather continues pleasant. *Friday, 24th:* We caught in Peconic Bay 25,000 fish, which we sent in the New York, and 19,540 in the U. S. Grant to Jamesport; we are having very pleasant weather. *Saturday, 25th:* Caught in Peconic Bay 34,786 fish, which we sent in the New York to Jamesport; pleasant day. *Monday, 27th:* We caught in Peconic Bay 49,541 fish, which we sent in the U. S. Grant to Jamesport; pleasant. *Tuesday, 28th:* Caught in Peconic Bay 30,322 fish, which we sent in the New York, and 31,000 in the U. S. Grant, to Jamesport; fine. *Wednesday, 29th:* We caught in Peconic Bay 7,300 fish, which we sent in the New York to Jamesport; weather pleasant. *Thursday, 30th:* Caught in Peconic Bay 22,900 fish, which we sent in the U. S. Grant to Jamesport; weather pleasant. *Friday, 31st:* We caught in Little Peconic Bay 31,000 fish, which we sent in the New York, and 16,371 in the U. S. Grant, to Jamesport; weather continues fine.

June 1st, Saturday: We did not fish; mended seine; pleasant. *Monday, 3d:* We caught in Little Peconic Bay 22,600 fish, which we sent in the New York to Jamesport; pleasant day. *Tuesday, 4th:* We caught none; the wind blew hard from the east; we anchored in the New Suffolk Cove. *Wednesday, 5th:* The wind continued to blow hard from the east; I went to New York to see about getting a new seine. *Thursday, 6th:* We caught in Peconic Bay 41,338 fish, which we sent in the U. S. Grant to Jamesport; pleasant day. *Friday, 7th:* Caught in Little Peconic Bay 32,800 fish, which we sent in the New York, and 28,179 in the U. S. Grant, to Jamesport; weather continues fine. *Saturday, 8th:* Did not fish; weather fair. *Monday, 10th:* Caught in Peconic Bay 12,196 fish, which we sent in the New York to Jamesport; pleasant. *Tuesday, 11th:* We caught in Little Peconic Bay 51,000 fish, which we sent in the U. S. Grant, and 26,179 in the New York, to Jamesport; weather pleasant. *Wednesday, 12th:* Caught in Peconic Bay 57,577 fish, which we sent in the U. S. Grant to Jamesport; weather fine. *Thursday, 13th:* We caught in Peconic Bay 34,000 fish, which we sent in the New York, and 27,566 in the U. S. Grant, to Jamesport; weather continues fine. *Friday, 14th:* Caught in Peconic Bay 36,043 fish, which we sent in the New York to Jamesport; weather fine. *Saturday, 15th:* We did not fish; mended seine, &c. *Monday, 17th:* Caught in Peconic Bay 44,500 fish, which we sent in the U. S. Grant to the Algonquin, as she is now prepared to take fish again; weather pleasant. *Tuesday, 18th:* We caught in Little Peconic Bay 40,500 fish, which we sent in the New York, and 4,000 in the U. S. Grant, to the Algonquin; weather continues pleasant. *Wednesday, 19th:* Caught in Peconic Bay 57,500 fish, which we sent in the U. S. Grant, and 36,200 in the New York, to the Algonquin, and 12,218, which we took to Jamesport in the Starlight; plenty of fish; pleasant weather. *Thursday, 20th:* We caught in Peconic Bay 57,000 fish, which

we sent in the U. S. Grant to the Algonquin, and 20,656 in the New York to Jamesport; weather pleasant. *Friday, 21st*: We caught in Little Peconic Bay 38,000 fish, which we sent in the New York, and 61,000 in the U. S. Grant, to the Algonquin; weather continues pleasant. *Saturday, 22d*: Caught in Peconic Bay 27,238 fish, which we sent in the New York to Jamesport; weather fine. *Monday, 24th*: Caught in Little Peconic Bay 50,000 fish, which we sent in the U. S. Grant, and 24,000 in the New York, to the Miamogue Works, as the Algonquin cannot take fish for a few days, owing to the fact that they are putting in a patent drier for drying scrap; weather pleasant. *Tuesday, 25th*: Caught in Peconic Bay 3,500 fish, which we sent in the U. S. Grant to Jamesport; weather continues fine. *Wednesday, 26th*: We caught in Little Peconic Bay 13,500 fish, which we sent in the New York to the Miamogue Works; fine. *Thursday, 27th*: We went to Greenport and ripped out and tarred the seine; pleasant day. *Friday, 28th*: Hung the seine; weather fine. *Saturday, 29th*: Did not fish; came home.

July 1st, Monday: We caught in Gardiner's Bay 38,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Tuesday, 2d*: We caught in Gardiner's Bay 39,000 fish, which we sent in the New York, and 58,000 in the U. S. Grant, and took 27,000 in the Starlight, to the Miamogue Works; fine. *Wednesday, 3d*: The factories are all full and the farmers are busy harvesting; we cannot sell any more fish at present, so we came to Jamesport with the sloops, and wait a few days for the glut to get over; weather pleasant. *Thursday, 4th*: At home; very warm weather. *Friday, 5th*: I worked around home a. m.; went out among the farmers collecting fish money p. m. *Saturday, 6th*: At work about home; weather continues pleasant. *Monday, 8th*: We came down to Greenport; pleasant day. *Tuesday, 9th*: We went in the sound and west as far as Norwalk Islands; saw plenty of fish but would not catch them, as we did not know where the Algonquin was, or if she was prepared to take fish; pleasant day; wind SSW. *Wednesday, 10th*: We went over to Huntington Bay, but the Algonquin was not there, so we concluded that she was in New Haven yet, where they took her to get the driers put in; then we came down to Milford to see if we could sell our fish there until the Algonquin was prepared to take them; caught 35,000 fish, which we sent in the New York to the Welch Point Works, where we succeeded in selling them; pleasant. *Thursday, 11th*: Caught off Stratford Point and Milford 48,000 fish, which we sent in the U. S. Grant, and 22,000 in the New York, to the Welch Point Works; weather pleasant. *Friday, 12th*: Caught off Milford 16,800 fish, which we sent in the U. S. Grant to the Welch Point Works; pleasant. *Saturday, 13th*: We did not fish, but went to New Haven to see if the Algonquin was ready to take fish, or was ever likely to be ready; pleasant day. *Sunday, 14th*: In New Haven; very warm day. *Monday, 15th*: Caught off New Haven 36,000, which we sent in the New York to the Welch Point Works; pleasant. *Tuesday, 16th*: Caught off Milford 18,300 fish, which we sent in the U. S. Grant to the Welch Point Works; pleasant. *Wednesday, 17th*: We caught off Milford 26,500 fish, which we sent in the New York to the Welch Point Works; pleasant. *Thursday, 18th*: We caught off Black Rock 42,400 fish, which we sent in the U. S. Grant to George W. Miles's Works; pleasant. *Friday, 19th*: We caught off Southport 21,000 fish, which we sent in the New York to the Welch Point Works; pleasant. *Saturday, 20th*: We came over to Northport, expecting to see the Algonquin anchored in Huntington Bay, as they calculated to be ready this week, but she is not here yet; we went into Northport and purchased our week's stores, put the seine on the beach to dry, and improved our time by mending the holes; fine. *Monday, 22d*: The wind blew hard NNW.; we went out in the sound, but came to anchor under the land off Southport. *Tuesday, 23d*: We caught off Southport 37,500 fish, which we sent in the U. S. Grant to the Algonquin, as she has arrived and is anchored in Huntington Bay; pleasant. *Wednesday, 24th*: Caught off Glen Cove and Captain's Island 27,500 fish, which we sent in the New York to the Algonquin; weather continues pleasant. *Thursday, 25th*: Caught off Cold Spring 15,500 fish, which we sent in the U. S. Grant to the Algonquin; pleasant. *Friday, 26th*: Stormy day; came into Northport and hauled out the sloops on the railways. *Saturday, 27th*: Had the sloops painted; pleasant; the fish do not seem to be very plenty in the sound, and Mr. C. H. Tuttle, who has charge of the Algonquin, hearing that the fishing is good in Gardiner's Bay, has gone to Greenport, and, if the report is true, is to send me a dispatch early Monday morning, and we are to start down. *Monday, 29th*: Early in the morning went to the telegraph office, and had a dispatch to come; we sent word to the ship, and they sent a dispatch to New York for a tug to tow the Algonquin down; we made a set in Northport Bay as we were going out and caught 18,200 fish, which we sent in the U. S. Grant to the Algonquin; then we went down the sound, had a good breeze SW., and arrived at Plum Gut just after dark. *Tuesday, 30th*: We caught in Gardiner's Bay 50,000 fish, which we sent in the U. S. Grant to the Miamogue Works, as the Algonquin has not arrived yet; pleasant. *Wednesday, 31st*: We went out in Gardiner's Bay, where there appeared to be plenty of fish; caught 58,000, which we put in the U. S. Grant, and just as we finished scooping them in we saw the Algonquin, with a tug ahead, coming through Plum Gut; they anchored her behind Cedar Island, and about as soon as she was anchored the U. S. Grant was alongside of her, and we had 37,000 fish scooped in the New York and going towards her; weather continues fine.

August 1st, Thursday: Caught in Gardiner's Bay 54,500 fish, which we sent in the U. S. Grant, and 24,200 in the New York, to the Algonquin; weather continues pleasant. *Friday, 2d*: We went out in Gardiner's Bay; caught 56,300 fish, which we sent in the U. S. Grant, and 42,500 in the New York, to the Algonquin; weather fine. *Saturday, 3d*: They do not want any more fish this week, therefore did not go out, but went home; pleasant. *Monday, 5th*: Went out in Gardiner's Bay; caught 44,300 fish, which we sent in the New York, and 51,500 in the U. S. Grant, to the Algonquin; weather continues fine. *Tuesday, 6th*: Went out in Gardiner's Bay; caught 44,000 fish, which we sent in the New York, and 32,800 in the U. S. Grant, to the Algonquin; pleasant day. *Wednesday, 7th*: Caught in Gardiner's Bay 44,300 fish, which we sent in the New York to the Algonquin; weather fine. *Thursday, 8th*: We caught in Gardiner's Bay 52,000 fish, which we sent in the U. S. Grant to the Algonquin; pleasant. *Friday, 9th*: Went out in Gardiner's Bay; made two sets; caught 64,000 fish, which we put on the U. S. Grant, and 19,500, which we took on the Starlight, to the Algonquin. The fish are so plenty that they do not want more than 50,000 a day from a gang; but if we make a large haul we take them in, as we do not want to throw them

away after we catch them. The fish have been so plenty in Gardiner's Bay, for a few days, that we could have loaded two or three sloops every day; pleasant weather; wind SW. *Saturday, 10th*: We tarred a new seine; pleasant. *Monday, 12th*: They have concluded to let us send them as many fish as we can, the first of the week, if we will "light up" the last of the week, so they can get cleared up. Went out in Gardiner's Bay; caught 56,500 fish, which we sent in the U. S. Grant, and 35,500 to the New York, to the Algonquin; pleasant. *Tuesday, 13th*: Caught in Gardiner's Bay 44,000 fish, which we sent in the New York, and 52,000 in the U. S. Grant, to the Algonquin; weather continues pleasant. *Wednesday, 14th*: Caught in Gardiner's Bay 40,500 fish, which we sent in the New York, and 43,500 in the U. S. Grant, to the Algonquin; and we sold \$40.50 worth of fish to a smack; pleasant day. *Thursday, 15th*: Went out in Gardiner's Bay; caught 39,000 fish, which we sent in the New York, and 38,000 in the U. S. Grant, to the Algonquin; weather pleasant. *Friday, 16th*: They want no more fish at the factory this week, therefore we hung our new seine; pleasant. *Saturday, 17th*: Showery. *Monday, 19th*: We caught in Gardiner's Bay 42,500 fish, which we sent in the New York to the Algonquin; fine. *Tuesday, 20th*: Caught in Gardiner's Bay 56,000 fish, which we sent in the U. S. Grant, and 40,700 in the New York, to the Algonquin; weather continues pleasant and the fish plenty. They have been obliged to stop us from bringing fish to the Algonquin, as they are blocked up with scrap. The fish have been plenty ever since we came from the sound. We go out in Gardiner's Bay two or three miles and find all the fish we want, and come back to Greenport, where we arrive by middle of p. m., if we have a breeze of wind. As we cannot sell our fish or dispose of them any way to the fish works, we thought we would catch a few and send them up bay and try to sell some to the farmers. *Wednesday, 21st*: Went out in Gardiner's Bay; caught 50,000 fish, which we sent in the U. S. Grant, and 21,100 in the New York, to Jamesport; and we went up with the Starlight to see about selling them. *Thursday, 22d*: We attended to selling the fish, and as there is camp meeting at Jamesport we concluded to stay and attend that the remainder of the week. *Monday, 26th*: We caught in Gardiner's Bay 50,000 fish, which we sent in the U. S. Grant, and 24,300 in the New York, to Jamesport; pleasant day. *Tuesday, 27th*: Sold the fish at Franklinville, laying the sloops on shore. They have city boarders in Jamesport and do not like to have fish landed on the wharf. After getting the fish out we went to Greenport. *Wednesday, 28th*: Caught in Gardiner's Bay 40,700 fish, which we sent up to Jamesport in the New York; pleasant. *Thursday, 29th*: I left the sloop in Greenport and came to Jamesport on the cars to try and sell the fish. We laid the New York on the shore just west of Jamesport, and I sold the fish by taking a horse and wagon and driving three or four miles among the farmers; pleasant day; evening I took the cars to Greenport. *Friday, 30th*: The ship is not ready to take fish yet, and all the fish works have all they can do to take care of their own gang's fish. So I cannot sell to them, and they do not want me to land fish on the wharf at Jamesport, as the boarders do not like it, so we have concluded to quit for the week.

September 2d, Monday: The Algonquin is not prepared for fish yet, so we lay in Greenport. I tried to be patient, but I think I did fret a little. *Tuesday, 3d*: We had word the Algonquin was ready for fish; went out in Gardiner's Bay; caught 55,500 fish, which we sent in the U. S. Grant to the Algonquin; pleasant. *Wednesday, 4th*: Caught in Gardiner's Bay 42,000 fish, which we sent in the New York, and 15,500 in the U. S. Grant, to the Algonquin; weather continues pleasant. *Thursday, 5th*: We caught in Gardiner's Bay 46,200 fish, which we sent in the New York, and 16,000 in the U. S. Grant, to the Algonquin; also sold \$20 worth to a smack; pleasant day. *Friday, 6th*: Caught in Gardiner's Bay 35,800 fish, which we sent in the New York, and 21,000 in the U. S. Grant, to the Algonquin; weather fine. *Saturday, 7th*: We hauled out the sloops on the railways and scrubbed them; pleasant day. *Monday, 9th*: Went out in Gardiner's Bay; the wind came on to blow strong, so we went into Napeague. *Tuesday, 10th*: Went out below Gardiner's Island; caught 34,000 fish, which we sent in the New York, and 46,000 in the U. S. Grant, to the Algonquin; pleasant. *Wednesday, 11th*: Caught below Gardiner's Island 43,000 fish, which we sent in the New York and 47,500 in the U. S. Grant, to the Algonquin; weather continued pleasant. *Thursday, 12th*: Caught in Gardiner's Bay 35,000 fish, which we sent in the New York, and 24,300 in the U. S. Grant, to the Algonquin; weather continues fine. *Friday, 13th*: We caught in Gardiner's Bay 6,000 fish, which we sold to a smack for \$15; pleasant. *Saturday, 14th*: As they do not want fish on Saturday, we went home; weather pleasant. *Monday, 16th*: A stormy day; did not fish. *Tuesday, 17th*: Went out in Gardiner's Bay; caught 50,500 fish, which we sent in the U. S. Grant to the Algonquin; fine. *Wednesday, 18th*: Wind east; caught none. *Thursday, 19th*: East storm; lay in Greenport. *Friday, 20th*: Windy; did not go out. *Saturday, 21st*: Did not fish; went home. *Monday, 23d*: Went out in Gardiner's Bay; caught 36,200 fish, which we sent in the New York, and 39,000 in the U. S. Grant, to the Algonquin; pleasant day. *Tuesday, 24th*: Caught in Gardiner's Bay 35,800 fish, which we sent in the New York to the Algonquin; pleasant. *Wednesday, 25th*: We caught in Gardiner's Bay 59,000 fish, which we sent in the U. S. Grant, and 10,500 in the New York, to the Algonquin; weather continues pleasant. *Thursday, 26th*: Stormy day; Hauled out the sloops on the railways. *Friday, 27th*: Stormed hard. *Saturday, 28th*: Tarrred and hung the seine. *Monday, 30th*: Went out in Gardiner's Bay; caught 29,150 fish; sent them in the U. S. Grant to the Algonquin; pleasant.

October 1st, Tuesday: Caught in Gardiner's Bay 17,500 fish, which we sent in the New York to the Algonquin; weather fine. *Wednesday, 2d*: We quit for the week and attended the Suffolk County Fair. *Monday, 7th*: Went out in Gardiner's Bay; caught 32,000 fish, which we sent in the U. S. Grant to the Algonquin; fine. *Tuesday, 8th*: Caught in Gardiner's Bay 6,500 fish, which we sent in the New York to the Algonquin; weather pleasant. *Wednesday, 9th*: We caught in Gardiner's Bay 20,700 fish; sent in the U. S. Grant to the Algonquin; pleasant. *Thursday, 10th*: Caught in Gardiner's Bay 7,600 fish, which we sent in the New York to the Algonquin; weather fine. *Friday, 11th*: Wind blew hard; caught none. *Saturday, 12th*: Did not fish; I came home. *Monday, 14th*: Went out in Gardiner's Bay; caught 12,000 fish, which we sent in the U. S. Grant to the Algonquin; fine. *Tuesday, 15th*: Caught in Gardiner's Bay 23,700 fish, which we sent in the New York to the Algonquin; weather pleasant. *Wednesday, 16th*: Wind blew

hard; we lay in Napeague. *Thursday, 17th*: Went out below Gardiner's Island; caught 41,300 fish, which we sent in the U. S. Grant to the Algonquin; weather continues very pleasant. *Friday, 18th*: We caught below Gardiner's Island 12,300 fish, which we sent in the New York to the Algonquin; fine. *Saturday, 19th*: Caught none; went to Greenport, then went home; fine. *Monday, 21st*: Went out in Gardiner's Bay; caught 28,100 fish, which we sent in the U. S. Grant to the Algonquin; pleasant. *Tuesday, 22d*: Went out in Gardiner's Bay, but caught none; fine. *Wednesday, 23d*: Caught in Gardiner's Bay 10,000 fish; sent in the New York to the Algonquin; weather pleasant. *Thursday, 24th*: An east storm; we lay in Greenport; the new three-masted schooner Mary Freeland was launched today, and she slid down into the water splendidly. *Friday, 25th*: East wind continues; did not fish. *Saturday, 26th*: East wind continues; we came up to Jamesport with the sloop. *Monday, 28th*: Wind blew hard from the east; did not go out. *Tuesday, 29th*: Wind still continues east; we went out in p. m. and anchored under the lee of Gardiner's Island. *Wednesday, 30th*: Wind continued east; we looked along under the lee of Gardiner's Island for fish, but could find none; then we went on shore at the end of Gardiner's Point to see a schooner that had run ashore on the east side of the point, and a steam cutter was trying to pull her off, after which we went to Greenport and got our things and came up to Jamesport with them all, and stowed them away as soon as we could, and the fishing season of 1872 has come to a close with us.

1873.

I have made arrangements to fish for the Hawkins Brothers, who own the Miamogue Works. Have made no change in rig, except have purchased a carry-away, in place of the New York, which is a larger and better boat, called the North Star. We have the sloops painted, and everything is in readiness to start.

May 6th, Tuesday: We put the seine in the boats and started down bay; went to Greenport, put some ballast in the North Star, and got things in readiness to fish. *Wednesday, 7th*: We went down through Gardiner's Bay, and below Gardiner's Island, but saw no fish, when we came back to Greenport and purchased a new stove for the Starlight; for we must have something to eat, and it is necessary to have a good stove to cook with; pleasant day. *Thursday, 8th*: The wind was east, and we came up to Jamesport with the sloops. *Friday, 9th*: An east storm; did not fish. *Saturday, 10th*: Wind continued east; did not go out. *Monday, 12th*: We went down through Peconic Bay, and Gardiner's Bay, and below Gardiner's Island, but saw no fish; came to anchor east of Gardiner's Island, in what is called Tobacco Lot, which is a little bend on the east side of the island; pleasant day. *Tuesday, 13th*: We saw no fish, so we started for Montauk; the wind came on to blow very hard from the southwest, so we were obliged to turn back; went into Napeague Harbor. *Wednesday, 14th*: We went out, but could find no fish; went into Napeague again; wind blew fresh SW. *Thursday, 15th*: Made a set, and tore our seine on the rocks; then went to Greenport and mended the seine; pleasant. *Friday, 16th*: Went down in Gardiner's Bay, but caught no fish; then came up through Peconic Bay to Jamesport; fine. *Saturday, 17th*: As there seems to be no fish, we do not go out. *Monday, 19th*: We went down through Peconic Bay, and in Gardiner's Bay, but found no fish; weather pleasant. *Tuesday, 20th*: Went out in Gardiner's Bay; caught none; pleasant. *Wednesday, 21st*: Went down below Gardiner's Island; caught none; fine. *Thursday, 22d*: Went out below Gardiner's Island; caught 9,000 fish, which we sent in the North Star to the Miamogue Works; fine. *Friday, 23d*: Caught below Gardiner's Island 16,500 fish, which we sent in the U. S. Grant to the Miamogue Works; then came to Jamesport with the sloops; weather fine. *Saturday, 24th*: I went up in the pine woods and bought a large tree to make a new bowsprit for the U. S. Grant. *Monday, 26th*: We went down through Peconic and Gardiner's Bays, but saw no fish; then went below Gardiner's Island and started for Montauk. When down near Shagwurm Reef, saw fish, and caught 52,000, which we sent in the North Star to the Miamogue Works; pleasant. *Tuesday, 27th*: We caught off Shagwurm and Fort Pond 58,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues pleasant. *Wednesday, 28th*: Caught off Fort Pond 21,500 fish, which we sent in the North Star to the Miamogue Works; weather fine. *Thursday, 29th*: We found no fish; went down nearly to Watch Hill; weather pleasant. *Friday, 30th*: We found no fish; looked up through Gardiner's and Peconic Bays and came to Jamesport with the sloops; weather pleasant. *Saturday, 31st*: We did not fish.

June 2d, Monday: We went down through Peconic, and in Gardiner's Bay, but caught no fish; weather pleasant. *Tuesday, 3d*: Went below Gardiner's Island, but found no fish; fine. *Wednesday, 4th*: We found no fish; weather continues pleasant. *Thursday, 5th*: We caught, off Gardiner's Point, 3,000 fish, which we sent in the U. S. Grant, to the Miamogue Works; then came to Greenport, and ripped out and tarred the seine; weather very pleasant. *Friday, 6th*: We hung the seine, and carted it down and put it in the water; then put it on the reel; had a shower at night. *Saturday, 7th*: We looked up through Peconic Bay, and came to Jamesport with the sloops; we worked on the sloops and seine boats; pleasant day. *Monday, 9th*: We went down through Peconic and Gardiner's Bays, and below Gardiner's Island, but found no fish; then came to Greenport; weather continues fine. *Tuesday, 10th*: We started out through Gardiner's Bay, and as we could see no fish we went in the sound, and went west as far as Charles Island, but found no fish; fine. *Wednesday, 11th*: We came down the sound and went east of Gardiner's Island, and came to anchor in Tobacco Lot; pleasant. *Thursday, 12th*: We found no fish; came to Greenport; pleasant. *Friday, 13th*: We came up in Peconic Bay; caught 20,500 fish, which we sent in the North Star to the Miamogue Works; fine. *Saturday, 14th*: We did not fish; pleasant day. *Monday, 16th*: Went down through Peconic and Gardiner's Bays and down to Fisher's Island before we found any fish; we made a set just south of Fisher's Island; caught 24,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant day; as many years as I have fished, I never saw the fish so scarce as they have been this spring. *Tuesday, 17th*: We came to Greenport and got ready to go to Barron Island to fish for Hawkins Brothers' Works that are located there. *Wednesday, 18th*: We started up the sound; at night came to anchor just west of Crane Neck; pleasant day. *Thursday, 19th*: We anchored at night at Asteria;

weather pleasant. *Friday, 20th*: Arrived at Prince's Bay; weather continues fine. *Saturday, 21st*: Caught in Prince's Bay 10,700 fish, which we sent in the North Star to Hawkins' Works, Barron Island; pleasant. *Monday, 23d*: Wind east; we caught none; we lay in by Coney Island. *Tuesday, 24th*: East wind, and rained; did not fish. *Wednesday, 25th*: We caught, in Prince's Bay, 17,300 fish, which we sent in the U. S. Grant, and 22,500 in the North Star to Hawkins' Works; pleasant day. *Thursday, 26th*: Caught in Prince's Bay 10,350 fish, which we sent in the U. S. Grant to the Hawkins Works; pleasant. *Friday, 27th*: We went outside of Sandy Hook, down the New Jersey beach a few miles; found some fish and made a set; caught one arm of the seine on rocks and tore it very badly; saved in the other arm 24,300 fish, which we sent in the U. S. Grant to the Hawkins Works; we came in behind Sandy Hook and took the seine on the shore just south of the wharf, and mended it; weather pleasant, but wind blew fresh S.W. *Saturday, 28th*: Finished mending seine; then went in the Wreckers' Basin, Staten Island; pleasant day. *Monday, 30th*: Caught, in Prince's Bay, 12,600 fish, which we sent in the North Star to Hawkins' Works; weather pleasant.

July 1st, Tuesday: We caught in Prince's Bay 43,650 fish, which we sent in the U. S. Grant to the Hawkins Works; pleasant. *Wednesday, 2d*: Went out in Prince's Bay; caught 15,600 fish, which we sent in the North Star to Hawkins' Works; fine day. *Thursday, 3d*: We came home with the sloops; the wind was fair and we made the run in one day; we came through Plum Gut about 8 o'clock p. m.; good breeze in p. m. southwest. *Friday, 4th*: We sailed all night and arrived at Jamesport in the morning; spent the fourth at home; pleasant. *Saturday, 5th*: I sold the New York and launched her; fine. *Monday, 7th*: We went down through Peconic Bay and in Gardiner's Bay, when I went to the masthead and could see bunches of fish deep down that could not be seen from the deck; the U. S. Grant was nearly a mile from us, and about this time we saw her jib go down, and the man that run her dropped off in his little boat; we knew at once that he had discovered a good bunch of fish and went towards him; when we reached him the bunch had separated, but we selected the best we could and caught 29,000 fish, which we sent in the U. S. Grant; and then we made another set as soon as we could and caught 31,500, which we sent in the North Star to the Miamogue Works; it was dark before we had the last set scooped out; these fish were the best I ever saw at this season of the year; they were as good as any Eastern fish that we catch in the fall; pleasant day. *Tuesday, 8th*: Went out in Gardiner's Bay; could see fish from masthead, but could not see them in the boats well enough to catch them; weather continues fine. *Wednesday, 9th*: Went out in Gardiner's Bay; caught 6,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and \$10.50 worth of fish we sold to a smack; weather pleasant. *Thursday, 10th*: Caught in Gardiner's Bay 34,000 fish, which we sent in the North Star to the Miamogue Works; fine. *Friday, 11th*: We caught in Gardiner's Bay 15,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Saturday, 12th*: Went out in Gardiner's Bay; caught none; pleasant. *Monday, 14th*: We went out in Gardiner's Bay; caught none; pleasant. *Tuesday, 15th*: Caught in Gardiner's Bay 12,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 16th*: We caught in Gardiner's Bay 51,500 fish, which we sent in the North Star to the Miamogue Works; pleasant. *Thursday, 17th*: Caught in Gardiner's Bay 51,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Friday, 18th*: Went out in Gardiner's Bay; caught 24,500 fish, which we sent in the North Star to the Miamogue Works; fine. *Saturday, 19th*: Did not fish; I went home; pleasant day. *Monday, 21st*: Went out in Gardiner's Bay; caught 53,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues pleasant. *Tuesday, 22d*: Caught in Gardiner's Bay 54,000 fish, which we sent in the North Star to the Miamogue Works; pleasant. *Wednesday, 23d*: We caught in Gardiner's Bay 54,500 fish, which we sent in the U. S. Grant, and 16,500 in the North Star to the Miamogue Works; weather continues fine. *Thursday, 24th*: Caught in Gardiner's Bay 41,000 fish, which we sent in the U. S. Grant to the Miamogue Works; also, sold \$10 worth of fish to a smack; pleasant. *Friday, 25th*: We caught in Gardiner's Bay 46,500 fish, which we sent in the North Star and 20,500 in the U. S. Grant to the Miamogue Works; weather pleasant. *Saturday, 26th*: We did not fish; hauled out the sloops on the railways and cleaned them; weather pleasant. *Monday, 28th*: Went out in Gardiner's Bay; caught 42,000 fish, which we sent in the North Star to the Miamogue Works; weather fine. *Tuesday, 29th*: We caught in Gardiner's Bay 25,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Wednesday, 30th*: Caught in Gardiner's Bay 45,000 fish, which we sent in the North Star to the Miamogue Works, and we sold 22,000 fish to some smacks for \$4 per M., amounting to \$88; the fish continue fat, and the factories are paying \$2.50 per M.; pleasant. *Thursday, 31st*: We caught in Gardiner's Bay 21,000 fish, which we sent in the U. S. Grant, and 21,000 in the North Star, and the U. S. Grant coming out again we sent in her 26,500 fish; all to the Miamogue Works; weather fine.

August 1st, Friday: Caught in Gardiner's Bay 15,500 fish, which we sent in the North Star to the Miamogue Works; pleasant. *Saturday, 2d*: Went out in Gardiner's Bay; caught 14,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues pleasant. *Monday, 4th*: Went out in Gardiner's Bay; caught 9,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather fine. *Tuesday, 5th*: Looked through Gardiner's Bay, but caught no fish; weather continues pleasant. *Wednesday, 6th*: Caught in Gardiner's Bay 13,000 fish, which we sent in the North Star to the Miamogue Works; pleasant. *Thursday, 7th*: Did not fish, but ripped out the seine and tarred it; weather continues pleasant. *Friday, 8th*: A. m. we finished hanging the seine; p. m. we came up in Peconic Bay; weather pleasant. *Saturday, 9th*: We caught in Peconic Bay 9,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Monday, 11th*: We caught in Peconic Bay 17,000 fish, which we sent in the North Star, and 7,500 in the U. S. Grant to the Miamogue Works; pleasant day. *Tuesday, 12th*: Windy; caught no fish. *Wednesday, 13th*: Hard east storm; we lay in Greenport. *Thursday, 14th*: East storm continues; in Greenport. *Friday, 15th*: We went down as far as Gardiner's Island, then up in Peconic Bay, but caught no fish; pleasant. *Saturday, 16th*: We caught in Peconic Bay 6,500 fish, which we sent in the U. S. Grant to the Miamogue Works. *Monday, 18th*: Went down through Peconic Bay; caught none; stopped at Greenport; wind east. *Tuesday, 19th*: Went out in

Gardiner's Bay; caught none; very calm. Wednesday, 20th: Went out in Gardiner's Bay, and as we could see no fish we went into the sound and went to Saybrook; pleasant day. *Thursday, 21st:* An east storm; we lay in Saybrook. *Friday, 22d:* Went out in the sound, and went west a few miles; saw no fish, then went in the bay, and around Gardiner's Island, but caught no fish; pleasant. *Saturday, 23d:* Did not fish, but went home; weather pleasant. *Monday, 25th:* Went down through the bay, but saw no fish; then went in the sound and went to Saybrook; fine. *Tuesday, 26th:* Went out and went west, and just east of Faulkland Island we caught 53,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather fine. *Wednesday, 27th:* We caught just west of Faulkland Island 28,500 fish, which we put in the North Star and sent into Fowler's Works, at Guilford; we made a harbor in Schem's Head; weather fine. *Thursday, 28th:* We caught near Faulkland Island 12,000 fish, which we sent to Fowler's Works in the North Star; weather fine. *Friday, 29th:* We made a set near Faulkland Island; caught only 2,500 fish, which we put in the U. S. Grant, and steered for Gardiner's Bay; caught no more; sent the U. S. Grant to the Miamogue Works, and we went into Greenport; weather pleasant. *Saturday, 30th:* We hauled the sloops out on the railways; pleasant.

September 1st, Monday: Went down in the bay, but the wind coming on to blow hard we went into Napeague. *Tuesday, 2d:* Caught below Gardiner's Island 10,500 fish, which we sent in the North Star to the Miamogue Works; fine. *Wednesday, 3d:* We went out below Gardiner's Island, but caught none; weather pleasant. *Thursday, 4th:* Caught below Gardiner's Island 47,500 fish, which we sent in the U. S. Grant to the Miamogue Works. *Friday, 5th:* We caught below Gardiner's Island 41,500 fish, which we sent in the North Star to the Miamogue Works; weather still continues pleasant. *Saturday, 6th:* Caught in Gardiner's Bay 20,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Monday, 8th:* Caught in Gardiner's Bay 14,000 fish, which we sent in the North Star to the Miamogue Works; and as the fish were scarce in the bay we went into the sound, and came to anchor near the mouth of Connecticut River; pleasant day. *Tuesday, 9th:* Went west; found some fish near Faulkland Island, and caught 34,000, which we sent in the U. S. Grant to Fowler's Works, at Guilford; weather fine. *Wednesday, 10th:* Caught near Faulkland Island 17,500 fish, which we sent in the North Star to Fowler's Works; pleasant. *Thursday, 11th:* We caught near Faulkland Island 50,500 fish, which we put in the U. S. Grant; and as Fowler's Works are "blocked" we all came in Gardiner's Bay, and sent the U. S. Grant to the Miamogue Works; weather fine. *Friday, 12th:* Caught in Gardiner's Bay 21,500 fish, which we sent in the North Star to the Miamogue Works; pleasant. *Saturday, 13th:* We caught in Gardiner's Bay 19,500 fish, which we sent in the North Star to the Miamogue Works, and sold 4,000 for \$16 to a smack; the fish are good yet, but not quite as fat as they were in July and August; weather continues pleasant. *Monday, 15th:* Went out in Gardiner's Bay; caught 32,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant day. *Tuesday, 16th:* Caught in Gardiner's Bay 19,000 fish, which we sent in the North Star to the Miamogue Works, and sold 1,000 fish for \$4 to a smack; weather pleasant. *Wednesday, 17th:* Went out in Gardiner's Bay; caught 31,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Thursday, 18th:* We went out, but caught no fish; then went to Greenport; weather continues fine. *Friday, 19th:* We hauled the sloops out on the railways; it rained a part of the day. *Saturday, 20th:* We tarred a new seine, and had the sloops painted; pleasant day. *Monday, 22d:* We went out in Gardiner's Bay; caught 15,000 fish, which we sent in the U. S. Grant, and 15,000 in the North Star to the Miamogue Works; weather fine. *Tuesday, 23d:* Caught in Gardiner's Bay 2,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Wednesday, 24th:* Went out in Gardiner's Bay; caught 10,500 fish, which we sent in the North Star to the Miamogue Works; fine. *Thursday, 25th:* Caught in Gardiner's Bay 20,000 fish, which we sent in the U. S. Grant to the Miamogue Works; we also sold 1,000 fish for \$4 to a smack; weather fine. *Friday, 26th:* We hung the new seine. *Saturday, 27th:* Finished the seine and went home. *Monday, 29th:* Went out in Gardiner's Bay, but caught none; fine. *Tuesday, 30th:* Wind blew hard; we caught none.

October 1st, Wednesday: Went out in Gardiner's Bay; caught 12,000 fish, which we sent in the North Star to the Miamogue Works; fine. *Thursday, 2d:* As the fishing was poor, we concluded to go to Jamesport with the sloops and attend the Suffolk County fair, which was held at Riverhead. *Monday, 6th:* Went down through Peconic and into Gardiner's Bay; caught 6,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant day. *Tuesday, 7th:* Hard east storm; did not fish. *Wednesday, 8th:* Windy; did not fish. *Thursday, 9th:* Windy; did not go out. *Friday, 10th:* Went out in Gardiner's Bay; caught none; came to anchor in Cherry Harbor, which is on the west side of Gardiner's Island; wind continues east. *Saturday, 11th:* We went below Gardiner's Island and off Fort Pond; caught 33,000 fish, which we sent in the North Star to the Miamogue Works; very calm in p. m.; we did not get to Greenport until 10 o'clock p. m. *Monday, 13th:* We went down in Gardiner's Bay; found a shoal of fish close under Gardiner's Point; we set around them and caught 56,500, which we put in the U. S. Grant; and as the North Star has not come out, we put the remainder on the Starflight, 25,500, and took them into the Miamogue Works; pleasant day. *Tuesday, 14th:* We looked through Gardiner's Bay, but did not have the luck to catch a single bunker; weather fine. *Wednesday, 15th:* We caught in Gardiner's Bay 58,500 fish, which we sent in the U. S. Grant, and 24,500 in the North Star to the Miamogue Works; weather pleasant. *Thursday, 16th:* We went out in Gardiner's Bay; caught only 2,000 fish, which we sent in the North Star to the Miamogue Works; weather continues fine. *Friday, 17th:* We caught in Gardiner's Bay 24,000 fish, which we sent in the U. S. Grant, and 13,500 in the North Star, to the Miamogue Works; pleasant. *Saturday, 18th:* Caught in Gardiner's Bay 8,500 fish, which we sent in the North Star to the Miamogue Works; pleasant day. *Monday, 20th:* A hard east storm; did not fish. *Tuesday, 21st:* Windy; did not fish. *Wednesday, 22d:* Went down to Fort Pond; caught none. *Thursday, 23d:* We looked for fish below Gardiner's Island, but found none that we could catch; pleasant. *Friday, 24th:* We went out in Gardiner's Bay; caught 8,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather pleasant. *Saturday, 25th:* Caught in Gardiner's Bay 12,000 fish, which we sent in the North Star to the Miamogue Works; weather fine. *Monday, 27th:* The wind blew hard southwest, and it stormed; we lay in Greenport. *Tuesday, 28th:* Went out in Gardiner's Bay; caught 46,000 fish, which we sent in the U. S. Grant, and 30,000 in the North Star, to the Miamogue Works; pleasant day. *Wednesday, 29th:* Wind blew hard

from the northwest; could not fish. *Thursday, 30th*: Caught in Gardiner's Bay 42,000 fish, which we sent in the North Star to the Miamogue Works, and sold 1,500 to a smack for \$6; weather continues pleasant. *Friday, 31st*: Wind blow hard; we did not go out.

November 1st, Saturday: Did not fish; went home. *Monday, 3d*: Went out, but wind blowing hard we came back to Greenport. *Tuesday, 4th*: Caught in Gardiner's Bay 3,500 fish, which we sent in the U. S. Grant to the Miamogue Works; wind blew quite strong NW. *Wednesday, 5th*: We made a set to the west of Gardiner's Point; and sailing along close to the point we saw a good bunch close to the point on the east side, when we sailed around the end of the point and found the fish where we saw them, and caught a good haul; we sent in the North Star 52,500 fish, and in the U. S. Grant 55,500, and took 20,000 on the Starlight, to the Miamogue Works; pleasant, but the wind blew quite strong NW. *Thursday, 6th*: Caught in Gardiner's Bay 28,500 fish, which we took in the Starlight, as the carry-aways did not get to us; pleasant. *Friday, 7th*: Wind blew hard from the east; we did not fish. *Saturday, 8th*: Wind blew hard; did not fish. *Monday, 10th*: The wind blow hard from the northwest; we did not fish. *Tuesday, 11th*: Wind continued to blow; did not fish. *Wednesday, 12th*: We went out in Gardiner's Bay, but caught no fish; went to the factory, and concluded to quit. *Thursday, 13th*: We came up to Jamesport with the sloops, seine, and all the things; wind blew very hard from the northwest, with snow-squalls; the leach rope to the Starlight's mainsail parted, and we had to mend the sail before we could proceed; arrived at Jamesport just at dark. *Friday, 14th*: We carted out the seine, stowed away the boats, and put the sloops in the creek as soon as the weather permitted; this has been a remarkable season; the fishing was very poor, but in July a run of fish came in the bay larger and fatter than I ever knew before or since; we have not caught a very large quantity of fish, but the quality being good, it has proved a profitable season.

1874.

I am having the North Star fixed over this spring.

May 12th, Tuesday: I went to work on the North Star in the morning, but word came to us that they were catching fish in Gardiner's Bay; then I sent word to all hands to come on, so as to start to-morrow morning, and got the things on board the Starlight; launched the seine-boats, &c. *Wednesday, 13th*: We put the seine on the boats and went to Greenport; pleasant day. *Thursday, 14th*: We went down in Gardiner's Bay; caught 54,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant day. *Friday, 15th*: Caught in Gardiner's Bay 26,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Saturday, 16th*: An east storm; we came up to Jamesport with the sloops. *Monday, 18th*: We went down bay; caught no fish; pleasant. *Tuesday, 19th*: Went out in Gardiner's Bay; caught 30,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues pleasant. *Wednesday, 20th*: We caught in Gardiner's Bay 40,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Thursday, 21st*: Caught in Gardiner's Bay 27,500 fish, which we sent in the U. S. Grant to the Miamogue Works; it rained and blew in squalls nearly all day; rough weather. *Friday, 22d*: A windy day; we staid in Greenport and worked on the Petrel, a little sloop I have engaged to take the place of the North Star until they have her completed. *Saturday, 23d*: In the morning we went down to Gardiner's Point, but found no fish; then we came to Jamesport with the sloops; pleasant day. *Monday, 25th*: Stormy day; did not go out fishing. *Tuesday, 26th*: We went down through Peconic Bay, and just below Robin's Island we caught 20,000 fish, which we sent in the Petrel to the Miamogue Works; fine. *Wednesday, 27th*: We went down in Gardiner's Bay; caught 30,500 fish, which we sent to the Miamogue Works in the U. S. Grant; weather fine. *Thursday, 28th*: We went through Gardiner's Bay and below Gardiner's Island, and off Fort Pond we found a good bunch of fish, and caught at one set 54,000, which we took in the U. S. Grant, and 48,000 in the Petrel, and took 30,000 in the Starlight to the Miamogue Works; weather continues fine. *Friday, 29th*: We caught in Gardiner's Bay 34,000 fish, which we sent in the Petrel, and 46,500 in the U. S. Grant, to the Miamogue Works; pleasant day. *Saturday, 30th*: We started for Jamesport with the sloops; caught in Peconic Bay 34,000 fish, which we sent in the Petrel to Jamesport; weather good.

June 1st, Monday: Went out in Peconic Bay; caught 51,000 fish, which we sent in the U. S. Grant, and 26,000 in Petrel, to the Miamogue Works; pleasant. *Tuesday, 2d*: Caught in Peconic Bay 49,000 fish, which we sent in the U. S. Grant, and 33,500 in the Petrel, to the Miamogue Works; weather continues fine. *Wednesday 3d*: We caught in Peconic Bay 30,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Thursday, 4th*: Stormy day; did not fish, but lay in Jamesport. *Friday, 5th*: Went out in Peconic Bay; caught 35,000 fish, which we sent in the Petrel to the Miamogue Works; weather continues pleasant. *Saturday, 6th*: Caught in Peconic Bay 20,100 fish, which we sent to Jamesport in the U. S. Grant; weather fine. *Monday, 8th*: We caught in Peconic Bay 40,000 fish, which we sent in the Petrel, and 22,500 in the U. S. Grant, to the Miamogue Works; went to Greenport; pleasant. *Tuesday, 9th*: Went down in Gardiner's Bay; caught 37,000 fish, which we sent in the Petrel, and 45,000 in the U. S. Grant, to the Miamogue Works; weather pleasant. *Wednesday, 10th*: Caught in Gardiner's Bay 33,500 fish, which we sent in the Petrel to the Miamogue Works; pleasant. *Thursday, 11th*: We lay in Greenport; fixed the hunt to the seine; wind east, and stormy. *Friday, 12th*: We started down to go into Gardiner's Bay, but it was so foggy and calm we could not get down in time to do anything. *Saturday, 13th*: The wind blew hard, northwest; we came to Jamesport with the sloops and hauled the seine on the beach. *Monday, 15th*: Went down through Peconic Bay into Gardiner's Bay, where we caught 9,500 fish, which we sent in the U. S. Grant to Miamogue Works; pleasant. *Tuesday, 16th*: Caught in Gardiner's Bay 11,500 fish, which we sent in the Petrel to the Miamogue Works; pleasant. *Wednesday, 17th*: Went out in Gardiner's Bay; caught none; came into Greenport; wind blew strong. *Thursday, 18th*: We hauled the Starlight out on the railways and took her mainsail in the loft to be fixed; wind blow hard. *Friday, 19th*: Had the Starlight painted and fixed the center-board. *Saturday, 20th*: I came home to Jamesport. *Monday,*

22d: We launched the Starlight, and caught in Gardiner's Bay 20,500 fish, which we sent in the Petrel to the Miamogue Works; pleasant day. *Tuesday, 23d*: We came up in Peconic Bay; caught 25,500 fish, which we sent in the Petrel to the Miamogue Works; just at night had a heavy thunder shower. *Wednesday, 24th*: Wind blew hard north-west, so we came to Greenport, ripped out and tarred the seine. *Thursday, 25th*: We hung the seine and carted it down just at night and put it in the boat. *Friday, 26th*: We came up bay; caught 11,000 fish, which we sent to Jamesport in the U. S. Grant; and then we came into Jamesport and helped put the mast in what was the North Star, but is now named the Flora; pleasant day. *Saturday, 27th*: We did not fish, but staid in and helped launch the Flora; weather continues fine. *Monday, 29th*: Went out in Peconic Bay; caught 52,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather fine. *Tuesday, 30th*: We caught in Peconic Bay 34,500 fish, which we sent in the Flora, and 9,500 in the U. S. Grant, to the Miamogue Works; weather continues fine.

July 1st, Wednesday: Caught in Peconic Bay 56,000 fish, which we sent in the U. S. Grant, and 1,500 in the Flora, to the Miamogue Works; weather good. *Thursday, 2d*: Went down in Gardiner's Bay; caught 38,000 fish, which we sent in the Flora, and 9,000 in the U. S. Grant, to the Miamogue Works; then we came to Jamesport; have quit for the week, so that the men at the factory can keep the Fourth; weather continues good, but had a thunder shower in the evening. *Friday, 3d*: I mended seine; have it spread on the shore. *Saturday, 4th*: We took out a sailing party in the Starlight; had a thunder squall just at night. *Monday, 6th*: Wind east and blew hard; did not go out. *Tuesday, 7th*: Went out in Peconic Bay; caught 10,000 fish, which we sent in the Flora to the Miamogue Works; then we went down and came to anchor in by the Miamogue Works; pleasant day. *Wednesday, 8th*: The wind blew very hard from the west, so we could not fish; but went into Greenport and put a new piece of seine in our bunt. *Thursday, 9th*: We went through Gardiner's Bay and below Gardiner's Island nearly to Montauk; saw no fish, but saw two whales; then we came up, and at night anchored just west of Shelter Island; pleasant. *Friday, 10th*: We came up in Peconic Bay, above Robins Island, where we found some good bunches of fish; we caught 24,000, which we sent down in the U. S. Grant, and 56,500 in the Flora to the Miamogue Works; a pleasant day, but the wind blew up quite strong in the evening from the southwest; there was a sloop coming up through the bay with a sailing party from Riverhead on board; and just about the time we finished scooping in our last haul her mast went overboard, breaking short above the deck. We went to their assistance, and, taking a line to the sloop, towed them into Jamesport. *Saturday, 11th*: In the morning went out in the bay, but the wind breezed up quite strong, and we came back to Jamesport. *Monday, 13th*: Went out in Peconic Bay; caught 46,500 fish, which we sent in the U. S. Grant, and 52,000 in the Flora to the Miamogue Works, and sold \$7.50 worth to a smack; the wind blew quite strong from the southwest. *Tuesday, 14th*: We caught in Peconic Bay 35,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 15th*: Caught in Peconic Bay 54,500 fish, which we sent in the Flora to the Miamogue Works; weather fine. *Thursday, 16th*: We caught in Peconic Bay 24,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Friday, 17th*: Caught in Peconic Bay 8,500 fish, which we sent in the Flora to the Miamogue Works; we went into Greenport to get stores; weather continues fine. *Saturday, 18th*: We went out in Gardiner's Bay; caught none; then started up bay, but it was nearly calm, and we did not get to Jamesport until dark. *Monday, 20th*: Went down through Peconic Bay; caught none; went to Greenport; pleasant day. *Tuesday, 21st*: Went out in Gardiner's Bay; caught none; pleasant. *Wednesday, 22d*: In the morning we tanned the seine; in the afternoon we went out in Gardiner's Bay; caught 24,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$1 worth of fish to a smack; weather pleasant. *Thursday, 23d*: Went through Gardiner's Bay and then in the sound, and near the mouth of Connecticut River we caught 26,000 fish, which we sent in the Flora to the Miamogue Works, and sold \$2 worth of fish to a smack; pleasant day. *Friday, 24th*: We caught near Cornfield light-ship 52,500 fish, which we sent in the U. S. Grant, and 40,000 in the Flora, to the Miamogue Works; we caught nearly all at one set; we pursued the seine without using the big lead—cutting under, it is sometimes called; pleasant day. *Saturday, 25th*: We made a set in Gardiner's Bay; caught 3,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and caught at the same time 400 bluefish, which we sold in Greenport for \$21.40; weather continues pleasant. *Monday, 27th*: We went through Gardiner's Bay and below Gardiner's Island, but saw no fish; then went to Saybrook; pleasant. *Tuesday, 28th*: Caught near the mouth of Connecticut River 30,000 fish, which we sent in the Flora to the Miamogue Works; weather continues pleasant. *Wednesday, 29th*: We caught near Faulkland Island 28,000 fish, which we sent in the U. S. Grant to the Miamogue Works; we stopped in Thimble Islands. *Thursday, 30th*: We went from Thimble Islands to Saybrook; caught none; wind northwest. *Friday, 31st*: Caught off the mouth of Connecticut River 6,500 fish, which we sent in the Flora to the Miamogue Works; weather good.

August 1st, Saturday: We hauled the sloops on the railways to clean them; weather continues good. *Monday, 3d*: We went down in Gardiner's Bay; caught 45,000 fish, which we sent in the U. S. Grant, and 70,000 in the Flora, to the Miamogue Works; pleasant. *Tuesday, 4th*: Caught in Gardiner's Bay 56,000 fish, which we sent in the U. S. Grant, and 17,000 in the Flora, to the Miamogue Works; weather fine. *Wednesday, 6th*: Went out in Gardiner's Bay; caught 28,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant day. *Thursday, 6th*: Caught in Gardiner's Bay 23,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Friday, 7th*: Went out in Gardiner's Bay, but the wind coming on to blow very hard, we came into Greenport. *Saturday, 8th*: Stormy; did not fish; came home. *Monday, 10th*: Went out in Gardiner's Bay; caught 44,500 fish, which we sent in the U. S. Grant, and 37,500 in the Flora, to the Miamogue Works; pleasant. *Tuesday, 11th*: We caught in Gardiner's Bay 12,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fair. *Wednesday, 12th*: Caught in Gardiner's Bay 3,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Thursday, 13th*: We did not fish, but tanned and mended seine. *Friday, 14th*: We caught in Gardiner's Bay 44,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Saturday, 15th*: We came to Jamesport with the Starlight. *Monday, 17th*: We went out in Gardiner's Bay; caught 55,000 fish, which we sent in the U. S. Grant, and 4,000 in the Flora, to the Miamogue

Works; weather fine. *Tuesday, 18th*: We caught in Gardiner's Bay 44,000 fish, which we sent in the Flora to the Miamogue Works; fine day. *Wednesday, 19th*: Caught in Gardiner's Bay 29,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Thursday, 20th*: Went out in Gardiner's Bay; caught 15,000 fish, which we sent in the Flora to the Miamogue Works; then the wind commenced to blow hard, and we came into Greenport and dried our seine. *Friday, 21st*: We caught in Gardiner's Bay 55,500 fish, which we sent in the U. S. Grant, and 22,500 in the Flora, to the Miamogue Works; a very warm day. *Saturday, 22d*: The wind was east, and storming; we came to Jamesport with the Starlight. *Monday, 24th*: Went out in Gardiner's Bay; caught 20,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant day. *Tuesday, 25th*: We lay under the lee of Gardiner's Island, off Bostwick Creek; did not fish, as the wind blew hard from the east; we went on shore and picked a few blackberries. *Wednesday, 26th*: We caught in Gardiner's Bay 54,500 fish, which we sent in the Flora, and 32,000 in the U. S. Grant, to the Miamogue Works; pleasant day. *Thursday, 27th*: Caught in Gardiner's Bay 24,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Friday, 28th*: Went out in Gardiner's Bay; caught 27,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues pleasant. *Saturday, 29th*: Did not fish; came home; pleasant day. *Monday, 31st*: Went out in Gardiner's Bay; caught none; pleasant.

September 1st, Tuesday: Went out in Gardiner's Bay; caught 29,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather good. *Wednesday, 2d*: We caught in Gardiner's Bay 14,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Thursday, 3d*: Caught in Gardiner's Bay 11,500 fish, which we sent in the U. S. Grant to the Miamogue Works; we tore the seine on the rocks and had to mend it; weather continues pleasant. *Friday, 4th*: We hauled the sloops out on the railways and tanned the seine; weather fair. *Saturday, 5th*: We had the sloops painted; weather good. *Monday, 7th*: Went out in Gardiner's Bay; caught 38,500 fish, which we sent in the Flora to the Miamogue Works; weather continues good. *Tuesday, 8th*: We caught in Gardiner's Bay 8,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather fair. *Wednesday, 9th*: Caught in Gardiner's Bay 41,500 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Thursday, 10th*: Went out in Gardiner's Bay; saw no fish, and the wind blowing up fresh southwest we came into Greenport. *Friday, 11th*: Caught in Gardiner's Bay 21,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Saturday, 12th*: Wind east; we did not fish, but I went home. *Monday, 14th*: Went out in Gardiner's Bay; caught 8,500 fish, which we sent in the Flora to the Miamogue Works; fine. *Tuesday, 15th*: Looked in Gardiner's Bay, but caught no fish; fine. *Wednesday, 16th*: Went out, but it came on to storm in p. m.; we came into Greenport. *Thursday, 17th*: An east storm; did not fish. *Friday, 18th*: East storm continues; staid in Greenport. *Saturday, 19th*: Wind continues east; did not fish. *Monday, 21st*: We went out in Gardiner's Bay; caught 15,500 fish, which we sent in the U. S. Grant to the Miamogue Works; a few we sold to a smack; pleasant day. *Tuesday, 22d*: We caught in Gardiner's Bay 27,500 fish, which we sent in the Flora to the Miamogue Works; pleasant day. *Wednesday, 23d*: Caught in Gardiner's Bay 36,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues fine. *Thursday, 24th*: We caught in Gardiner's Bay 28,000 fish, which we sent in the Flora to the Miamogue Works, and sold \$10 worth of fish to a smack; fine. *Friday, 25th*: Went out in Gardiner's Bay; caught 16,000 fish, which we sent in the Flora to the Miamogue Works; weather continues fine. *Saturday, 26th*: Went out in the bay in a. m., but caught no fish; then we came into Greenport; pleasant. *Monday, 28th*: Went out in Gardiner's Bay; caught 23,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather pleasant. *Tuesday, 29th*: Caught in Gardiner's Bay 12,500 fish, which we put in the Flora, and as the wind was blowing hard from the east and storming, I thought it would be too rough to unload into the Miamogue Works, so we sent the Flora to the floating factory Falcon, which was anchored in Orient Harbor; we came up to Greenport. *Wednesday, 30th*: Windy; we did not go out, but tanned and worked on the seine.

October 1, Thursday: Windy weather; did not fish; we bent the new sail on the Starlight; then went up to Jamesport with her and spent the remainder of the week at home; attended the Suffolk County fair. *Monday, 5th*: Went down in Gardiner's Bay, but caught no fish; weather pleasant. *Tuesday, 6th*: Looked through Gardiner's Bay, but could find no fish; pleasant day. *Wednesday, 7th*: The wind blew strong from the east; we worked on the sloops, fixing jib sheets, &c. *Thursday, 8th*: Wind continued to blow from the east; did not fish, but lay in Greenport. *Friday, 9th*: We went out in Gardiner's Bay, but could find no fish; weather pleasant. *Saturday, 10th*: Went out in Gardiner's Bay; caught no fish; pleasant. *Monday, 12th*: Went out in Gardiner's Bay; caught none; at night we anchored off Beu's Point; weather fine. *Tuesday, 13th*: Caught off Gardiner's Point 52,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues fine. *Wednesday, 14th*: We caught, in Gardiner's Bay, 17,500 fish, which we sent in the Flora to the Miamogue Works; fine. *Thursday, 15th*: Went below Gardiner's Island; caught 44,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues pleasant. *Friday, 16th*: Caught below Gardiner's Island 42,000 fish, which we sent in the Flora, and 60,500 in the U. S. Grant, to the Miamogue Works; pleasant day. *Saturday, 17th*: We caught in Gardiner's Bay 18,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Monday, 19th*: Wind blew hard; did not fish, but lay in Greenport. *Tuesday, 20th*: Went out in Gardiner's Bay; caught 22,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant day. *Wednesday, 21st*: Caught in Gardiner's Bay 15,500 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Thursday, 22d*: We caught in Gardiner's Bay 12,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Friday, 23d*: Went out in Gardiner's Bay, but caught none; fine. *Saturday, 24th*: Foggy; we did not fish. *Monday, 26th*: Went out in Gardiner's Bay; thick and foggy; caught no fish. *Tuesday, 27th*: We caught a few fish, but did not send them to the factory; made a harbor in Napeague; pleasant. *Wednesday, 28th*: Went out below Gardiner's Island; caught 57,000 fish, with those we caught yesterday, and sent them in the Flora and 36,000 in the U. S. Grant, to the Miamogue Works; pleasant day. *Thursday, 29th*: Caught below Gardiner's Island 36,000 fish, which we sent in the Flora to the Miamogue Works; at night we stopped in Napeague; pleasant. *Friday,*

30th: We caught, below Gardiner's Island off Fort Pond 30,500 fish, which we sent in the U. S. Grant to the Miamogus Works; weather good. Saturday, 31st: We caught none; *came to Greenport.*

November 22, Monday: We went below Gardiner's Island; caught a good haul of fish, but a whip-tail shark or thrasher tore the seine and let most of them out; we saved 24,500 fish, which we sent in the Flora to the Miamogus Works; pleasant. Tuesday, 23d: We caught none; weather continues pleasant. Wednesday, 24th: We caught a very few fat fish off Fort Pond, but did not send them up; we stop in Napeague nights for a harbor; calm, pleasant day. Thursday, 25th: We caught a few, and, with yesterday's fish, sent in the U. S. Grant 23,000 to the Miamogus Works; then we went to Greenport. Friday, 26th: We went to the Miamogus Works and made arrangements to close for the season; went to Jamesport with sloops and stowed sloops and *chigger* away as soon as possible, and the fishing season of 1874 is ended.

1875.

We have succeeded in getting the sloops out of the creek, and were prepared to go out on the 11th of May.

May 11th, Tuesday: In the morning we succeeded in getting the U. S. Grant off the shore; the wind had blown hard and she had dragged her anchor; then we went down bay, made a set in Peconic Bay and caught 3,000 fish, which we sent in the Flora to the Miamogus Works; we went to Greenport; fine. Wednesday, 12th: We went down in Gardiner's Bay and below Gardiner's Island, but the wind coming on to blow hard we came back to Greenport. Thursday, 13th: We went down below Gardiner's Island; caught 8,000 fish, which we sent in the U. S. Grant to the Miamogus Works; and as we saw but few fish we came up, and at night anchored in Town Harbor, which is just above Greenport; pleasant. Friday, 14th: We came up through Peconic Bay; saw a good many fish, but they were not in good shape to catch; so we caught none; weather fine. Saturday, 15th: We caught in Peconic Bay 36,500 fish in a. m., which we sent in the Flora to the Miamogus Works; weather good. Monday, 17th: We went out in Peconic Bay; caught 46,900 fish, which we sent in the Flora to the Miamogus Works; weather continues fine. Tuesday, 18th: We caught in Little Peconic Bay 13,100 fish, which we put in the U. S. Grant, and as the wind came on to blow hard from the east, we sent her to Jamesport, and we came to anchor in the cove near New Suffolk. Wednesday, 19th: Wind continued to blow; we came up to Jamesport. Thursday, 20th: The wind blew very hard from the southwest; we went to Greenport. Friday, 21st: We went through Gardiner's Bay and below Gardiner's Island, but saw no fish; so we came up to Jamesport; very pleasant day. Saturday, 22d: Went out in Peconic Bay; caught 23,000 fish, which we sent in the U. S. Grant to the Miamogus Works, and 13,275 in the Flora to Jamesport, for farmers; weather continues fine. Monday, 24th: We made a set in Peconic Bay; caught 5,225 fish, which we sent in the U. S. Grant to Jamesport; weather good. Tuesday, 25th: Went out in Peconic Bay; caught 23,000 fish, which we sent in the Flora to the Miamogus Works; weather continues fine. Wednesday, 26th: Caught in Peconic Bay 9,250 fish, which we sent in the U. S. Grant to Jamesport, for farmers; weather continues pleasant. Thursday, 27th: Went out in Peconic Bay; caught none. Friday, 28th: Saw no fish that were in shape to catch; then came into Jamesport and worked on the ships; polished the starlight's top, &c.; pleasant day. Saturday, 29th: Worked on the sloops and boats; weather fine. Monday, 31st: We went out in Peconic Bay; caught 7,500 fish, which we sent in the Flora to the Miamogus Works; we went to Greenport; weather good.

June 1st, Tuesday: Went out in Gardiner's Bay; caught 36,000 fish, which we sent in the U. S. Grant to the Miamogus Works; pleasant day. Wednesday, 2d: We went down to Watch Hill, but saw no fish; fine. Thursday, 3d: We looked below Gardiner's Island, off Fort Pond; then came into Napeague; dropped our anchor and hauled the seine out on deck to-day; pleasant day. Friday, 4th: We came up in Gardiner's Bay, but saw no fish; then came up in Noyack Bay; made a set and caught 3,500 fish, which we sent in the Flora to the Miamogus Works; we came to anchor and stopped over night in Noyack Bay; pleasant. Saturday, 5th: We caught in Peconic Bay 7,100 fish, which we sent in the U. S. Grant to Jamesport; weather fine. Monday, 7th: Went out in Peconic Bay; caught 5,500 fish, which we sent in the Flora to the Miamogus Works; weather pleasant. Tuesday, 8th: We caught in Peconic Bay 8,000 fish, which we sent in the U. S. Grant to the Miamogus Works; fine. Wednesday, 9th: Caught in Peconic Bay 7,000 fish, which we sent in the Flora to the Miamogus Works; weather fair. Thursday, 10th: We caught in Peconic Bay 6,900 fish, which we sent in the U. S. Grant to the Miamogus Works; fine. Friday, 11th: Caught in Peconic Bay 7,000 fish, which we sent in the Flora to the Miamogus Works; pleasant. Saturday, 12th: We caught in Peconic Bay 12,150 fish, which we sent in the U. S. Grant to Jamesport; weather good; through the week there has been but few fish in Peconic Bay, and they have been so scattered we could do but little with them; but we could not learn that they were doing much in the lower bays; therefore concluded to fight it out on this line the whole week. Monday, 14th: Went out in Peconic Bay; caught 6,000 fish, which we sent in the Flora to the Miamogus Works; fine. Tuesday, 15th: Went down in Gardiner's Bay; caught 47,000 fish, which we sent in the U. S. Grant to the Miamogus Works; pleasant day. Wednesday, 16th: We caught in Gardiner's Bay 11,000 fish, which we sent in the Flora, and 24,500 in the U. S. Grant, to the Miamogus Works; weather fair. Thursday, 17th: Caught in Gardiner's Bay 29,000 fish, which we sent in the Flora to the Miamogus Works; pleasant. Friday, 18th: We lay in Greenport; stormy day. Saturday, 19th: Tanned and mended seine; then came up to Jamesport with the sloops; weather good. Monday, 21st: We caught in Peconic Bay 17,500 fish, which we sent in the U. S. Grant to the Miamogus Works; fine. Tuesday, 22d: Went out in Gardiner's Bay; caught 34,500 fish, which we sent in the Flora, and 31,500 in the U. S. Grant, to the Miamogus Works; pleasant day. Wednesday, 23d: Caught in Gardiner's Bay 7,500 fish, which we sent in the Flora to the Miamogus Works; pleasant. Thursday, 24th: We had the sloops hauled out on the railways and cleaned them, and worked on the seine; fine. Friday, 25th: We hung the seine and had the sloops painted; weather continues pleasant. Saturday, 26th: Came to Jamesport with the sloops. Monday, 28th: We caught in Peconic Bay 18,500 fish, which we sent in the

U. S. Grant to the Miamogue Works; fine. *Tuesday, 29th*: Wind blew hard; caught none. *Wednesday, 30th*: Went out in Gardiner's Bay; caught 39,000 fish, which we sent in the Flora, and 9,000 in the U. S. Grant, to the Miamogue Works; pleasant day.

July 1st, Thursday: We caught in Gardiner's Bay 35,000 fish, which we sent in the Flora to the Miamogue Works; weather continues pleasant. *Friday, 2d*: Caught in Gardiner's Bay 35,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Saturday, 3d*: We came up to Jamesport with the sloops. *Monday, 5th*: We did not fish; staid home and kept the Fourth. *Tuesday, 6th*: Went through Peconic Bay into Gardiner's Bay; caught 44,500 fish, which we sent in the Flora to the Miamogue Works, and sold 90 cents' worth to a smack; weather continues very pleasant. *Wednesday, 7th*: Caught in Gardiner's Bay 41,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$3 worth to a smack; weather fine. *Thursday, 8th*: We caught in Gardiner's Bay 18,500 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Friday, 9th*: Caught in Gardiner's Bay 12,500 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$3.50 worth to a smack; weather pleasant. *Saturday, 10th*: We tanned and mended the seine in a. m.; came home in p. m.; weather good. *Monday, 12th*: We went out in Gardiner's Bay; caught 47,500 fish, which we sent in the Flora to the Miamogue Works, and sold \$1 worth of fish to a smack; pleasant. *Tuesday, 13th*: Caught in Gardiner's Bay 27,500 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$20.10 worth to a smack; weather fine. *Wednesday, 14th*: We caught in Gardiner's Bay 30,500 fish, which we sent in the Flora to the Miamogue Works, and sold \$8.50 worth of fish to a smack; weather good. *Thursday, 15th*: Caught in Gardiner's Bay 16,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$6.60 worth of fish to a smack; pleasant. *Friday, 16th*: We caught in Gardiner's Bay 27,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Saturday, 17th*: We went to Jamesport with the sloops, and took off the Starlight's sails, spread them on the beach, and lined them; weather pleasant. *Monday, 19th*: We went down through Peconic and into Gardiner's Bay; caught none; weather fine. *Tuesday, 20th*: Went out in Gardiner's Bay, then in the sound, and nearly to Faulkland Island; caught no fish, so came back in the bay; weather continues fine. *Wednesday, 21st*: We caught in Gardiner's Bay 40,500 fish, which we sent in the U. S. Grant, and 18,000 in the Flora, to the Miamogue Works; weather fine. *Thursday, 22d*: We caught in Gardiner's Bay 17,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$13.50 worth of fish to a smack; fine. *Friday, 23d*: Caught in Gardiner's Bay 54,500 fish, which we sent in the Flora, and 18,500 in the U. S. Grant, to the Miamogue Works; weather pleasant. *Saturday, 24th*: We caught in Gardiner's Bay 31,500 fish, which we sent in the U. S. Grant to the Miamogue Works. *Monday, 26th*: We went out in Gardiner's Bay; caught 43,000 fish, which we sent in the Flora, and 23,500 in the U. S. Grant, to the Miamogue Works; weather fine. *Tuesday, 27th*: We caught in Gardiner's Bay 53,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Wednesday, 28th*: Caught in Gardiner's Bay 52,000 fish, which we sent in the U. S. Grant, and 35,000 in the Flora, to the Miamogue Works; weather pleasant. *Thursday, 29th*: Went out in Gardiner's Bay, but the wind blew up quite strong, and we came into Greenport. *Friday, 30th*: Went out in Gardiner's Bay; caught 12,500 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$10.50 worth to a smack; in p. m. we came into Greenport and tanned the seine; fine. *Saturday, 31st*: We worked on the seine in a. m.; came home in p. m.; fine.

August 2d, Monday: An east storm; we anchored in Noyack Bay. *Tuesday, 3d*: We went down below Gardiner's Island; it rained a part of the day, and some of the time it was foggy. *Wednesday, 4th*: We caught below Gardiner's Island 54,000 fish, which we sent in the Flora, and 33,000 in the U. S. Grant, to the Miamogue Works, and sold \$6 worth to a smack; weather pleasant. *Thursday, 5th*: We caught off Fort Pond 55,500 fish, which we sent in the U. S. Grant, and 56,500 in the Flora, and we took 13,500 in the Starlight, to the Miamogue Works; weather continues fine. *Friday, 6th*: Caught east of Gardiner's Island 57,000 fish, which we sent in the Flora to the Miamogue Works, and sold \$5.25 worth to a smack; weather good. *Saturday, 7th*: Caught in Gardiner's Bay 52,500 fish, which we sent in the U. S. Grant, and 33,500 in the Flora, to the Miamogue Works; the fish were in good shoals and quite plenty; we caught them at two sets; had them caught and scooped in by 9 o'clock a. m.; we had the U. S. Grant loaded before the Flora got to us, and were holding on to the fish waiting for her; as soon as she reached us, the man that ran her said that Captain Hawkins could take but one boat-load from us to-day; but as we had them caught I would not let them go, but sent them to the factory; very pleasant day. *Monday, 9th*: Went out in Gardiner's Bay; caught 51,500 fish, which we sent in the U. S. Grant, and 43,000 in the Flora, to the Miamogue Works, and sold \$6 worth of fish to a smack; weather pleasant. *Tuesday, 10th*: We caught in Gardiner's Bay 41,500 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$10.50 worth to a smack; weather good. *Wednesday, 11th*: We caught in Gardiner's Bay 12,500 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Thursday, 12th*: We caught in Gardiner's Bay 26,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Friday, 13th*: We hauled the sloops out on the railways to clean them, and worked on the seine; weather good. *Saturday, 14th*: We caught in Gardiner's Bay 54,500 fish, which we sent in the U. S. Grant to the Miamogue Works; then we started for Jamesport, and in Peconic Bay made a set and caught 12,000 fish, which we sent in the Flora to Jamesport; weather fine. *Monday, 16th*: Caught in Peconic Bay 14,000 fish, which we sent in the Flora to the Miamogue Works; weather good. *Tuesday, 17th*: We caught in Gardiner's Bay 48,000 fish, which we sent in the U. S. Grant, and 21,000 in the Flora, to the Miamogue Works; weather continues fine. *Wednesday, 18th*: Caught in Gardiner's Bay 20,500 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Thursday, 19th*: We caught in Gardiner's Bay 52,500 fish, which we sent in the U. S. Grant, and 17,000 in the Flora, to the Miamogue Works; weather continues pleasant. *Friday, 20th*: Caught in Gardiner's Bay 52,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Saturday, 21st*: We tanned and mended the seine; then went to Jamesport with the sloops; weather fine. *Monday, 23d*: Went out in Gardiner's Bay; caught 53,000 fish, which we sent in the Flora, and 59,000 in the U. S. Grant, to the Miamogue Works; weather good. *Tuesday, 24th*: Caught in Gardiner's Bay 56,000 fish, which we sent in the Flora, and 32,500

in the U. S. Grant, to the Miamogue Works; weather continues fine. *Wednesday, 25th*: We caught in Gardiner's Bay 17,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Thursday, 26th*: Caught in Gardiner's Bay 28,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Friday, 27th*: We caught in Gardiner's Bay 31,500 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Saturday, 28th*: Caught in Gardiner's Bay 34,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Monday, 30th*: Went out in Gardiner's Bay; caught 24,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Tuesday, 31st*: Caught in Gardiner's Bay 31,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather fine.

September 1st, Wednesday: We caught in Gardiner's Bay 42,500 fish, which we sent in the Flora to the Miamogue Works; fine. *Thursday, 2d*: Caught in Gardiner's Bay 56,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Friday, 3d*: We caught in Gardiner's Bay 38,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Saturday, 4th*: We did not fish, but went home; weather fine. *Monday, 6th*: Went out in Gardiner's Bay; caught 54,000 fish, which we sent in the U. S. Grant, and 47,000 in the Flora, to the Miamogue Works; pleasant. *Tuesday, 7th*: Caught in Gardiner's Bay 59,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Wednesday, 8th*: We caught in Gardiner's Bay 52,000 fish, which we sent in the Flora, and 28,500 in the U. S. Grant, to the Miamogue Works; pleasant day. *Thursday, 9th*: Caught in Gardiner's Bay 47,500 fish, which we sent in the Flora, and 18,000 in the U. S. Grant, to the Miamogue Works; weather fine. *Friday, 10th*: Windy; did not fish, but mended seine. *Saturday, 11th*: We hauled out the Flora on the railways, and went home with the Starlight; pleasant. *Monday, 13th*: Went out in Gardiner's Bay; caught 53,000 fish, which we sent in the Flora, and 23,500 we were obliged to take on the Starlight, to the Miamogue Works, as the U. S. Grant did not come out; pleasant. *Tuesday, 14th*: We caught in Gardiner's Bay 32,000 fish, which we sent in the Flora, and 28,000 in the U. S. Grant, to the Miamogue Works; pleasant. *Wednesday, 15th*: Caught in Gardiner's Bay 42,000 fish, which we sent in the Flora, and 32,000 in the U. S. Grant, to the Miamogue Works; we also sold \$3 worth to a smack; fine. *Thursday, 16th*: We caught in Gardiner's Bay 54,000 fish, which we sent in the Flora, and 23,500 in the U. S. Grant, to the Miamogue Works; quite pleasant. *Friday, 17th*: Wind blew hard; we did not fish, but hauled the sloops out on the railways, and tarred a new seine. *Saturday, 18th*: Painted sloops and seine-boats; pleasant. *Monday, 20th*: Went out in Gardiner's Bay; caught 41,000 fish, which we sent in the Flora, and 4,000 in the U. S. Grant, to the Miamogue Works; pleasant. *Tuesday, 21st*: Caught in Gardiner's Bay 47,500 fish, which we sent in the U. S. Grant, and 12,000 in the Flora, to the Miamogue Works; weather fine. *Wednesday, 22d*: Wind blew hard; caught no fish. *Thursday, 23d*: We caught in Gardiner's Bay 52,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Friday, 24th*: We did not fish, but hung out new seine; fine. *Saturday, 25th*: Finished hanging the seine in a. m.; went home in p. m. *Monday, 27th*: Wind blew hard; we caught no fish. *Tuesday, 28th*: Went out in Gardiner's Bay; caught 50,500 fish, which we sent in the Flora, and 39,000 in the U. S. Grant, to the Miamogue Works; also sold \$21 worth to a smack; pleasant. *Wednesday, 29th*: Wind blew hard; could not fish, so lay in Greenport. *Thursday, 30th*: Caught in Gardiner's Bay 16,500 fish, which we sent in the Flora to the Miamogue Works; weather fine.

October 1, Friday: We caught in Gardiner's Bay 11,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Saturday, 2d*: We did not fish; we stowed away the old seine. *Monday, 4th*: Went out in Gardiner's Bay; caught 11,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Tuesday, 5th*: We caught in Gardiner's Bay 43,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 6th*: An east storm; did not fish. *Thursday, 7th*: East storm continues; lay in Greenport. *Friday, 8th*: Went out in Gardiner's Bay; caught 11,500 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Saturday, 9th*: Did not fish; I went home. *Monday, 11th*: Caught none; the weather bad and fish scarce. *Tuesday, 12th*: Caught none; the wind continues to blow. *Wednesday, 13th*: We went below Gardiner's Island; caught 12,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Thursday, 14th*: We looked below Gardiner's Island and through Gardiner's Bay, but could find no fish, so we came to Greenport; weather continues good. *Friday, 15th*: An east storm; we lay in Greenport. *Saturday, 16th*: Wind continues to blow; did not fish. *Monday, 18th*: We went out in Gardiner's Bay; caught 50,500 fish, which we sent in the Flora to the Miamogue Works; it came on dark, and the man that had charge of her ran her on a rock off Little Ram Head and stove a hole through her port bow; he ran her on shore; they came with a sloop and plenty of help from the factory, took the fish out of her, nailed a canvas over the hole, took her to Greenport, hauled her out on the railways, and had her fixed; pleasant day. *Tuesday, 19th*: We caught in Gardiner's Bay 33,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Wednesday, 20th*: Caught in Gardiner's Bay 28,000 fish, which we sent in the Petrel to the Miamogue Works; they have let us take the Petrel while the Flora is being fixed; pleasant. *Thursday, 21st*: The wind blew hard; did not fish, but lay in Greenport. *Friday, 22d*: We caught in Gardiner's Bay 26,500 fish, which we sent in the Petrel, and 48,000 in the U. S. Grant, to the Miamogue Works; weather fine. *Saturday, 23d*: Caught in Gardiner's Bay 22,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Monday, 25th*: Went through Gardiner's Bay below Gardiner's Island, but saw no fish; came to anchor in Napeague Harbor; fine. *Tuesday, 26th*: Went out below Gardiner's Island; caught 23,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Wednesday, 27th*: Stormy day; we lay in Greenport. *Thursday, 28th*: Windy day; we lay in Greenport. *Friday, 29th*: We went out in Gardiner's Bay, but caught no fish. *Saturday, 30th*: Windy; did not go out; it came on to storm in p. m.

November 1st, Monday: The wind blew so hard we did not go out. *Tuesday, 2d*: Went out in the morning, but the wind sprung up and blew a gale from the northwest; we came to anchor under the lee of Ben's Point. *Wednesday, 3d*: Went out in Gardiner's Bay; caught 53,500 fish at two sets, which we sent in the U. S. Grant to the Miamogue Works; it was very cold; wind northwest; we had to whip our hands to keep warm. *Thursday, 4th*: A stormy day; did not fish. *Friday, 5th*: We came up to Jamesport with the sloops, and closed up for the season.

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We had the sloops out of the creek, sails bent, and tops painted, ready for another season.

May 1st, Monday: We carried the stove and dishes, bed, and bedding on board the Starlight, ready to fish; quite cold and blew hard from the northwest; there was a little snow on the ground in the morning, but it melted away very soon. *Tuesday, 2d:* We went down bay to Greenport, and fixed the deck-boards to the carry-away sloops; wind blew quite strong from the northwest. *Wednesday, 3d:* We went down as far as Gardiner's Island; saw two small bunches of fish, but caught none; wind blew from the east and stormed in p. m. *Thursday, 4th:* We went out in Gardiner's Bay; found fish and made a set between Gardiner's Point and Plum Gut; caught 51,500 fish, which we sent in the U. S. Grant, and 37,500 in the Flora, to the Miamogue Works; pleasant, but wind blew quite strong in p. m. from west. *Friday, 5th:* Went below Gardiner's Island; caught 20,500 fish, which we sent in the U. S. Grant to the Miamogue Works, after which we came to anchor under Hicks Island, which is near the mouth of Napeague Harbor; pleasant day; in p. m. wind southwest. *Saturday, 6th:* Stormy day; came to Jamesport with the sloops. *Monday, 8th:* We went through Peconic and Gardiner's Bays, below Gardiner's Island; caught none; pleasant. *Tuesday, 9th:* We caught east of Gardiner's Island 27,000 fish, which we sent in the Flora to the Miamogue Works; then we went into Napeague Harbor; pleasant day. *Wednesday, 10th:* We caught below Gardiner's Island 33,500 fish, which we sent in the U. S. Grant to the Miamogue Works; at night we went into Napeague for a harbor; we caught a number of codfish in the schools of menhaden; they seemed to be chasing them; it was rainy and foggy most of the day. *Thursday, 11th:* The wind blew very hard from the northwest; we staid in Napeague. *Friday, 12th:* We went out, but caught no fish; it came on to blow and storm, so we went to Greenport. *Saturday, 13th:* In the morning we went down in Gardiner's Bay, but saw no fish; then came to Jamesport with the sloops; pleasant day. *Monday, 15th:* Went through Peconic and Gardiner's Bays, down below Gardiner's Island, nearly to Montauk; saw nothing but some small fish; weather fine. *Tuesday, 16th:* We saw no fish, so we went down to Shagwan Reef and tried to catch a few codfish with hook and line; weather continues fine. *Wednesday, 17th:* Could find no fish; at night went up to Greenport; weather fine. *Thursday, 18th:* We could hear of no fish; so in the morning we looked through Gardiner's Bay and down nearly to Montauk; it came on to storm in p. m., and we went into Napeague Harbor. *Friday, 19th:* We went down nearly to Montauk, then came up to Greenport; we saw a few fish in Gardiner's Bay, but they were not in shape to catch; pleasant. *Saturday, 20th:* We came up bay; saw a bunch of small fish, not much more than half grown; concluded we would catch them to find out just what they were; we saved 7,500 fish, by measure, that did not go through the meshes; we took them to Jamesport and I had them carted on my farm; fine. *Monday, 22d:* We went down through Peconic Bay and into Gardiner's Bay, and came to anchor under the lee of Fire Place Point, as the wind was blowing strong from the southwest; but before morning the wind shifted to the northwest and blew very hard, and we had to shift our anchorage. *Tuesday, 23d:* In the morning it blew hard northeast; so to make a good lee we went under Gardiner's Island and came to anchor in Cherry Harbor, near Mr. Gardiner's house, and as we had nothing that we could do we concluded to go on shore; we went up to Mr. Gardiner's house and talked with him, and then took a look at his race-course he was having fixed, &c., after which we went up to the burying-ground, and were much interested in the grave of Lyon Gardiner, and having a pencil and paper at hand I made a memorandum of it on the spot, which reads as follows:

"In memory of Lyon Gardiner, and Mary Williamson, his wife, who came from Worden, in Holland, to London July 10th, and arrived in America Nov. 29th, 1635. After commanding the garrison at Saybrook four years, he removed to the Isle of Wight, which he purchased of the Indians, called by them Manchangenoc. Being the first Englishman settled in the State of New York. He died 1663. She died 1665.

"David, their son, born at Saybrook April 29th, 1636. The first white child born in Connecticut.

"This monument was erected June, 1806, by John Lyon Gardiner, the seventh proprietor of the Isle of Wight, or Gardiner's Island. Sacred to the memory of his ancestors."

The wind died out in p. m., and we went out in Gardiner's Bay, made one set, and caught 16,000 fish, which we sent in the U. S. Grant to the Miamogue Works, after which we went up to Greenport. *Wednesday, 24th:* Went out in Gardiner's Bay; caught 19,000 fish, which we sent in the Flora to the Miamogue Works; at night we went in by the works and anchored; fine. *Thursday, 25th:* We caught in Gardiner's Bay 6,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Friday, 26th:* Went out in Gardiner's Bay, but caught none; after looking until we were tired, we came into Greenport; fine. *Saturday, 27th:* We came up to Jamesport with the sloops; pleasant. *Monday, 29th:* Went down through Peconic Bay, and when we passed Jessup's Point, in what we call Noyack Bay, we found a few fish; caught 13,000, which we sent in the Flora to the Miamogue Works; fine. *Tuesday, 30th:* We caught in Noyack Bay 18,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 31st:* We caught in Noyack Bay 23,000 fish, which we sent in the Flora to the Miamogue works; fine.

June 1st, Thursday: Caught in Noyack Bay 8,000 fish, which we sent in the U. S. Grant to the Miamogue Works; then we went down in Gardiner's Bay, but saw no fish, after which we came up to Greenport; pleasant. *Friday, 2d:* We looked through Peconic Bay, but saw no fish that we thought were catchable, so went to Jamesport; weather good. *Saturday, 3d:* We laid the Starlight on the shore and cleaned her bottom and scraped the mast, and took off and lined the U. S. Grant's sails; weather pleasant. *Monday, 5th:* Went down through Peconic Bay, and in Noyack Bay caught 35,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Tuesday, 6th:* We went down in Gardiner's Bay; caught none; fine. *Wednesday, 7th:* We caught in Gardiner's Bay 29,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Thursday, 8th:* Caught in Gardiner's Bay 11,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Friday, 9th:* We were looking for fish in Gardiner's Bay, and the fishing yacht

Dauntless ran into, stove, and sank our purse-boat. It was blowing quite strong, and the gang signaled the man in the yacht to come and pick them up; he lashed his helm up and went forward to hoist up the bob-jib, and before he could get aft and cast off the tiller rope she had smashed our boat and came near striking the Starlight; we took the Tom, oars, seine, &c., in the other boat; lost nothing except one of the loggerheads; after we had the seine secured we took and lashed the broken boat close to the sloop as we could pull her, and started for Greenport; we took the boat to the boat-builders, and they went immediately at work on it, and as we could not fish while the boat was being fixed, we thought we would haul the sloops out on the railways and have them painted; pleasant day. *Saturday, 10th*: We scraped and sand-papered the bottoms of the sloops, and the painters painted them; fine. *Monday, 12th*: It stormed; did not fish, but lay in Greenport. *Tuesday, 13th*: We went out in Gardiner's Bay; caught 44,000 fish, which we sent in the U. S. Grant to the Miamogue Works. *Wednesday, 14th*: We caught in Gardiner's Bay 48,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Thursday, 15th*: We caught in Gardiner's Bay 57,000 fish, which we sent in the U. S. Grant, and 18,000 in the Flora, to the Miamogue Works; pleasant. *Friday, 16th*: Caught in Gardiner's Bay 43,500 fish, which we sent in the U. S. Grant, and 8,000 in the Flora, to the Miamogue Works; for the last four days it has been foggy in the morning and cleared off in the afternoon, but we stopped nights at Bunker City, where the Miamogue Works are situated, and by steering out in the morning east or east by north we just ran into the fish; the wind being very light, by listening we could hear them play, and when close to them could see them. *Saturday, 17th*: Caught in Gardiner's Bay 4,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Monday, 19th*: Went out in Gardiner's Bay; caught 6,500 fish, which we sent in the Flora to the Miamogue Works; weather continues fine. *Tuesday, 20th*: Caught in Gardiner's Bay 28,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 21st*: We caught in Gardiner's Bay 18,500 fish, which we sent in the Flora to the Miamogue Works; fine. *Thursday, 22d*: Caught in Gardiner's Bay 7,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Friday, 23d*: We caught in Gardiner's Bay 23,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Saturday, 24th*: We came to Jamesport with the sloops; pleasant. *Monday, 26th*: Went down into Gardiner's Bay; caught 32,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather pleasant. *Tuesday, 27th*: We caught in Gardiner's Bay 17,000 fish, which we sent in the Flora to the Miamogue Works, and sold \$3 worth of fish to a smack; weather pleasant. *Wednesday, 28th*: Caught in Gardiner's Bay 4,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Thursday, 29th*: We caught in Gardiner's Bay 23,000 fish, which we sent in the Flora to the Miamogue Works, and sold to a smack \$1.90 worth of fish; fine day. *Friday, 30th*: Caught in Gardiner's Bay 10,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine.

July 1st, Saturday: We caught in Gardiner's Bay 27,000 fish, which we sent in the Flora to the Miamogue Works; are not expecting to fish any more until after the 4th; weather fine. *Wednesday, 5th*: We went out in Gardiner's Bay; caught 25,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold to a smack \$2.05 worth of fish; weather continues fine. *Thursday, 6th*: Went out in Gardiner's Bay; caught none; fine. *Friday, 7th*: We caught in Gardiner's Bay 57,500 fish, which we sent in the Flora, and 20,000 in the U. S. Grant, to the Miamogue Works; weather fine. *Saturday, 8th*: Caught in Gardiner's Bay 34,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Monday, 10th*: We caught in Gardiner's Bay 17,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Tuesday, 11th*: Caught in Gardiner's Bay 48,000 fish, which we sent in the Flora, and 11,000 in the U. S. Grant, to the Miamogue Works; pleasant. *Wednesday, 12th*: We caught in Gardiner's Bay 12,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Thursday, 13th*: Caught in Gardiner's Bay 33,000 fish, which we sent in the U. S. Grant, and 16,500 in the Flora, to the Miamogue Works, also sold 60 cents worth to a smack; weather fine. *Friday, 14th*: We caught in Gardiner's Bay 35,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Saturday, 15th*: We tanned and mended the seine a. m.; came home p. m.; weather pleasant. *Monday, 17th*: Went down in the bay; caught a few fish and sold them to a smack for \$3; weather fine. *Tuesday, 18th*: Caught in Gardiner's Bay 24,000 fish, which we sent in the Flora to the Miamogue Works; sold to a smack \$15 worth of fish; fine day. *Wednesday, 19th*: Caught in Gardiner's Bay 57,000 fish, sent in the Flora, and 16,000 in the U. S. Grant, to the Miamogue Works; weather continues pleasant. *Thursday, 20th*: We caught no fish; foggy. *Friday, 21st*: We caught in Gardiner's Bay 9,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Saturday, 22d*: We did not fish; went home; weather pleasant. *Monday, 24th*: Went out in Gardiner's Bay; caught 50,000 fish, which we sent in the U. S. Grant, and 12,000 in the Flora, to the Miamogue Works; weather good. *Tuesday, 25th*: Went out in Gardiner's Bay, but caught none; the wind blew quite strong; we witnessed a yacht race in Gardiner's Bay; the Madeline (one of the yachts) passed within twenty rods of us; it was a splendid sight; they had all the wind they wanted; her lee-scuppers were under water, and she was passing through the water as finely as anything I ever saw; I will be obliged to say that she passed the Starlight, and we think she sails well. *Wednesday, 26th*: Went out in the bay, but caught none; fine. *Thursday, 27th*: Caught in Gardiner's Bay 26,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Friday, 28th*: We caught 1,500 fish; sent in U. S. Grant to the Miamogue Works; weather pleasant. *Saturday, 29th*: Caught in Gardiner's Bay 6,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Monday, 31st*: Stormy day; wind southeast; did not fish.

August 1st, Tuesday: Went out in Gardiner's Bay; caught 37,000 fish, which were sent in the U. S. Grant to Miamogue Works. *Wednesday, 2d*: Caught in Gardiner's Bay 47,500 fish, which we sent in the Flora to the Miamogue Works; fine. *Thursday, 3d*: We caught in Gardiner's Bay 6,500 fish, which we sent in the U. S. Grant to the Miamogue Works. *Friday, 4th*: We hauled out the sloops on the railways and cleaned them and fanned the seine; pleasant. *Saturday, 5th*: We limed the sails. *Monday, 7th*: Went out in Gardiner's Bay; caught 32,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Tuesday, 8th*: Caught in Gardiner's Bay 32,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 9th*: We caught in Gardiner's Bay 6,500 fish, which

we sent in the Flora to the Miamiogue Works; there are plenty of small fish in the bay, but not very many large ones; we are very much bothered to tell large from small fish, and often drop off in the boats and lay close to the fish, and as they play watch to see if they are large or small, and sometimes while laying there we will see some plays that we are sure are large, and so set for the bunch and get a few large fish, but the bulk proves to be small ones, and our seine will be meshed full of them, and it takes hours to shake them out and clear up the seine, but after a few lessons of this kind we learn to be sure what they are before we set the seine; pleasant day. *Thursday, 10th*: Went out in Gardiner's Bay; saw plenty of small fish but no large ones; they are about half grown, just right to mesh in the seine; in all my fishing I never saw so many small fish in the bay; in fact they have bothered us all the season; we were getting tired of looking at good shoals of fish and none that we could catch, so we went to Jamesport with the sloops and attended camp-meeting for the remainder of the week. *Monday, 14th*: Caught 12,000 fish in Gardiner's Bay, which we sent in the U. S. Grant to the Miamiogue Works; they were part small ones; weather pleasant. *Tuesday, 15th*: We thought we would take a cruise off to see if we could find some large fish; went to Block Island; weather continues pleasant. *Wednesday, 16th*: When we "turned out" in the morning the wind was blowing a good breeze from the east, so we came to the west again, and off Fort Pond we saw plenty of fish, but we dare not try them, for they looked too small for our seine; some of the gangs have small-mesh seines so as to catch them, but they are not worth much, for there is but little oil in them; we went up to Greenport; arrived about sundown. *Thursday, 17th*: We caught in Gardiner's Bay 22,000 fish, which we sent in the Flora to the Miamiogue Works; pleasant. *Friday, 18th*: Caught in Gardiner's Bay 58,500 fish, which we sent in the U. S. Grant to the Miamiogue Works; there were a few small ones mixed with most of them; pleasant. *Saturday, 19th*: We tarred a new seine; we have been so bothered with the fish meshing nearly the whole season, that I have ordered my new seine 2½ instead of 2¾ inch mesh, which I have been using. *Monday, 21st*: Went out in Gardiner's Bay, but saw no fish that we were certain were large ones, therefore caught none; fine. *Tuesday, 22d*: Saw no fish that we dare set for, so went down to Stonington; weather pleasant; in the p. m. wind blew hard SW. *Wednesday, 23d*: We saw no fish except small ones; came to Greenport and worked on the seine; weather fine. *Thursday, 24th*: We lay in Greenport; hung the new seine; pleasant. *Friday, 25th*: We went in the Sound and west nearly to Faulkland Island; caught 44,000 fish, which we sent in the Flora to the Miamiogue Works; pleasant. *Saturday, 26th*: We caught between Faulkland Island and Cornfield light-ship 56,500 fish, which we sent in the U. S. Grant to the Miamiogue Works; weather fine. *Monday, 28th*: Went out in Gardiner's Bay; caught 57,500 fish, which we sent in the Flora to the Miamiogue Works; fine. *Tuesday, 29th*: Caught in Gardiner's Bay and below Gardiner's Island 54,000 fish, which we sent in the U. S. Grant, and 20,000 in the Flora, to the Miamiogue Works; pleasant day. *Wednesday, 30th*: We caught off Fort Pond 54,000 fish, which we sent in the U. S. Grant to the Miamiogue Works; fine day. *Thursday, 31st*: Caught off Fort Pond 32,000 fish, which we sent in the Flora to the Miamiogue Works; pleasant.

September 1st, Friday: We caught in Gardiner's Bay 40,500 fish, which we sent in the U. S. Grant to the Miamiogue Works; most of the fish we have caught the past week have been large ones, but occasionally we get deceived and get around some that mesh in our seine; fine day. *Saturday, 2d*: Did not fish; went home; weather good. *Monday, 4th*: Went out in Gardiner's Bay; caught 43,000 fish, which we sent in the Flora, and 13,000 in the U. S. Grant to the Miamiogue Works; weather continues fine. *Tuesday, 5th*: Went out, but the wind blew hard, and we caught none. *Wednesday, 6th*: Caught in Gardiner's Bay 23,500 fish, which we sent in the Flora to the Miamiogue Works; pleasant. *Thursday, 7th*: We caught in Gardiner's Bay 49,500 fish, which we sent in the Flora to the Miamiogue Works; fine. *Friday, 8th*: It stormed a. m.; we lay in Greenport p. m.; we hauled out the sloops on the railways; fine day. *Saturday, 9th*: Had the sloops painted; weather good. *Monday, 11th*: We went out in Gardiner's Bay; caught 52,500 fish, which we sent in the U. S. Grant, and 13,500 in the Flora, to the Miamiogue Works; weather good. *Tuesday, 12th*: Caught in Gardiner's Bay 43,500 fish, which we sent in the U. S. Grant, and 35,000 in the Flora, to the Miamiogue Works; weather pleasant. *Wednesday, 13th*: We caught in Gardiner's Bay 7,500 fish, which we sent in the U. S. Grant, and sold \$1.20 worth to a smack; weather continues pleasant. *Thursday, 14th*: Caught in Gardiner's Bay 58,000 fish, which we sent in the Flora, and 58,500 in the U. S. Grant, to the Miamiogue Works; weather fine. *Friday, 15th*: We caught in Gardiner's Bay 56,000 fish, which we sent in the Flora, and 36,000 in the U. S. Grant, to the Miamiogue Works; weather continues fine. *Saturday, 16th*: An east storm; did not fish. *Monday, 18th*: Wind continues east; caught none. *Tuesday, 19th*: Went out in Gardiner's Bay; caught 20,000 fish, which we sent in the Flora to the Miamiogue Works; fine. *Wednesday, 20th*: Caught in Gardiner's Bay 52,000 fish, which we sent in the U. S. Grant, and 46,000 in the Flora, to the Miamiogue Works; wind blew from the east, but the fish showed good. *Thursday, 21st*: We caught none; the wind blew from the east. *Friday, 22d*: Caught in Gardiner's Bay 40,500 fish, which we sent in the U. S. Grant to the Miamiogue Works; wind still east. *Saturday, 23d*: We did not get out; the wind continues to blow from the east. *Monday, 25th*: Wind east; caught none. *Tuesday, 26th*: Went out in Gardiner's Bay; caught 51,500 fish, which we sent in the Flora, and 4,500 in the U. S. Grant, to the Miamiogue Works; weather good. *Wednesday, 27th*: We lay in Greenport; the wind blew hard from the northwest. *Thursday, 28th*: The wind continued to blow hard from the northwest; we went down in Gardiner's Bay and came to anchor at a place we call the Springs. *Friday, 29th*: We caught in Gardiner's Bay 57,500 fish, which we sent in the Flora, and 18,000 in the U. S. Grant, to the Miamiogue Works; weather fair. *Saturday, 30th*: In Greenport; did not fish; weather continues fine.

October 2d, Monday: Went out in Gardiner's Bay; caught 30,500 fish, which we sent in the Flora to the Miamiogue Works; fine. *Tuesday, 3d*: We caught in Gardiner's Bay 34,500 fish, which we sent in the U. S. Grant to the Miamiogue Works; fine. *Wednesday, 4th*: The wind blew hard; we came to Greenport. *Thursday, 5th*: Went out in Gardiner's Bay; caught 32,000 fish, which we sent in the Flora to the Miamiogue Works; fine. *Friday, 6th*: Wind blew hard; we went into Napeague. *Saturday, 7th*: We came out of Napeague early in the morning, but the wind came on to blow very hard from the NW., so we came to anchor under the lee of Gardiner's Island; it blew hard all day, so we went

back into Napeague Harbor just at night. *Sunday, 8th*: The wind continued to blow hard; we spent the day in Napeague. *Monday, 9th*: We went out to the east of Gardiner's Island; caught 19,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather pleasant. *Tuesday, 10th*: We caught in Gardiner's Bay 55,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Wednesday, 11th*: Wind blew hard; we lay in Greenport; tanned and mended seine. *Thursday, 12th*: We made a set southeast of Little Gull Island; caught 19,000 fish, which we sent in the U. S. Grant to the Miamogue Works; we saw a number of bunches of fish near Race Rock, but did not like to try them for fear we would catch the seine on rocks; went into New London; pleasant day. *Friday, 13th*: Started out of New London; went east of Gardiner's Island, and met a fishing-gang from Greenport that told me my child was dead; we came to Greenport and I went right home; did not fish any more this week; weather good. *Monday, 16th*: Wind blew hard NW.; did not go out. *Tuesday, 17th*: Wind continued to blow; did not fish. *Wednesday, 18th*: Went down through Gardiner's Bay; saw no fish, so went to Stonington; weather good. *Thursday, 19th*: We came over to Fort Pond; caught 21,500 fish, which we sent in the Flora to the Miamogue Works; weather continues fine. *Friday, 20th*: We caught off Fort Pond 59,000 fish, which we sent in the U. S. Grant to the Miamogue Works; and we put 39,000 in the Flora, which we sent to Luce's Floating Fish Works (which were at this time lying in Napeague harbor), because we wanted a carry-away with us in the morning, and we did not think the U. S. Grant could get back in time; the fish we caught to-day were partly eastern fish; weather fine. *Saturday, 21st*: Caught off Fort Pond 29,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Monday, 23d*: Went through Gardiner's Bay and below Gardiner's Island; caught 37,500 fish, which we sent in the Flora to the Miamogue Works; weather pleasant. *Tuesday, 24th*: We caught off Fort Pond 19,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 25th*: Caught off Fort Pond 13,500 fish, which we sent in the Flora to the Miamogue Works; fine day. *Thursday, 26th*: Went out in the morning; made a set east of Gardiner's Island; caught 5,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and the wind blowing up strong we went in Napeague Harbor, came to anchor, and hanked out the seine to let it dry. *Friday, 27th*: We lay in Napeague, as the wind continued to blow hard. *Saturday, 28th*: We caught below Gardiner's Island 25,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Monday, 30th*: We went through Gardiner's Bay and below Gardiner's Point; we saw a good shoal of fish and dropped off in the boats for them; I knew it was very rocky east of the point, but I thought the fish were clear of the rocks, so we set the seine around them, and no sooner was the seine out of the boats than the cork-line went down; I saw we had trouble, and went to taking the seine in the boats as fast as we could, but we did not get in much seine before we found it was fast; we would then pull until the seine either slipped over the rock or tore loose, and thus we continued to work; at last we anchored one of the carry-aways to the west of us, as the tide was running strong ebb, and ran a line from her to the seine, and tried to pull it clear of the rocks by heaving on the windlass, which helped us very much; after much trouble we succeeded in getting the seine, which was very badly torn; proceeded to Greenport and spread it on the lot, and got the old seine out of the house, and put in the boats, putting off the mending for windy weather; a pleasant day. *Tuesday, 31st*: Went below Gardiner's Island; caught 10,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant day.

November 1st, Wednesday: Caught off Fort Pond 43,500 fish, which we sent in the Flora to the Miamogue Works; fine day. *Thursday, 2d*: We caught east of Gardiner's Island 19,500 fish, which we sent in the U. S. Grant, and in Gardiner's Bay 20,000 fish, which we sent in the Flora, all to the Miamogue Works; weather fine. *Friday, 3d*: We did not fish, but are mending the seine which we tore on Monday. *Saturday 4th*: We finished mending the seine. *Monday, 6th*: I called all hands at 4 o'clock, and we went below Gardiner's Island; made a set and caught 11,500 fish, which we sent in the Flora to the Miamogue Works, and as it was quite rough, the wind being east, the Starlight's jib-stay parted, and we were obliged to go back to Greenport. *Tuesday, 7th*: A cold, stormy day; did not fish; I went home to vote. *Wednesday, 8th*: Went out in Gardiner's Bay; caught 18,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Thursday, 9th*: Quit for the season; went home with the sloops and stowed the things away, and the fishing season of 1876 is ended.

1877.

We have the sloops out and ready.

April 30th, Monday: We got things on board the sloops ready to go out fishing; pleasant day.

May 1st, Tuesday: We went down through Peconic and Gardiner's Bays, and below Gardiner's Island; caught 11,000 fish; sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 2d*: Windy and stormy; caught none. *Thursday, 3d*: Wind blew hard from the north; we lay in Napeague Harbor. *Friday, 4th*: Went out, but caught no fish; went to Greenport, then to Jamesport. *Saturday, 5th*: Worked on fishing things; pleasant. *Monday, 7th*: We went down through Peconic and Gardiner's Bays, below Gardiner's Island; caught none; pleasant. *Tuesday, 8th*: Went out below Gardiner's Island, and, as we saw no fish, we went down to Montauk, and caught a few eod with hook and line; fine day. *Wednesday, 9th*: An east storm; we lay in Napeague Harbor. *Thursday, 10th*: Went out, but caught no fish; weather good. *Friday, 11th*: We caught up by Gardiner's Point 16,000 fish, which we sent in the Flora to the Miamogue Works; then we came to Greenport; weather fine. *Saturday, 12th*: Did not fish; I came home. *Monday, 14th*: We went down through Gardiner's Bay, and around Montauk outside of Long Island, but caught no fish; weather pleasant. *Tuesday, 15th*: Caught none; weather continues pleasant. *Wednesday, 16th*: We saw a large bunch of herring off Fort Pond; we set the seine in them and caught a few, just to see what they were; weather fine. *Thursday, 17th*: We came to Greenport; ripped out the seine, and hauled out the sloops on the railways; fine. *Friday, 18th*: We tarred and worked on the seine, and worked on the sloops; weather continues fine. *Saturday, 19th*: We finished hanging the seine and painting the sloops; weather good. *Monday, 21st*: Went out in Gardiner's Bay; caught 45,000

fish, which we sent in the U. S. Grant to the Miamogue Works; weather pleasant. *Tuesday, 22d*: We caught in Gardiner's Bay 24,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Wednesday, 23d*: Caught in Gardiner's Bay 6,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Thursday, 24th*: We caught none; weather fine. *Friday, 25th*: Caught none; weather continues fine. *Saturday, 26th*: We went to Jamesport with the sloops; pleasant. *Monday, 28th*: We went through Peconic and Gardiner's Bays; caught none; weather fine. *Tuesday, 29th*: Went out below Gardiner's Island, and off Fort Pond; caught 57,500 fish, which we sent in the Flora, and 49,500 in the U. S. Grant, to the Miamogue Works; weather fine. *Wednesday, 30th*: We caught below Gardiner's Island 16,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Thursday, 31st*: Went out below Gardiner's Island; caught none, pleasant day; some of the gangs did well outside of the island.

June 1st, Friday: We started early in the morning from Fort Pond, where we lay anchored through the night, and went around Montank, outside of Long Island, when we found a good bunch of fish that were laying perfectly still with their fins out of water; we set the seine around them and pursed them nearly up without putting on the tow, and they never struck the seine until we had them all pursed; and when we commenced to take on the seine they settled down and took the cork-line down, and came near upsetting one of the boats; some of the crew thought the fish would all go out, and I think about half of them did go out before we could get the cork-line up; we saved 51,500 fish, which we sent in the U. S. Grant, and 49,500 in the Flora, to the Miamogue Works; we had the fish scooped in by 11 o'clock a. m., but it was so calm the sloops did not get to the oil-works until 9 o'clock in the evening; we went to Greenport with the Starlight, where we arrived at 10 o'clock p. m. *Saturday, 2d*: We did not fish, but fixed up the reel; pleasant. *Monday, 4th*: We went down through Gardiner's Bay and below Gardiner's Island; caught 53,000 fish, which we sent in the U. S. Grant, and 35,000 in the Flora, to the Miamogue Works; pleasant. *Tuesday, 5th*: We caught below Gardiner's Island 57,000 fish, which we sent in the U. S. Grant, and 24,000 in the Flora, to the Miamogue Works; pleasant day. *Wednesday, 6th*: Caught below Gardiner's Island 53,000 fish, which we sent in the U. S. Grant, and 16,500 in the Flora, to the Miamogue Works; weather fine. *Thursday, 7th*: It was foggy and stormy; caught none. *Friday, 8th*: We caught below Gardiner's Island 53,000 fish, which we sent in the U. S. Grant, and 14,000 in the Flora, to the Miamogue Works; weather fine. *Saturday, 9th*: We caught in Gardiner's Bay 42,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Monday, 11th*: We went out in Gardiner's Bay; caught 14,500 fish, which we sent in the Flora, to the Miamogue Works; fine. *Tuesday, 12th*: Caught in Gardiner's Bay 24,000 fish, which were sent in the U. S. Grant to the Peconic Works; pleasant. *Wednesday, 13th*: We caught in Gardiner's Bay 29,500 fish, which we sent in the Flora to the Miamogue Works; fine. *Thursday, 14th*: Went out in Gardiner's Bay; saw no fish, so went up sound a few miles, but caught none; weather continues pleasant. *Friday, 15th*: We caught in Gardiner's Bay 32,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$1 worth to a smack; pleasant day. *Saturday, 16th*: Stormy day; lay in Greenport. *Monday, 18th*: Went out in Gardiner's Bay; caught 24,500 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Tuesday, 19th*: We caught in Gardiner's Bay 34,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 20th*: We could find no fish in Gardiner's Bay; so we crossed the sound and went into Saybrook; pleasant. *Thursday, 21st*: We made a set by the mouth of Connecticut River, and the wind blowing up strong we went into Saybrook and came to anchor; and the carry-aways followed us, but the Flora's halcyards caught, and the boy went aloft to clear it and fell and broke his leg; I sent on shore for a doctor, who came and set it; then we took him in the Starlight and took him home; sent the Flora to the Miamogue Works with 8,000 fish. *Friday, 22d*: We tanned and mended the seine; pleasant. *Saturday, 23d*: Did not fish. *Monday, 25th*: Went out in Gardiner's Bay; caught none; at night we went into Sag Harbor; pleasant day. *Tuesday, 26th*: Looked through Gardiner's Bay; found no fish, so went into the Miamogue Works and came to anchor. *Wednesday, 27th*: In the morning the wind blew hard from the east, and we came to Greenport. *Thursday, 28th*: Went down through Gardiner's Bay and below Gardiner's Island, and at night anchored in Fort Pond; weather continues fine. *Friday, 29th*: We caught off Fort Pond 36,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Saturday, 30th*: Caught below Gardiner's Island 17,500 fish, which we sent in the Flora to the Miamogue Works; fine.

July 2d, Monday: We caught none; the wind blew strong NW. *Tuesday, 3d*: Caught in Gardiner's Bay 6,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Wednesday, 4th*: Did not fish; at home. *Thursday, 5th*: We caught in Gardiner's Bay 3,500 fish, which we sent in the Flora to the Miamogue Works, and sold \$6.75 worth to a smack; continues fine. *Friday, 6th*: As the fish were very scarce in Gardiner's Bay we concluded that we had better take a look in Peconic Bay, so we went up above Robin's Island, where we found plenty of fish, and caught 50,000, which we sent in the U. S. Grant, and 44,000 in the Flora, to the Miamogue Works, and put 19,500 on the Starlight, which we took into Jamesport for the farmers; pleasant day. *Saturday, 7th*: We caught in Peconic Bay 30,000 fish, which we sent in the U. S. Grant, and 22,000 in the Flora, to the Miamogue Works; continues pleasant. *Monday, 9th*: We went out in Peconic Bay; made one set; caught 56,000 fish, which we sent in the Flora; the Grant stopped at Greenport over Sunday and had not arrived yet, so we got the Starlight alongside of the seine, but the fish began to die and we could not hold them, so were obliged to slack them down, for the bunt commenced to rip, and it was as much as we could do to get our seine from under them; in fact, we had to work quite a while to do it, exerting all our strength, and the strain on the seine was so great that we tore it some; I do not think there was over 75,000 in the seine when we came alongside with the Starlight, but the water was warm and they began to die; the Flora we sent to the Miamogue Works, and we had 1,500 on board the Starlight, which we scooped out by lashing a pole on the big scoop-net handle before we had to let them go; we took them to Jamesport, where we went and hauled the seine on the beach to mend. *Tuesday, 10th*: Went out in Peconic Bay; caught 29,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather fine. *Wednesday, 11th*: Caught in Peconic Bay 56,000 fish, which we sent in the Flora, and 48,000 in the U. S. Grant, to the Miamogue Works; weather fine.

Thursday, 12th: Caught in Peconic Bay 6,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Friday, 13th*: We caught in Peconic Bay 23,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold \$1.25 worth of fish to a smack; fine. *Saturday, 14th*: We tanned the seine, and then went to Jamesport with the sloops; pleasant day. *Monday, 16th*: Caught in Peconic Bay 54,000 fish, which we sent in the Flora to the Miamogue Works, and 49,000 in the U. S. Grant to the Peconic Oil Works; weather fine. *Tuesday, 17th*: We caught in Peconic Bay 56,000 fish, which we sent in the Flora, and 44,500 in the U. S. Grant, to the Miamogue Works; pleasant day. *Wednesday, 18th*: Caught in Little Peconic Bay 58,000 fish, which we sent in the Flora, and 51,000 in the U. S. Grant to the Miamogue Works; pleasant day. *Thursday, 19th*: The wind blew a gale SW.; we did not fish, but lay at anchor close under the land in Indian Neck. *Friday, 20th*: We caught in Little Peconic Bay 59,000 fish, which we sent in the Flora to the Peconic Works, and 56,500 in the U. S. Grant to the Miamogue Works; pleasant day. *Saturday, 21st*: They have all the fish they want this week, so we went to Jamesport with the sloops; pleasant. *Monday, 23d*: Went out in Peconic Bay; caught 18,000 fish, which we sent in the Flora to the Peconic Works; fine. *Tuesday, 24th*: We caught in Peconic Bay 50,500 fish, which we sent in the U. S. Grant, and 20,000 in the Flora, to the Miamogue Works; fine day. *Wednesday, 25th*: Caught in Little Peconic Bay 38,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine day. *Thursday, 26th*: We caught in Noyack Bay 12,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Friday, 27th*: We went down in Gardiner's Bay; caught 53,500 fish, which we sent in the U. S. Grant, and 48,000 in the Flora, to the Miamogue Works; fine day. *Saturday, 28th*: Caught in Noyack Bay 19,500 fish, which we sent in the U. S. Grant to the Miamogue Works, and started for Jamesport, but on our way up we saw a good bunch of fish, so we caught 30,000 and sent them in the Flora to Jamesport for the farmers; pleasant day. *Monday, 30th*: We caught in Peconic Bay 54,000 fish, which we sent in the U. S. Grant, and 30,500 in the Flora, to the Miamogue Works; pleasant day. *Tuesday, 31st*: Caught in Peconic Bay 48,000 fish, which we sent in the U. S. Grant, and 46,000 in the Flora, to the Miamogue Works; pleasant.

August 1, Wednesday: Wind blew hard from the east; we tanned the seine. *Thursday, 2d*: Wind continues to blow from the east; we went up in the bay, and anchored in New Suffolk Cove. *Friday, 3d*: We caught in Little Peconic Bay 42,500 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant day. *Saturday, 4th*: Caught in Peconic Bay 19,500 fish, which we sent in the Flora to the Miamogue Works; fine day. *Monday, 6th*: Went out in Peconic Bay; caught 50,000 fish, which we sent in the U. S. Grant, and 45,000 in the Flora, to the Miamogue Works; fine day. *Tuesday, 7th*: We caught in Little Peconic Bay 44,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 8th*: Caught in Little Peconic Bay 27,000 fish, which we sent in the Flora to the Miamogue Works; fine. *Thursday, 9th*: Went down in Gardiner's Bay; caught 32,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Friday, 10th*: Caught in Gardiner's Bay 61,000 fish, which we sent in the Flora, and 25,500 in the U. S. Grant, to the Miamogue Works; the Flora came out again and we put 20,500 fish in her, which we sent to Jamesport to the farmers, as the factory has all the fish they can manage for this week; pleasant. *Saturday, 11th*: Mended seine, and went home. *Monday, 13th*: Went out in Gardiner's Bay; caught 57,500 fish, which we sent in the U. S. Grant, and 49,500 in the Flora, to the Miamogue Works; weather pleasant. *Tuesday, 14th*: Caught in Gardiner's Bay 42,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Wednesday, 15th*: We caught in Gardiner's Bay 42,500 fish, which we sent in the U. S. Grant, and 13,500 in the Flora, to the Miamogue Works; continues very fair. *Thursday, 16th*: Caught in Gardiner's Bay 17,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Friday, 17th*: We caught in Gardiner's Bay 44,000 fish, which we sent in the Flora, and 19,000 in the U. S. Grant, to the Miamogue Works; fine day. *Saturday, 18th*: We did not fish; tanned and mended the seine. *Monday, 20th*: Went out in Gardiner's Bay; caught 63,000 fish, which we sent in the Flora, and 58,000 in the U. S. Grant, to the Miamogue Works; pleasant day. *Tuesday, 21st*: We caught in Gardiner's Bay 56,000 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Wednesday, 22d*: Caught in Gardiner's Bay 25,500 fish, which we sent in the U. S. Grant to the Miamogue Works; then we caught 13,000 fish which we sold to a farmer that was out in the bay with a boat to purchase fish; weather continues fine. *Thursday, 23d*: We caught in Gardiner's Bay 58,000 fish, which we sent in the Flora, and 21,500 in the U. S. Grant, to the Miamogue Works; weather good. *Friday, 24th*: As they have as many fish at the factory as they care for at present, we concluded to go up to Jamesport and attend camp-meeting. *Monday, 27th*: Went out in Gardiner's Bay; caught 29,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Tuesday, 28th*: We caught in Gardiner's Bay 59,500 fish, which we sent in the Flora, and 33,500 in the U. S. Grant, to the Miamogue Works; weather fine. *Wednesday, 29th*: Caught in Gardiner's Bay 45,500 fish, which we sent in the Flora, and 49,500 in the U. S. Grant, to the Miamogue Works; fine day. *Thursday, 30th*: We caught in Gardiner's Bay 59,500 fish, which we sent in the Flora, and 51,000 in the U. S. Grant, to the Miamogue Works; pleasant day. *Friday, 31st*: Caught in Gardiner's Bay 38,500 fish, which we sent in the Flora to the Miamogue Works; fine day.

September 1st, Saturday: Did not fish; mended seine, &c. *Monday, 3d*: Went into Gardiner's Bay; caught 53,500 fish, which we sent in the U. S. Grant, and 7,500 in the Flora, to the Miamogue Works; fine day. *Tuesday, 4th*: We caught in Gardiner's Bay 3,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 5th*: Caught in Gardiner's Bay 52,500 fish, which we sent in the Flora, and 33,500 in the U. S. Grant, to the Miamogue Works; fine day. *Thursday, 6th*: We caught in Gardiner's Bay 18,700 fish, which we sent to Jamesport; then we went into Greenport and tarred a new seine. *Friday, 7th*: An east storm; did not fish. *Saturday, 8th*: The wind continues to blow from the east. *Monday, 10th*: Went out in Gardiner's Bay; caught 47,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather fine. *Tuesday, 11th*: We caught in Gardiner's Bay 48,000 fish, which we sent in the U. S. Grant to the Miamogue Works; pleasant. *Wednesday, 12th*: Caught in Gardiner's Bay 43,500 fish, which we sent in the Flora to the Miamogue Works; fair. *Thursday, 13th*: We caught in Gardiner's Bay 29,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and sold 50 cents' worth of fish to a smack; pleasant. *Friday,*

14th: We hauled out the sloops on the railways and worked on the new seine; pleasant. *Saturday, 15th*: Had the sloops painted and finished hanging the new seine; pleasant day. *Monday, 17th*: Went out in Gardiner's Bay; caught 5,000 fish, which we sent in the Flora to the Miamogue Works; weather continues fine. *Tuesday, 18th*: We caught in Gardiner's Bay 52,500 fish, which we sent in the U. S. Grant, and 40,000 in the Flora, to the Miamogue Works; fine day. *Wednesday, 19th*: Caught in Peconic Bay 49,000 fish, which we sent in the U. S. Grant to the Miamogue Works, and we put 45,400 in the Flora, which we sent up to Jamesport; fine day. *Thursday, 20th*: We caught in Peconic Bay 51,500 fish, which we sent in the Flora to the Miamogue Works; fine. *Friday, 21st*: Wind blew very hard; we did not fish. *Saturday, 22d*: Windy; did not fish. *Monday, 24th*: Caught in Peconic Bay 44,500 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues fine. *Tuesday, 25th*: We caught in Peconic Bay 16,500 fish, which we sent in the Flora to the Miamogue Works. *Wednesday, 26th*: We caught in Peconic Bay 20,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine day. *Thursday, 27th*: We attended the Suffolk County Fair. *Friday, 28th*: Caught in Peconic Bay 45,500 fish, which we sent in the U. S. Grant to the Miamogue Works, and 7,000 in the Flora to Jamesport; pleasant day. *Saturday, 29th*: Wind east; did not fish.

October 1st, Monday: Went out in Gardiner's Bay; caught 49,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Tuesday, 2d*: We caught in Gardiner's Bay 46,500 fish, which we sent in the Flora to the Miamogue Works; fine day. *Wednesday, 3d*: Caught in Gardiner's Bay 33,500 fish, which we sent in the Flora to the Miamogue Works; pleasant. *Thursday, 4th*: A very hard southeast storm; we lay in Greenport. *Friday, 5th*: The wind in the night shifted from southeast to northwest and blew and rained very hard. We had to put on our "oil-ers" and work to keep the boats from being injured alongside of the wharf. In the morning we heard the Massachusetts was ashore abreast of East Marion, on the sound shore, and went up to see them land the passengers. The wind blew hard from the northwest the remainder of the week, so we could not fish. *Monday, 8th*: Wind east; we beat down to Gardner's Island, but the wind blew hard and we came back to Greenport. *Tuesday, 9th*: East storm; lay in Greenport. *Wednesday, 10th*: Went out in Gardiner's Bay; caught 33,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Thursday, 11th*: Caught in Gardiner's Bay 29,500 fish, which we sent in the Flora to the Miamogue Works; fine day. *Friday, 12th*: Caught in Gardiner's Bay 46,000 fish, which we sent in the U. S. Grant, and 15,500 in the Flora, to the Miamogue Works; weather fine. *Saturday, 13th*: Wind blew hard northwest; did not fish. *Monday, 15th*: We went out in Gardiner's Bay; caught 48,500 fish, which we sent in the U. S. Grant, and 9,500 in the Flora, to the Miamogue Works; fine day. *Tuesday, 16th*: Went below Gardiner's Island; caught 35,500 fish, which we sent in the U. S. Grant to the Miamogue Works. *Wednesday, 17th*: Caught below Gardiner's Island 32,000 fish, which we sent in the Flora to the Miamogue Works; continues fine. *Thursday, 18th*: We caught in Gardiner's Bay 53,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine day. *Friday, 19th*: Caught in Gardiner's Bay 56,500 fish, which we sent in the Flora to the Miamogue Works; fine day. *Saturday, 20th*: Wind east, and stormed; did not fish. *Monday, 22d*: It continued to blow from the east, so we lay in Greenport. *Tuesday, 23d*: Went out in Gardiner's Bay; caught 28,500 fish, which we sent in the U. S. Grant to the Miamogue Works; fine. *Wednesday, 24th*: We caught in Gardiner's Bay 27,500 fish, which we sent in the Flora to the Miamogue Works; fine day. *Thursday, 25th*: Caught in Gardiner's Bay 43,000 fish, which we sent in the U. S. Grant to the Miamogue Works; fine day. *Friday, 26th*: East storm; we lay in Greenport. *Saturday, 27th*: Wind continues to blow from the east; I went home. *Monday, 29th*: We went through Gardiner's Bay and below Gardiner's Island; the wind did not blow hard in the morning, but it gradually increased, so when we had arrived where the gangs were finding fish it was blowing quite strong SW.; we found a very large body—I think I never saw a larger one—they were a reddish color, and extended as far as my eye could reach; we dropped off from the sloop and set into them, laying the seine narrow, for the wind was blowing strong and I did not wish to get too large a haul; we scooped 51,400 in the Flora, and it blew so hard she came near filling; I kept near her and told the man that sailed her to go into Napeague, and I sold them at Green's Works in Napeague. *Tuesday, 30th*: Went out, and off Fort Pond we caught 48,000 fish, which we sent in the U. S. Grant, and 31,500 in the Flora, to the Miamogue Works; weather fine. *Wednesday, 31st*: Went out below Gardiner's Island; caught 22,000 fish, which we sent in the U. S. Grant to the Miamogue Works; weather continues pleasant.

November 1st, Thursday: Caught below Gardiner's Island 32,000 fish, which we sent in the Flora, and 41,500 in the U. S. Grant, to the Miamogue Works; weather good. *Friday, 2d*: Storm from the south; heavy wind; did not fish. *Saturday, 3d*: Did not fish; I went home. *Monday, 5th*: Went out in Gardiner's Bay; caught 43,000 fish, which we sent in the Flora, and 58,000 in the U. S. Grant, to the Miamogue Works; wind blew quite strong SW. *Tuesday, 6th*: Wind blew hard; we lay in Greenport; I went up to election. *Wednesday, 7th*: We caught in Gardiner's Bay 55,000 fish, which we sent in the Flora, and 24,000 in the U. S. Grant, to the Miamogue Works; fine day. *Thursday, 8th*: Caught in Gardiner's Bay 50,000 fish, which we sent in the Flora, and 40,000 in the U. S. Grant, to the Miamogue Works; pleasant. *Friday, 9th*: Stormy; did not go out, but lay in Greenport. *Saturday, 10th*: Went up to Jamesport with the sloops; quit for the season and stowed the fishing things away soon as we could.

1878.

The Hawkins Brothers have been building a new steamer, which will make three, as they had two before. They want me to go in one of the steamers, which I have at last decided to do. They purchased my seines, and I will have to dispose of my sloops, &c. I am to go in the steamer William Floyd, and we have brought her to Jamesport.

April 15th, Monday: The crew came on board. *Tuesday, 16th*: We got the seine out of the house and went to Greenport; wind blew quite strong NW. *Wednesday, 17th*: We lay in Greenport, fixing the hoisting-gear, big net, &c.; wind N.W. *Thursday, 18th*: We went out on our first cruise in the Wm. Floyd; went around Montank and

west as far as Amagansett, but saw no fish, so we came up to the Miamogue Works and coaled up; weather pleasant. *Friday, 19th*: We started out of Greenport early in the morning; went down to Montauk, but it being too rough to go around we came back to Greenport and hauled the steamer out on the railways and cleaned her bottoms; weather good. *Saturday, 20th*: We sand-papered the Wm. Floyd and fixed the reel; the painters painted her; continues pleasant. *Monday, 22d*: We went around Montauk and caught outside of Long Island 55,000 fish, which we took to the Miamogue Works. Weather continues fine; wind SW. *Tuesday, 23d*: An east storm; we lay in Greenport. *Wednesday, 24th*: The storm continues; we lay in Greenport doing odd jobs on the Wm. Floyd. *Thursday, 25th*: We went out, but caught no fish; at night we anchored off Hick's Island; pleasant day. *Friday, 26th*: We caught at one set, off Fort Pond, 153,000 fish, which we took to the Miamogue Works; fine. *Saturday, 27th*: We caught in Gardiner's Bay 4,000 fish, which we took to the Miamogue Works; it was foggy a part of the day. *Monday, 29th*: We caught off Fort Pond, at one set, 182,000 fish; we had a pretty good pull to raise them, but the steamer helped us by turning first back and then ahead; I do not think we could have got them up alongside of a carry-away; and then hoisting them out by steam we get them out so fast they do not get smothered and die, as they would were we hoist them by hand; we took them to the Miamogue Works; foggy in the morning, but clearing off pleasant. *Tuesday, 30th*: We caught off Fort Pond 136,400 fish, at one set, which we took to the Miamogue Works; foggy in the morning.

May 1st, Wednesday: We went below Gardiner's Island and off Fort Pond, where we found a gang which had more fish than they could handle, and they whistled for help; so we went and helped them get their fish up so they could scoop them; another gang whistled for assistance, and we helped them also; after which the fish appeared to be scarce, and we could find none; pleasant day; at night we anchored off Hick's Island. *Thursday, 2d*: We went around Montauk and outside of Long Island; we caught 141,500 fish, which we took to the Peconic Works, as the Miamogue Works could not take them; weather pleasant. *Friday, 3d*: We went around Montauk, outside; made one set and missed the fish, but caught some river shad; weather pleasant. *Saturday, 4th*: We did not fish. *Monday, 6th*: Went down as far as Montauk; caught none; fine. *Tuesday, 7th*: Went around Montauk, and west as far as Bridgehampton; caught 184,800 fish, which we took to the Miamogue Works; it was a very pleasant day; there were about eighteen or twenty steamers outside. *Wednesday, 8th*: Went outside of Long Island; caught 132,800 fish, which we took to the Miamogue Works; fine day. *Thursday, 9th*: We lay in Greenport; the inspectors came from New York and inspected the William Floyd; pleasant. *Friday, 10th*: Went around Montauk and outside of Long Island; caught 108,800 fish, which we took to the Miamogue Works; fine. *Saturday, 11th*: We caught 40,800 fish east of Gardiner's Island; took them to the Miamogue Works; fine day. *Monday, 13th*: We went around Montauk and outside of Long Island, but found no fish; pleasant. *Tuesday, 14th*: Went outside again, but found no fish; fine. *Wednesday, 15th*: Wind east and storming; we lay in Greenport. *Thursday, 16th*: Went down as far as Fort Pond and Montauk; caught no fish; weather pleasant. *Friday, 17th*: Went around Montauk outside of Long Island; made three sets and put 256,800 fish on the William Floyd, but we were obliged to let some of the last haul go, as she was loaded, and ducks to the water's edge; we took them to the Miamogue Works; very pleasant. *Saturday, 18th*: Went down as far as Fort Pond; caught none; fine. *Monday, 20th*: Went around Montauk outside of Long Island, but caught none; it was rough; wind SSE.; we came back and anchored off Hick's Island. *Tuesday, 21st*: It stormed in the morning, but cleared off about 10 o'clock a. m., when we started and looked through the bay and went to the fish works and coaled up; then went to Greenport. *Wednesday, 22d*: We went around Montauk and outside of Long Island; caught 51,000 fish, which we took to the Miamogue Works; pleasant day; wind N. *Thursday, 23d*: Went outside of Long Island; caught 110,000 fish, which we took to the Miamogue Works; weather fine. *Friday, 24th*: We went outside of Long Island and went west as far as Southampton and caught at three sets 212,000 fish, which we took to the Miamogue Works; it was a beautiful day, but it is a long run to Southampton and back. *Saturday, 25th*: We did not fish, but lay in Greenport mending seine, &c.; pleasant day. *Monday, 27th*: We went outside of Long Island; caught 164,000 fish, which we took to the Miamogue Works; the wind blew a good breeze from the NW. *Tuesday, 28th*: Went around Montauk and outside of Long Island again, but found no fish; so we went to Stonington; the weather fine. *Wednesday, 29th*: Went outside of Long Island, but could find no fish; then went up through the bay to the Miamogue Works and coaled up and went to Greenport for water; pleasant day. *Thursday, 30th*: Went in the sound and the wind came on to blow from the east; we set the sail and steered west and anchored off the mouth of Cow Bay in the head of the sound. *Friday, 31st*: The east storm continued; we went into Port Washington and came to anchor near the village and purchased some stores.

June 1st, Saturday: The east storm continued; we went in Cow Bay. *Monday, 3d*: In the morning it was foggy; we started out of the harbor, but as it was so thick we came to anchor again off the mouth of the harbor; about noon it cleared off and we made five sets near Stepping Stones and Execution Lights; started down the sound about sundown, and before we reached Crane Neck the fog was so thick we could not see the length of the steamer; we run slow, blowing the whistle quite often, and went through Plum Gut about 7 o'clock p. m., without seeing land on either side; we saw no land from the time the fog came on until we made Little Ram Head, which is close to the Miamogue Works; we arrived about 8 o'clock; had 116,000 fish. *Tuesday, 4th*: After unloading the fish and coaling up, we went to Greenport and filled the tank with water, where we staid the remainder of the day, as it came on foggy again in p. m. *Wednesday, 5th*: Went in the sound and west as far as Faulkland Island; caught 110,000 fish, which we took to the Miamogue Works, where we arrived about sundown; fine. *Thursday, 6th*: We went around Montauk outside of Long Island; went around a shoal of fish, and just as we came together with the boats, there was a whale came up and blowed in the middle of our haul; we immediately took our seine on; I suppose he must have gone under the seine, for it was not injured; the fish were quite plenty, and we soon found other bunches and caught 298,000, which we took to the Miamogue Works; weather pleasant. *Friday, 7th*: We went around Montauk outside of Long

Island, but found no fish, so we came back; and east of Gardiner's Point caught 38,000, which we took to the Miamogue Works; weather continues pleasant. *Saturday, 8th*: We did not fish; lay in Greenport. *Monday, 10th*: An east storm; did not go out. *Tuesday, 11th*: We went down through Gardiner's Bay, and below Gardiner's Island; saw no fish, so went over to New London; wind blow quite hard. *Wednesday, 12th*: Went around Montauk, and west as far as Bridgehampton; caught 49,800 fish, which we took to the Miamogue Works; very pleasant day. *Thursday, 13th*: We went outside of Long Island again; caught 148,000 fish, which we took to the Miamogue Works; fine. *Friday, 14th*: Went around Montauk, outside of Long Island, but saw no fish; and the steamers to the west, as far as we could see, were finding none, so we turned back and came to Greenport, ripped out and tarred the seine; weather fine. *Saturday, 15th*: We hung the seine; pleasant. *Monday, 17th*: The wind blew hard, so we did not fish, but fixed our decks, scoop-net, &c. *Tuesday, 18th*: We concluded it would be too rough outside of Long Island, so we went in the sound, and went west as far as New Haven; caught 134,400 fish, and reached the Miamogue Works with them about 9 o'clock p. m.; a mild rain nearly all day. *Wednesday, 19th*: Went up the sound as far as Milford; caught 73,600 fish, and arrived at the Miamogue Works with them about 10 o'clock p. m.; pleasant day. *Thursday, 20th*: Went up sound, and near Faulkland Island caught 18,000 fish; reached the Miamogue Works with them about sundown; weather fine. *Friday, 21st*: We took a look up in Peconic Bay, but found no fish; pleasant. *Saturday, 22d*: Stormy day; wind SE.; we lay in Greenport. *Monday, 24th*: We went up in Peconic Bay; caught 28,000 fish, and took them to the Miamogue Works; wind blew hard from the NW. *Tuesday, 25th*: Went up in Peconic Bay and caught a few fish, but not enough to go to the works with, so we anchored off Jamesport; the wind blew hard NW. *Wednesday, 26th*: We caught a few in Peconic Bay, and went down to the Miamogue Works; had, with what we caught the day before, 65,000 fish; weather fair. *Thursday, 27th*: We caught in Peconic Bay 17,500 fish, which we took to the Miamogue Works; weather pleasant. *Friday, 28th*: We went up sound nearly to Faulkland Island; caught 52,000 fish, which we took to the Miamogue Works; weather continues fine. *Saturday, 29th*: We went up sound nearly to Faulkland Island; caught 11,000 fish, which we took to Miamogue Works; fine.

July 1st, Monday: We went in the sound and went west as far as New Haven; caught 130,800 fish and arrived at the Miamogue Works with them before sundown; fine. *Tuesday, 2d*: Went in the sound in a. m.; it was thick and foggy, so we ran slow, and about 10 o'clock a. m. the fog "lit up"; we were abreast of New Haven, and we saw fish and went to work; caught 104,000, which we took to the Miamogue Works; weather very fine after the fog cleared away. *Wednesday, 3d*: We lay in Greenport; hauled out the Wm. Floyd on the railways; painted and fixed her; we did not fish any more this week; pleasant. *Monday, 8th*: Went west as far as Norwalk Islands; caught none; at night stopped in Black Rock Harbor; weather good. *Tuesday, 9th*: Went west as far as Norwalk Islands; caught off Southport 90,800 fish, and came down to the Miamogue Works; had a heavy thunder squall in p. m., while we were coming down sound. *Wednesday, 10th*: We caught in Gardiner's Bay 94,400 fish and took them in to the Miamogue Works; we had a shower just at night. *Thursday, 11th*: We caught in Gardiner's Bay and off Fort Pond 74,000 fish, which we took to the Miamogue Works. *Friday, 12th*: We caught off Fort Pond 102,800 fish, which we took to the Miamogue Works; weather pleasant. *Saturday, 13th*: Wind east; did not fish. *Monday, 15th*: Went down below Gardiner's Island and caught off Fort Pond 100,000 fish, which we landed at the Miamogue Works; fine day. *Tuesday, 16th*: We caught in Gardiner's Bay 11,200 fish, which we took to the Miamogue Works; weather good. *Wednesday, 17th*: Went up sound just west of Faulkland Island; we caught 46,800 fish, which we took to the Miamogue Works; weather continues fine. *Thursday, 18th*: Went up sound and near Faulkland Island we caught 92,000 fish, which we took to the Miamogue Works; fine day. *Friday, 19th*: We caught off New Haven 149,600 fish, which we took to the Miamogue Works; very warm day. *Saturday, 20th*: We caught in Gardiner's Bay 6,000 fish, which we took to the Miamogue Works; pleasant. *Monday, 22d*: Went out in the bay, but the wind blowing cool from the NW. the fish would not show, so we caught none. *Tuesday, 23d*: We caught off Fort Pond 216,400 fish, which we took to the Miamogue Works; weather fine. *Wednesday, 24th*: We caught in Gardiner's Bay 102,800 fish, which we took to the Miamogue Works; weather fine. *Thursday, 25th*: We caught in Gardiner's Bay 109,600 fish, and the wind coming on to blow very hard from the SW., we started for and arrived at the Miamogue Works at 3 o'clock p. m. *Friday, 26th*: The wind blew hard from the SW.; we caught none, and soon came into Greenport. *Saturday, 27th*: Wind blew hard; did not go out. *Monday, 29th*: We caught in Gardiner's Bay 128,000 fish, which we took to the Miamogue Works; very pleasant. *Tuesday, 30th*: An east storm; we lay in Greenport. *Wednesday, 31st*: We went below Gardiner's Island, and off Fort Pond caught 224,000 fish, which we took to the Miamogue Works; weather fine.

August 1st, Thursday: We caught off Fort Pond 93,000 fish, which we took to the Miamogue Works; pleasant, but had a shower just at night. *Friday, 2d*: We caught below Gardiner's Island 102,800 fish, which we took to the Miamogue Works; after which we came to Greenport; pleasant, except a heavy thunder shower just at night. *Saturday, 3d*: We hauled out the William Floyd on the railways to fix the condenser, and we took the seine in the lot, ripped out, and tarred, and partly hung it in the lines; pleasant day. *Monday, 5th*: We finished hanging the seine and launched the William Floyd; pleasant. *Tuesday, 6th*: We caught in Gardiner's Bay 30,400 fish and took them to the Miamogue Works; weather fine. *Wednesday, 7th*: Went up in Peconic Bay; caught 77,600 fish, which we took to the Miamogue Works; pleasant; wind light NW. *Thursday, 8th*: We caught in Noyack Bay 12,000 fish, which we took to the Miamogue Works; pleasant day. *Friday, 9th*: Went down in Gardiner's Bay, but the wind blew hard from the SW., so we caught none, and soon came into Greenport. *Saturday, 10th*: Did not fish. *Monday, 12th*: We went up sound and caught off Faulkland Island 90,000 fish, which we took to the Miamogue Works; fine day. *Tuesday, 13th*: Went in the sound, and just west of Faulkland Island we caught 52,000 fish, which we took to the Miamogue Works; weather continues fine. *Wednesday, 14th*: Wind E.; we looked through Gardiner's Bay, but caught no fish; so came to Greenport. *Thursday, 15th*: Wind E., and we did not start out of Greenport until 8 o'clock a. m., when we went down through Gardiner's Bay; and below Gardiner's Island and off Fort Pond we found some very good

bunches of fish, and caught 160,800, which we took to the Miamogue Works; the wind died out and we had very good weather. *Friday, 16th*: We caught off Fort Pond 14,400 fish, which we took to the Miamogue Works; weather fine. *Saturday, 17th*: Did not fish. *Monday, 19th*: We went around Montauk and outside of Long Island, but found no fish; weather fine. *Tuesday, 20th*: Went in the sound, and went west as far as Faulkland Island; caught 55,200 fish, and took them to the Miamogue Works; weather continues fine. *Wednesday, 21st*: Went up Long Island Sound, and caught off New Haven 87,600 fish, which we took to the Miamogue Works; we had rain and darkness to contend with, but reached the works in safety. *Thursday, 22d*: Wind blew from the east; we lay in Greenport. *Friday, 23d*: We went down through the bay to Fort Pond, where we caught 48,400 fish, which we took to the Miamogue Works; weather good. *Saturday, 24th*: We caught off Fort Pond 29,600 fish, which we took to the Miamogue Works; fine day. *Monday, 26th*: We went in the sound, and off Faulkland Island caught 66,900 fish, which we took to the Miamogue Works; weather pleasant. *Tuesday, 27th*: We went below Gardiner's Island and caught 6,400 fish, which we landed at the Miamogue Works; fine. *Wednesday, 28th*: Went up sound, and near Faulkland Island we caught 161,600 fish, and took down to the Miamogue Works; very fine day. *Thursday, 29th*: Went in Long Island Sound; followed the south shore, and off Luce's Landing we fell in with fish; caught 66,400, which we took to the Miamogue Works; fine day. *Friday, 30th*: Went in the sound, and just west of Horton's Point caught 36,500 fish, which we took to the Miamogue Works; continues very pleasant. *Saturday, 31st*: Went below Gardiner's Island, and off Fort Pond we caught 27,200 fish, which we landed at the Miamogue Works; weather continues fine.

September 2d, Monday: Went down through Gardiner's Bay, and below Gardiner's Island caught 197,200 fish, which we took to the Miamogue Works; weather continues fine. *Tuesday, 3d*: Went down below Gardiner's Island, caught 183,200 fish, and took them to the Miamogue Works; fish plenty; fine. *Wednesday 4th*: Wind blew hard from the east, so we could not fish; we came up to Greenport. *Thursday, 5th*: The wind continues to blow from the east; we lay in Greenport. *Friday, 6th*: We went below Gardiner's Island; caught 95,600 fish, which we landed at the Miamogue Works; fine. *Saturday, 7th*: In Greenport; wind E.; I went home. *Monday, 9th*: We went out in Gardiner's Bay, and near the end of Gardiner's Point we made two sets of about equal size, just loading the steamer, and started with them for the Miamogue Works at half past eleven a. m.; there were 253,600 fish; weather pleasant. *Tuesday, 10th*: We caught in Gardiner's Bay 66,400 fish, which we took to the Miamogue Works; fine day. *Wednesday, 11th*: Went below Gardiner's Island, and off Fort Pond we caught 70,800 fish, which we took to the Miamogue Works; the wind is east, but does not blow very hard, and it has been in that direction most of the week. *Thursday, 12th*: Wind E. and stormy; we lay in Greenport. *Friday, 13th*: Wind continued to blow; we did not fish. *Saturday, 14th*: We went out in Gardiner's Bay; caught 61,600 fish, which we took to the Miamogue Works; weather fine. *Monday, 16th*: We went down through Gardiner's Bay and below Gardiner's Island to Fort Pond; the wind was blowing from the east, and it was quite rough; but we could make a lee in Fort Pond, so we made two small sets in Fort Pond; and then the weather moderated, and we went off shore and made a good set; so that when we had them scooped in we had over 100,000 fish; then we found another bunch and caught them, and put all we could on the steamer, and had enough left in the seine to nearly load another steamer, which we had to let go; they handled easy; we had no trouble in raising them; we had in all 236,009 fish, which we took to the Miamogue Works, arriving there about 7 o'clock p. m. *Tuesday, 17th*: We caught off Gardiner's Point 98,400 fish, which we took to the Miamogue Works; pleasant day. *Wednesday, 18th*: We caught in Gardiner's Bay 57,600 fish, when the grate-bars fell down and we were obliged to burn wood to get to the Miamogue Works; fine. *Thursday, 19th*: We went in the sound and caught, off Horton's Point, 114,800 fish, which we took to the Miamogue Works; we arrived at the works about 8 o'clock; fine. *Friday, 20th*: We went in Long Island Sound; caught off Faulkland Island 158,400 fish; and we arrived at the Miamogue Works about 9 p. m.; pleasant day. *Saturday, 21st*: We came into Greenport and mended seine. *Monday, 23d*: We went through Gardiner's Bay, and below Gardiner's Island caught 23,200 fish, which we took to the Miamogue Works; weather continues fine. *Tuesday, 24th*: We went in the sound, and caught off Faulkland Island 65,600 fish, which we took to the Miamogue Works; weather fine. *Wednesday, 25th*: We caught off Faulkland Island 100,400 fish, which we took to the Miamogue Works; fine day. *Thursday, 26th*: Went in the sound, but the wind blew quite strong from the southwest, so we followed the south shore in hopes the wind might die out; we went up as far as Mattituck, but the wind continued to blow, so we came back to Greenport. *Friday, 27th*: Wind blew quite hard NW.; went in the sound, and nearly to Faulkland Island, but the wind continued to blow, so we turned back and went into the Miamogue Works; pleasant day. *Saturday, 28th*: We tarred a new seine; pleasant. *Monday, 30th*: We went in the sound and west as far as New Haven, where we caught 127,000 fish, which we took to the Miamogue Works; pleasant weather.

October 1st, Tuesday: We went in the sound, and off Luce's Landing caught 152,000 fish, which we took to the Miamogue Works; weather continues fine. *Wednesday, 2d*: Went in the sound, and off Riverhead we caught 88,800 fish, which we took to the Miamogue Works; weather continues fine. *Thursday, 3d*: Went in the sound, and off Luce's Landing and Mattituck caught 111,200 fish, which we took to the Miamogue Works; weather fine. *Friday, 4th*: Went in the sound; caught off Riverhead 155,600 fish, which we took to the Miamogue Works; fine day. *Saturday, 5th*: We did not fish; it has been a very pleasant week—just like summer. *Monday, 7th*: Went up sound, and off Riverhead and Wading River caught 119,600 fish, which we took to the Miamogue Works; fine day. *Tuesday, 8th*: Started to go up sound, but the wind blew hard, and we were obliged to turn back and go into Greenport. *Wednesday, 9th*: We went out in the morning; went up sound a ways, but the wind blew hard, so we turned back and came to Greenport, and went to work on the new seine. *Thursday, 10th*: We finished hanging the new seine. *Friday, 11th*: We attended the Suffolk County Fair. *Saturday, 12th*: An east storm. *Monday, 14th*: Went through Gardiner's Bay and below Gardiner's Island, where we caught 42,400 fish, which we took to the Miamogue Works; fine day. *Tuesday, 15th*: We caught in Gardiner's Bay 44,400 fish, which we took to the Miamogue Works; fine day. *Wednesday, 16th*:

Went out in Gardiner's Bay; caught none; pleasant. *Thursday, 17th*: Wind blew hard; we lay in Greenport. *Friday, 18th*: We caught in Gardiner's Bay 18,800 fish, which we took to the Mianogue Works; fine day. *Saturday, 19th*: Windy and cold; did not go out, but lay in Greenport. *Monday, 21st*: We started from Greenport in the morning, and went through the Bay down to Montauk, and then south of Block Island, after which we passed Point Judith and Beaver-tail light into Newport; as we passed into the harbor we saw Fort Adams and the man-of-war *Minnesota*; after we arrived to the town we went up and saw "Old Mill," as they call it, which was built ages before this country was settled by the English. *Tuesday, 22d*: We started out of Newport in a. m. as early as we could see, and came to the north of Block Island and Montauk, and looked in by Fort Pond and up through the bay, but could see no fish; reached Greenport at 4 p. m.; pleasant. *Wednesday, 23d*: A hard east storm; we lay in Greenport. *Thursday, 24th*: The wind blew very hard NW.; lay in Greenport. *Friday, 25th*: Went below Gardiner's Island and under Gin Beach; just east of Fort Pond we caught at one set 160,000 fish, which we took to the Mianogue Works; weather good. *Saturday, 26th*: We caught off Fort Pond 73,000 fish, which we took to the Mianogue Works; pleasant day. *Monday, 28th*: We went below Gardiner's Island; the wind blew quite strong from the north, so we anchored off Goose Pond and stopped all night. *Tuesday, 29th*: We caught off Fort Pond 65,000 fish, which we took to the Mianogue Works; pleasant day. *Wednesday, 30th*: Stormy day; went to Greenport. *Thursday, 31st*: Wind blew hard, and we caught no fish.

November 1st, Friday: Windy; we lay in Greenport. *Saturday, 2d*: Wind continued to blow; did not fish. *Monday, 4th*: Went down to Fort Pond; made our set and caught 25,000 fish, but the wind blew up so strong from the northwest we were obliged to leave; there were plenty of good bunches of fish, but close in on a lee shore; some of the gangs got large hauls and had a hard time, part having to turn their fish out, for the wind blew a gale; I had as much as I could do to keep our boats from sinking while on our way to the Mianogue Works. *Tuesday, 5th*: Wind blew hard; did not fish. *Wednesday, 6th*: Went out; looked through Gardiner's Bay and Fort Pond, but could see no fish; it snowed and rained by turns all day. *Thursday, 7th*: We found a bunch of fish close in-shore in Cherry Harbor; caught and took them to the Mianogue Works; there were 37,000; pleasant day. *Friday, 8th*: The wind blew hard from the northwest, and we came up to Greenport from the fish works. *Saturday, 9th*: Wind blew very hard from the northwest; did not fish; I came home. *Monday, 11th*: Went down to Gin Beach; caught at one set 153,000 fish, which we took to the Mianogue Works; weather fine. *Tuesday, 12th*: In Greenport, getting the boiler fixed. *Wednesday, 13th*: Windy; did not fish. *Thursday, 14th*: Wind blew hard; we lay in Greenport. *Friday, 15th*: Pleasant day; we went out through Gardiner's Bay and below Gardiner's Island, but saw no fish; so we came up to Greenport and on to Johnsonport, and tarred the seine up in the lot to dry it, and stripped the William Floyd ready to lay her up; and the fishing season of 1878 is ended.

1879.

April 22d, Tuesday: We brought the William Floyd up to Johnsonport, and the crew came on board, and we commenced fixing her for business; pleasant day. *Wednesday, 23d*: We carted the seine and put it in the boats in a. m., and got ready to go down bay; p. m. we went to Greenport; after we arrived we shipped the cranes, as they have been presenting the William Floyd with a set of cranes, which she very much needed; fine. *Thursday, 24th*: We cover the falls in the cranes and fixed the seine-boats, hoisting fall, and overhauled things in general; some of the steamers went out to-day, but saw no fish; pleasant day. *Friday, 25th*: I fixed my room, and we fixed the ton blocks and pen, or deck boards, to the William Floyd, &c.; some of the steamers went out, but saw no fish; weather very good for fishing, although it is cloudy. *Saturday, 26th*: We went down to the Mianogue Oil Works in a. m. and coaled up; p. m. I came home. *Monday, 28th*: Foggy, so that we did not go out. *Tuesday, 29th*: It rained in the morning, but it lit up, and we started down bay about 9 o'clock a. m.; went down as far as Gardiner's Point, but it was so thick and foggy that we came to anchor close by the Point and waited for it to clear up; but as it did not, we came back to Greenport. *Wednesday, 30th*: Foggy in the morning; we started out at 8 o'clock and went down as far as Shagwam Reef, but saw no fish, so we anchored off Goose Pond, Gardiner's Island; pleasant.

May 1st, Thursday: Wind blew quite strong from the northwest; we went down as far as Montauk and saw some of the steamers coming back; so we went back and anchored off Goose Pond, Gardiner's Island. *Friday, 2d*: We went around Montauk, and went as far as Amagansett; saw no fish, and the steamers, as far as we could see, seemed to be finding no fish; so we came back, and came to the Mianogue Works and coaled up, and then to Greenport and fixed off the boiler; pleasant. *Saturday, 3d*: I went home on evening train. *Monday, 5th*: We went around Montauk, and went as far as Amagansett; caught no fish; and as it was quite rough we turned back and came inside and anchored off Hicks' Island; a part of the steamers caught a few fish to-day, which were the first caught this season. *Tuesday, 6th*: We went around Montauk, and went as far as Bridgehampton; and, as it was quite rough, we turned back and came inside; and close under Gin Beach, saw and caught 16,800 fish, which we took to the Mianogue Works; weather good. *Wednesday, 7th*: We went around Montauk, and went as far as Bridgehampton; fish quite plenty; made two sets; caught 130,800 fish; arrived at the Mianogue Works 9 o'clock p. m.; pleasant day; wind NW., which made it smooth. *Thursday, 8th*: Went around Montauk, and went as far as Southampton; caught a few fish, and stopped outside through the night as the weather was fine. *Friday, 9th*: We went west of Point Quogue light; made two sets, and then came to the Mianogue Works; had 92,000 fish; pleasant day. *Saturday, 10th*: We caught below Gardiner's Island 24,000 fish, which we took to the Mianogue Works; pleasant. *Monday, 12th*: Foggy in the morning; went down to Fort Pond, but saw no fish; so we came to Greenport and had a little work done on the steamer. *Tuesday, 13th*: Foggy in the morning; we went down to Montauk; made our set, and caught 125,000 fish, which we took to the Mianogue Works; fine day. *Wednesday, 14th*: We went around Montauk, but caught no fish; fine. *Thursday, 15th*: Went

around Montauk, and west as far as Bridgehampton; caught 152,400 fish and started for the Miamogue Works, but before we arrived at Gardiner's Point it came on a thick fog, but we found our way into the works without much trouble; if there is anything I dread it is a fog. *Friday, 16th*: Foggy; we went down and anchored in Fort Pond, and as it continued thick in p. m. we went up and came to anchor off Hicks' Island. *Saturday, 17th*: We caught below Gardiner's Island 32,000 fish, which we took to the Miamogue Works; it continues foggy most of the time. *Monday, 19th*: We caught just west of Gardiner's Point 36,400 fish, which we took to the Miamogue Works; foggy morning and night. *Tuesday, 20th*: Fog continues; we caught in Gardiner's Bay 149,200 fish, which we took to the Miamogue Works. *Wednesday, 21st*: Foggy in a. m.; we went down as far as Fort Pond, but caught no fish; then came up to Greenport. *Thursday, 22d*: We went around Montauk, and west as far as Easthampton, where we caught 68,800 fish; and as it was getting rough we started for the Miamogue Works, where we arrived at 9 o'clock p. m. *Friday, 23d*: We went below Gardiner's Island, but the wind blew so hard from the northeast that we came to Greenport; bent new sail, &c. *Saturday, 24th*: Did not fish. *Monday, 26th*: Started early in the morning; went around Montauk, and when about 5 miles west of Montauk found the George F. Morae (which is one of Hawkins Brothers' steamers) broke down, so we took a line from her and towed her to New London; pleasant, wind north. *Tuesday, 27th*: Went outside of Long Island, and west as far as Southampton, where we caught 92,800 fish, which we took to the Miamogue Works; fine day. *Wednesday, 28th*: Went outside of Long Island, and west as far as Fort Pond, where we caught 36,800 fish, which we took to the Miamogue Works; pleasant. *Thursday, 29th*: Went outside of Long Island, and west as far as Pond Quogue Light, where we caught 205,600 fish, and arrived at the Miamogue Works 11 p. m.; a very pleasant day. *Friday, 30th*: Went outside of Long Island, and west as far as Amagansett; caught 208,800 fish, and arrived at the Miamogue Works at sundown; it was very fine weather in a. m., but in p. m. it blew up quite strong from the southwest, so that it began to be rough. *Saturday, 31st*: Did not fish, but mended seine, &c.

June 2d, Monday: We went outside of Long Island and west as far as Southampton; caught none; it was quite rough; we came back around Montauk and anchored off Hicks' Island. *Tuesday, 3d*: An east storm; we came to the Miamogue Works and coaled up, and then to Greenport; in p. m. it rained and blew very hard. *Wednesday, 4th*: It stormed in a. m., but before noon it broke away and we went up in Peconic Bay; caught 18,400 fish, which we took to the Miamogue Works. *Thursday, 5th*: We went around Montauk, but it was very rough, and we came back and anchored off Tobacco Lot, Gardiner's Island. *Friday, 6th*: We looked off Fort Pond, east of Gardiner's Island, and through Gardiner's Bay; caught none; pleasant. *Saturday, 7th*: Did not fish. *Monday, 9th*: Went outside of Long Island and west as far as Napeague; caught 218,000 fish, which we took to the Miamogue Works; very pleasant day. *Tuesday, 10th*: We went outside of Long Island; saw no fish, so came back and went to Greenport; pleasant. *Wednesday, 11th*: We went up in Peconic Bay; caught a few fish, but not enough worth going to the works with, so we stopped into Greenport and let a farmer have them. *Thursday, 12th*: We hauled out the William Floyd on the railways and cleaned her bottom, ready for painting, and ripped out and tarred the seine; it rained a part of the day. *Friday, 13th*: We hung the seine, and the painters have painted the steamer, fixed the condenser, &c.; pleasant day. *Saturday, 14th*: We carted the seine down in a. m. and put it in the boats and salted it; in p. m. we launched the William Floyd, and I came home. *Monday, 16th*: We went in the sound; the wind was east and it was foggy; we went west as far as New Haven and went in for a harbor. *Tuesday, 17th*: We caught in the sound, off New Haven, 36,000 fish, and reached the Miamogue Works before sundown; weather continues pleasant. *Wednesday, 18th*: Went up sound as far as Bridgeport, but caught no fish until we got to the east of New Haven, when we caught 25,600 fish, and reached the Miamogue Works with them at 10 p. m.; pleasant. *Thursday, 19th*: We went to Greenport, reeled the seine, and, taking what help I wanted, went to New London to get the William Floyd's boiler fixed. *Friday, 20th*: We lay in New London, getting the work done as fast as possible; weather fine. *Saturday, 21st*: We got the work done and steam on about 1 o'clock; arrived in Greenport about 4 o'clock p. m.; weather fine. *Monday, 23d*: Went down to the Miamogue Works and coaled up; then looked through Gardiner's Bay, but caught no fish; weather pleasant. *Tuesday, 24th*: Went up sound and caught off Faulkland Island 109,600 fish, and arrived at the Miamogue Works at 9 o'clock p. m.; weather continues fine. *Wednesday, 25th*: Went in the sound and the wind came on to blow hard from the east, and stormed, so we went into New Haven for a harbor. *Thursday, 26th*: Went out in the sound, but the wind blew quite fresh SW, and made it rough, so we came into New Haven again; the English steamer Norman Monarch lay close by us, and we have had a good opportunity to look at her, as the officers were kind enough to take us through her and show us all that was of interest. *Friday, 27th*: We went out in the sound and made six sets; caught 84,800 fish, and arrived at the Miamogue Works at 9 o'clock p. m.; very pleasant day. *Saturday, 28th*: We went up to Greenport and mended seine; I went home in p. m.; pleasant day. *Monday, 30th*: We went to New London and had the new grates put in the William Floyd; then went up sound and caught a small set of fish off Faulkland Island; then anchored behind the light in the mouth of New Haven Harbor; weather fine.

July 1st, Tuesday: Made two sets off New Haven; then came down to the Miamogue Works; had 34,800 fish; pleasant. *Wednesday, 2d*: Went up sound; caught off New Haven 60,400 fish, and arrived at the Miamogue Works at 12 o'clock in the night; weather good. *Thursday, 3d*: We came to Greenport, as they want no more fish this week at the oil works; the men want to keep the Fourth; we went home on the cars. *Monday, 7th*: We went outside of Long Island; caught 13,400 fish off Easthampton; it was quite rough; some of my crew are troubled with seasickness; I never was bothered myself; we came back and took the fish we had to the Miamogue Works. *Tuesday, 8th*: It was a stormy, windy day; we came up to Greenport. *Wednesday, 9th*: We went around Montauk outside of Long Island; caught 55,200 fish, and took them to the Miamogue Works; it was very rough, but pleasant weather. *Thursday, 10th*: We went up sound, and off New Haven we caught 96,800 fish, and arrived at the Miamogue Works at midnight; it was a pleasant day, but we had a heavy thunder shower while on our way to the works. *Friday, 11th*: We went up sound and caught off New Haven and Faulkland Island 56,000 fish, and arrived at the Miamogue Works at 11 p. m.;

weather good, but before morning it rained and blew hard from the east. *Saturday, 12th*: We came up to Greenport in the wind and rain; in p. m. it cleared off and I went home. *Monday, 14th*: We went down in Gardiner's Bay and then up into Noyack Bay, where we found plenty of fish; we caught 187,200, and arrived at the Miamogue Works at 4 o'clock p. m.; pleasant. *Tuesday, 15th*: We went up bay again, and caught in Noyack Bay and Little Peconic Bay 232,000 fish, which was all we could put on, and reached the Miamogue Works at 6 o'clock p. m.; fine day. *Wednesday, 16th*: We went up in Little Peconic Bay; caught 87,200 fish, which we took to the Miamogue Works; pleasant day, but we had a hard thunder shower just at night, and it rained nearly all night. *Thursday, 17th*: Went up bay, but the wind was NW. and the fish would not show; one of the men was taken sick, and we took him to Greenport and looked up a man to take his place, and as the day was so far spent we concluded not to go out again. *Friday, 18th*: We went up bay and then down bay, and caught but 20,000 fish, which we took in to the Miamogue Works; weather pleasant. *Saturday, 19th*: Went out in Gardiner's Bay, but caught no fish; so went to Greenport and I went home; fine day. *Monday, 21st*: We went up sound as far as Luce's Landing; caught 52,000 fish, which we took to the Miamogue Works; weather continues fine. *Tuesday, 22d*: Went in the sound and went west as far as Cold Spring, where we stopped; pleasant; wind SW. *Wednesday, 23d*: Went out in the sound and east; we found some fish off Mattituck, and caught 59,600, which we took to the Miamogue Works; weather fine. *Thursday, 24th*: We went up sound as far as Faulkland Island; caught 126,400 fish, and arrived at the Miamogue Works at 9 o'clock p. m.; weather fine. *Friday, 25th*: Went up sound as far as New Haven; the wind breezed up from the east, so we went in and came to anchor behind the light in the mouth of New Haven Harbor. *Saturday, 26th*: Wind east and stormy; we came out and came to Greenport. *Monday, 28th*: Went up sound, and off Faulkland Island caught 129,600 fish, which we took to the Miamogue Works; very fine day. *Tuesday, 29th*: We went up sound; caught off Faulkland Island 9,600 fish; they did not appear to be very plenty to-day; we took them to the oil works; very warm. *Wednesday, 30th*: Went up sound; caught just east of Horton's Point 37,600 fish; arrived in to the Miamogue Works at 6 o'clock p. m.; a warm day. *Thursday, 31st*: Went up sound; caught 57,600 fish just west of Horton's Point, and took them to the Miamogue Works; pleasant day.

August 1st, Friday: It was foggy in the morning and we had to grope our way along through the gut and up sound, running slow so as not to run any vessels down; one of the steamers ran into a schooner just after going through the gut, but did not do much damage; the fog soon lit up and we caught 52,000 fish near Faulkland Island, which we took to the Miamogue Works; pleasant after the fog lifted. *Saturday, 2d*: Did not fish; a very, very warm day. *Monday, 4th*: We went up sound as far as New Haven; caught 102,400 fish, which we took down to the Miamogue Works; weather very fine. *Tuesday, 5th*: Went up sound as far as Charles Island; caught 60,000 fish, which we took to the works; fine. *Wednesday, 6th*: We went up to Greenport to fix the boiler. *Thursday, 7th*: Went out in the morning and the boiler commenced to leak, so we went to New London and had a soft patch put on. *Friday, 8th*: We came out in the morning and started west in the sound, but the wind was east and commenced to storm, so we came to Greenport. *Saturday, 9th*: Went out in the bay in a. m.; saw no fish, so went into the fish works and coaled up, and to Greenport; thus ends the week. *Monday, 11th*: Went up sound as far as Stratford Point; caught a few fish just at night and went into Black Rock and anchored; fine day. *Tuesday, 12th*: Fished off Stratford until noon, then started for the Miamogue Works; arrived just before sundown; had 129,600 fish; weather continues fine. *Wednesday, 13th*: We went up sound; the wind blew quite fresh SW.; we went in behind Norwalk Islands and came to anchor. *Thursday, 14th*: Went out in the sound; caught a few fish off South Port, and at night, as we did not have enough to come down with, we went into Bridgeport; fine. *Friday, 15th*: Went out in the sound and went east and saw some fish, and we set around them—four different bunches—on our way down, and caught not a single one; they went under the seine; divers we call them; we took to the works what we caught the day before, 16,800 fish; weather fine. *Saturday, 16th*: An east storm; we lay in Greenport. *Monday, 18th*: Went out in Gardiner's Bay and made one set, but caught none; it stormed hard nearly all day, and at night I went up to Greenport, and before we arrived at the wharf it was blowing a gale from the NE.; we made fast to the wharf, using all the lines we had, and oh! how it did blow; during the night there were about twenty fishing yachts and sloops dragged and went ashore, and two or three steamers had a pretty hard time; one little smack anchored off Boswick, Gardiner's Island, foundered, and two men that were in her were drowned; the wind, some time in the night, shifted to NNW.; that was when it blew the hardest. *Tuesday, 19th*: Wind blew quite hard NW.; we did not go out; some of the steamers went down bay and towed up disabled yachts and sloops—some with bowsprit gone, some with boom or mast broken, &c. *Wednesday, 20th*: We went below Gardiner's Island; caught 169,200 fish, which we took to the Miamogue Works; fine. *Thursday, 21st*: We caught just east of Gardiner's Point 59,200 fish, which we took to the Miamogue Works; fine. *Friday, 22d*: We hauled out the William Floyd on the railways, to paint and fix the condenser, and we took the seine in the lot to put some new corks on the hunt; wind blew strong SW. *Saturday, 23d*: We saw the scull race in a. m.; I went home in p. m. *Monday, 25th*: We went down below Gardiner's Island and as far as Fort Pond; caught 41,600 fish, which we took to the Miamogue Works; wind east. *Tuesday, 26th*: The wind was east and it was storming; we lay in Greenport. *Wednesday, 27th*: The wind continued to blow east; did not fish. *Thursday, 28th*: We went up in Peconic Bay in a. m., but saw no fish, so we came back to Greenport. *Friday, 29th*: We went down in Gardiner's Bay; made four sets; caught 27,200 fish, which we took to the Miamogue Works; pleasant day. *Saturday, 30th*: We did not fish; I went home.

September 1st, Monday: We went up sound as far as Mattituck, where we succeeded in catching 141,200 fish, and arrived at the Miamogue Works at 8 o'clock p. m.; weather pleasant. *Tuesday, 2d*: Went up sound, and off Stratford we caught three small sets, and then went in to Bridgeport for the night; pleasant day. *Wednesday, 3d*: We went out in the sound in the morning and caught a good haul of fish off South Port; then the wind breezed up from the east and we started down sound; we arrived at the Miamogue Works at 4 o'clock p. m.; had 113,600 fish. *Thursday, 4th*: It was foggy in the morning, and we did not start out until 10 o'clock a. m.; then we went up in Little

Peconic Bay and down in Gardiner's Bay, where we caught 46,400 fish, which we took to the *Miamogue Works*; pleasant after fog lifted. *Friday, 5th*: We went down through Gardiner's Bay and below Gardiner's Island to Fort Pond; caught only 10,600 fish, which we took to the *Miamogue Works*; weather good. *Saturday, 6th*: Went out in Gardiner's Bay; caught 2,000 fish, and as there was not enough to pay for taking them to the works, we let a farmer in Greenport have them; weather continues fine. *Monday, 8th*: Wind blew hard; did not fish, but lay in Greenport. *Tuesday, 9th*: We went around Montauk, outside of Long Island, and west as far as Pond Quogue Light; caught 36,600 fish, which we took to the *Miamogue Works*; pleasant; wind north, and blew fresh in a. m. *Wednesday, 10th*: We went up sound as far as Luce's Landing; caught 90,000 fish, which we took to the *Miamogue Works*; pleasant day. *Thursday, 11th*: Went in the sound and caught near Faulkland Island 129,600 fish, which we took to the *Miamogue Works*; weather continues fine. *Friday, 12th*: Went in the sound and up as far as Faulkland Island; caught 72,000 fish, and arrived at the *Miamogue Works* at 8 o'clock p. m.; weather fine. *Saturday, 13th*: We went up to Faulkland Island, but the wind blew too hard for the fish to show, so we came to Greenport. *Monday, 15th*: We went in the sound and west as far as New Haven, where we caught 118,000 fish, and reached the *Miamogue Works* at 10 o'clock p. m.; fine. *Tuesday, 16th*: We went up sound, but the wind blew a good breeze from the east, and the fish did not show very well, so we went in to New Haven. *Wednesday, 17th*: The wind blew very hard from the west; we lay in New Haven. *Thursday, 18th*: We went out in the sound and west as far as Norwalk Islands, but the wind blew too hard for the fish to show; so we went in to Bridgeport and filled our tank with water. *Friday, 19th*: Went out in the sound and went east; the wind was blowing quite strong from the northeast, but when we had arrived off Faulkland Island the wind began to die out, and we saw a bunch of fish and went to work at them; made four sets and caught 95,200 fish, which we took to the *Miamogue Works*. *Saturday, 20th*: We went down below Gardiner's Island to Fort Pond, but saw no fish, so came to Greenport. *Monday, 22d*: An east storm; we lay in Greenport. *Tuesday, 23d*: We went up sound as far as Faulkland Island; caught 64,200 fish, which we took to the *Miamogue Works*; pleasant; wind southwest. *Wednesday, 24th*: Went up sound as far as Luce's Landing; made a set and caught 9,600 fish, and as the wind blew strong southwest we came down and took them to the *Miamogue Works*; then went to Greenport. *Thursday, 25th*: The wind blew quite strong from the northwest, so we concluded we would go up to Jamesport and rip out the old seine, as we want the corks and some of the lines to put in the new seine; on our way up we picked up two men, who were clinging to a capsized boat; they were nearly exhausted, and would not have been able to hold on much longer; they said they had been in the water since midnight; there were three in the boat when it capsized, but one left the boat and tried to swim ashore and was drowned; his body was found afterwards; we then proceeded to Jamesport and got the corks and lines; then went to Greenport and tarred the new seine. *Friday, 26th*: We went down as far as Fort Pond, but could see no fish, when we came back to Greenport and took out the old seine and went to work on the new one. *Saturday, 27th*: We finished hauling the new seine. *Monday, 29th*: Went below Gardiner's Island to Fort Pond, where we caught 24,800 fish, which we took to the *Miamogue Works*. *Tuesday, 30th*: We went around Montauk, outside of Long Island and abreast of Fort Pond; caught 93,600 and took them to the *Miamogue Works*; weather continues fine.

October 1st, Wednesday: Went outside of Long Island; caught 178,000 fish, which we took to the *Miamogue Works*; fine day. *Thursday, 2d*: Went outside of Long Island, and went west as far as Pond Quogue Light; saw no fish, so turned back; some of the gangs went on west farther and found fish. *Friday, 3d*: Windy; we went up to Greenport. *Saturday, 4th*: Did not fish. *Monday, 6th*: Went out in Gardiner's Bay; caught 15,200 fish, which we took to the *Miamogue Works*; wind east. *Tuesday, 7th*: Went below Gardiner's Island to Fort Pond and saw no fish; therefore we went in the sound and west as far as New Haven, where we made one set and then went in to New Haven; pleasant day. *Wednesday, 8th*: Went out in the sound; the wind blew so strong the fish did not show, so we went down and took our fish to the *Miamogue Works*; had 24,000; then coaled up and went to Greenport. *Thursday, 9th*: Went in the sound and west as far as Faulkland Island; made five sets and caught 138,400 fish, which we took to the *Miamogue Works*; fine day. *Friday, 10th*: We took a schooner out from the works in a. m.; then went down far as Gardiner's Point; but the wind blew from the E. and looked like a storm, so we came to Greenport. *Saturday, 11th*: Did not fish. *Monday, 13th*: Went up sound as far as Faulkland Island; caught 128,000 fish, and took to the *Miamogue Works*; fine day. *Tuesday, 14th*: Went up sound, but saw no fish, and at night went in to New Haven; pleasant. *Wednesday, 15th*: Went out in the sound; made two sets just east of New Haven; caught 54,400 fish, which we took to the *Miamogue Works*; weather fine. *Thursday, 16th*: We went in the sound and west far as New Haven; made two sets and went in to New Haven. *Friday, 17th*: Wind was E., so we came to the *Miamogue Works* with our fish; had 100,000; coaled up and went to Greenport. *Saturday, 18th*: We did not fish. *Monday, 20th*: The wind blew quite strong from the NW., so we did not go out until noon, when we went down to Plum Gut, and saw some large bunches of fish working down Oyster Pond Point; we waited for them to get through the gut, as there are rocks on the sound side; at last a large bunch came through and we set for them, but caught our seine on a wreck and tore it, and lost nearly all the fish; then we came to Greenport and mended the seine. *Tuesday, 21st*: Went below Gardiner's Island to Fort Pond, and then in the sound nearly to Horton's Point; caught 124,800 fish, which we took to the *Miamogue Works*; fine day. *Wednesday, 22d*: Went up sound; found fish all the way from Horton's Point to Mattituck; caught 176,800 fish; pleasant. *Thursday, 23d*: Went up sound; caught off Mattituck 62,400 fish, which we took to the *Miamogue Works*; pleasant. *Friday, 24th*: The wind blew hard NW.; we lay in Greenport. *Saturday, 25th*: Did not fish. *Monday, 27th*: Went out in Gardiner's Bay; caught 4,800 fish, which we took to the *Miamogue Works*; fine day. *Tuesday, 28th*: Went out in the sound and west as far as Faulkland Island; caught 92,000 fish, which we took to the *Miamogue Works*; weather continues fine. *Wednesday, 29th*: The wind blew hard from the NW.; we came into Greenport. *Thursday, 30th*: We went out in Gardiner's Bay, but the wind came on to blow and we came into Greenport. *Friday, 31st*: Wind blew heavy; we lay in Greenport.

November 1st, Saturday: The wind continues to blow from the NW. *Monday, 3d:* Went out in Gardiner's Bay and found Cherry Harbor alive with fish; caught 140,000; and the wind blew up strong, so we came in to the Miamogue Works. *Tuesday, 4th:* We caught in Gardiner's Bay 84,400 fish, and took them to the Miamogue Works; we did not go up to election this year; pleasant. *Wednesday, 5th:* A very cold morning; the wind was N.; we caught in Gardiner's Bay 84,400 fish, which we took to the Miamogue Works; weather fine. *Thursday, 6th:* Went out in Gardiner's Bay; caught 12,000 fish, and went to the Miamogue Works about noon, when Captain Hawkins informed me that he was going to close the works, so we went to Greenport, then to Jamesport. *Friday, 7th:* We carted the seine out in the lot to dry in a. m., and took out what things we wanted to leave at Jamesport; we took the William Floyd to Greenport and laid her alongside of Tutbill's Wharf in p. m.; so ends the fishing season of 1879.

1880.

I have been transferred to the steamer E. S. Newins.

April 16th, Friday: I went to Greenport, and we brought the E. S. Newins up to Jamesport. *Saturday, 17th:* I went to New York to have my license renewed, and had to be examined to see if I was color blind. *Monday, 19th:* I went on board the E. S. Newins early in the morning, and started down the bay; went to the Miamogue Works to carry some men for Captain Hawkins; then to Greenport to get things in readiness for fishing; pleasant. *Tuesday, 20th:* We spent the day in fixing the fishing things; some of the gangs caught a few fish to-day in Gardiner's Bay; it was foggy and showery a part of the day. *Wednesday, 21st:* In the morning we went down to the fish works to coal up; then went out in Gardiner's Bay; caught 54,800 fish, which we took to the Miamogue Works; fine. *Thursday, 22d:* We went out in Gardiner's Bay, but caught no fish; weather continues pleasant. *Friday, 23d:* We went below Gardiner's Island; caught 113,600 fish, which we took to the Miamogue Works; something gave out to the boiler, and the engineer was obliged to blow it off, and the steamer Peconic towed us from the Miamogue Works to Greenport; weather pleasant. *Saturday, 24th:* Wind east and stormed a part of the day; did not fish. *Monday, 26th:* Went out in Gardiner's Bay; it was foggy and we caught no fish. *Tuesday, 27th:* Went down to Fort Pond; saw a few fish, but caught none; then came up in Gardiner's Bay, and then to the Miamogue Works and coaled up; wind NW. *Wednesday, 28th:* Went down below Gardiner's Island to Fort Pond; caught 120,800 fish at one set, which we took to the Miamogue Works; after unloading the fish we went to Greenport to get water; weather pleasant, but blew strong southwest in p. m.; the barkentine Wandering Jew was launched to-day, and we helped pull her to the wharf as we came up from the oil works. *Thursday, 29th:* Went down to Fort Pond; saw no fish; then came to Greenport; wind blew hard SW. *Friday, 30th:* Went up in Peconic Bay, but saw no fish, and the wind blowing hard WNW. we came back to Greenport; the fishing steamer Narragansett is ashore off Easthampton.

May 1st, Saturday: Wind blew hard NW. and cold; did not fish; I went home. *Monday, 3d:* Went below Gardiner's Island; made one set off Tobacco Lot and one near Plum Gut, and went to the Miamogue Works with 117,800 fish; weather pleasant, but blew fresh SW. in p. m. *Tuesday, 4th:* Went out, but caught no fish; at night we anchored off Hicks's Island; wind blew hard SW. all day. *Wednesday, 5th:* We started out early; it was a calm and beautiful morning, and off Fort Pond we found plenty of fish; we made two sets and caught 193,800, and part of my men were taken very sick, and we had to come to Greenport and get a doctor to attend to them; then went to the Miamogue Works and unloaded the fish. *Thursday, 6th:* We did not fish, but lay in Greenport; fine. *Friday, 7th:* Went down to Gardiner's Point; caught 120,000 fish at two sets and took them to the Miamogue Works; weather continues pleasant. *Saturday, 8th:* Went below Gardiner's Island to Fort Pond, but caught no fish; then came back to Greenport; fine. *Monday, 10th:* We went around Montauk, and went west as far as Promised Land; found no fish; then came back and looked through the bay; saw a few fish, but caught none; a pleasant day, but the wind blew fresh SW. in p. m. *Tuesday, 11th:* Wind blew hard SW. in the morning, and we lay anchored off Hicks's Island until 9 o'clock a. m., when the wind slacked and we started out, and east of Gardiner's Island we caught 68,000 fish; then we helped a gang raise a large haul of fish; after which we went to the Miamogue Works; it was foggy part of the p. m. *Wednesday, 12th:* Wind NW.; we went around Montauk; outside of the island saw a good bunch of fish and lowered the boats, when the engineer called to us and said one of the socket bolts had given out; so we hoisted the boats up and made signals for help, when the steamer J. W. Hawkins took us in tow and carried us to New London to get it repaired; we arrived there about noon. *Thursday, 13th:* We lay in New London having the boiler fixed. *Friday, 14th:* We started out in the morning and went nearly to Montauk; and as the wind blew quite strong NE., and one of the bolts they put in at New London was leaking, we turned back and went to New London again to get it fixed. *Saturday, 15th:* We went out and around Montauk, outside of Long Island, and west as far as Pond Quogue Light; made two sets and caught 96,000 fish, and arrived at the Miamogue Works at 8 o'clock p. m.; very pleasant day. *Monday, 17th:* Went around Montauk, outside of Long Island, and west as far as Easthampton; caught 172,800 fish at one set, and were obliged to get help to raise them, as we could not get them up enough to scoop; but we had them scooped in about noon, and started east and arrived at the Miamogue Works at 5 o'clock p. m.; pleasant. *Tuesday, 18th:* Went around Montauk, outside of Long Island; saw no fish; then went to New London and put soda in the boiler to clean it, and blew it off, as the tubes were leaking; wind light E. *Wednesday, 19th:* We lay in New London, and they are at work expanding the tubes to the boiler; wind light SE. and cloudy. *Thursday, 20th:* We lay in New London, and they are at work on the boiler; foggy in the morning, but cleared off about 9 o'clock a. m. *Friday, 21st:* We went around Montauk, outside of Long Island, but it was rough, so we came inside, and off Fort Pond we caught 7,400 fish, which we took to the Miamogue Works. *Saturday, 22d:* Went out in the morning, but saw no fish; so we came into Greenport and I went home; wind SW. *Monday, 24th:* We went around Montauk, but it was foggy outside, so we turned back, and caught east of Gardiner's Island 202,800 fish, which we took to the Miamogue Works; weather pleasant. *Tuesday, 25th:* Very

foggy; we went below Gardiner's Island; caught 141,600 fish, and arrived at the Miamogue Works before sundown; fog lit up before noon; p. m. fine. *Wednesday, 26th*: Went around Montauk, outside of Long Island, and west as far as Easthampton; we made three sets and caught 161,200 fish, which we took to the Miamogue Works; very warm, pleasant day, with light wind NW. in a. m. and SW. in p. m. *Thursday, 27th*: Went around Montauk, outside of Long Island, and west as far as Westhampton; caught 67,200 fish; arrived at the Miamogue Works at midnight; pleasant weather. *Friday, 28th*: Went outside again and west as far as Pond Quogue Light, but caught no fish; weather pleasant. *Saturday, 29th*: In Greenport; blew off boiler and fixed things in general. *Monday, 31st*: It rained in the morning, so we did not start out until 7 o'clock a. m., when we went down to Fort Pond and then up bay; caught 16,000 fish, which we took to the Miamogue Works; weather continues pleasant.

June 1, Tuesday: We went down to Montauk and met some of the steamers coming back, so we turned about and went up in the sound as far as Faulkland Island, where we caught 53,800 fish, which we took to the Miamogue Works; pleasant day. *Wednesday, 2d*: Wind east and stormy; we came to Greenport. *Thursday, 3d*: We went in the sound and west as far as Execution Light; made three sets, and at night anchored in Cow Bay; pleasant weather. *Friday, 4th*: We made two sets off Execution Light in a. m., and at noon we started down sound, reaching the Miamogue Works about 9 o'clock p. m.; had 87,200 fish; weather continues good. *Saturday, 5th*: In the morning we went up bay; caught 6,400 fish just east of Robin's Island, which we took to the Miamogue Works; then went to Greenport; very pleasant weather. *Monday, 7th*: We started a little before 4 o'clock a. m.; went in the sound and west to Execution Light; made two sets just at night, small ones; then anchored near City Island; fine. *Tuesday, 8th*: In the morning the wind blew quite fresh from the northeast; we went east and went into Cold Spring, then went to Bridgeport to make a harbor for the night, as the wind continued to blow from the east; there we heard that Garfield was nominated for President. *Wednesday, 9th*: Went out in the sound, and as the wind continued to blow N.E., and no fish showing, we went to Geo. W. Miles' Works at Milford and sold our fish, 19,000, after which we started east, but before we arrived at Faulkland Island the wind died out, and in the p. m. we made six sets and caught 94,400 fish, which we took to the Miamogue Works. *Thursday, 10th*: Went in the sound and went west as far as Faulkland Island; caught 43,200 fish, which we took to the Miamogue Works; weather pleasant. *Friday, 11th*: Went in the sound and west as far as Faulkland Island; the fish were scarce, but we caught 18,000, which we took to the Miamogue Works; weather continues pleasant, but it came on thick and foggy in the night, and the steamer Narragansett was sunk on Cornfield Shoal and a number of people were drowned; I was up in the night and heard the whistles. *Saturday, 12th*: We lay in Greenport; did not fish. *Monday, 14th*: We went around Montauk and west as far as Napeague, but seeing no fish we turned back and went in the sound; we found no fish, but saw great quantities of drift stuff from the Narragansett; wind NW.; at night we went into New Haven. *Tuesday, 15th*: Went out in the sound; wind blew from the east and looked like a storm, so we came to Greenport; hauled the E. S. Newins on the railways and carted the seine in the lot. *Wednesday, 16th*: We ripped out and tarred the seine and partly hung it; the painters have been painting the steamer, and we are having the condenser fixed. *Thursday, 17th*: We finished hanging and carted the seine down and salted it in the boats; the steamer is painted, but we have not got the condenser on yet. *Friday, 18th*: We worked on the condenser; got it nearly on and were obliged to take it off and fix it over again. *Saturday, 19th*: In the morning we put the condenser on and launched the steamer; then I went home. *Monday, 21st*: The water-tank leaked, so we had to have that fixed in the a. m.; p. m. we went out in Gardiner's Bay; caught 4,800 fish, which we took to the Miamogue Works, and then coaled up. *Tuesday, 22d*: Went in the sound and west as far as Faulkland Island; made one set and caught 7,200 fish; but the condenser leaked, so we came down to the works, and then to Greenport to haul out again; the condenser is a regular bother. *Wednesday, 23d*: Hauled out on the railways at work on the condenser; we have had no rain for some time and the ground is getting very dry. *Thursday, 24th*: We succeeded in getting the condenser on, and launched off just before noon; p. m. we went down bay and south of Gardiner's Island and east of Block Island, and went to the wharf behind the breakwater; a very pleasant day. *Friday, 25th*: Started out from Block Island and went west, but found no fish until we reached the mouth of the Connecticut River, where we found a few small bunches, and caught 39,000, which we took to the Miamogue Works; pleasant day. *Saturday, 26th*: We did not fish. *Monday, 28th*: We went below Gardiner's Island to Fort Pond, where we caught 20,000 fish, which we took to the Miamogue Works; the fish were wild; weather good. *Tuesday, 29th*: Went down to Fort Pond, but the fish were so wild we could not catch them, so we went up sound as far as New Haven; made three sets just at night and caught about 15,000 fish, after which we went in behind the light and anchored; weather pleasant. *Wednesday, 30th*: Went out in the sound; made two sets and then started to the eastward, but the wind breezed up so that we caught no more; we arrived at the Miamogue Works about 3 o'clock p. m., and had 43,600 fish.

July 1st, Thursday: Went up sound and just at night made two small sets off New Haven, then we went into New Haven; weather continues good. *Friday, 2d*: We started out of New Haven in the morning and looked along to the eastward; made two sets off the mouth of Connecticut River and then went to the Miamogue Works; had 48,800 fish; weather continues pleasant and fish scarce. *Saturday, 3d*: We did not fish; carted the seine in the lot and shortened the cork line and had one of the seine-boats fixed. *Monday, 5th*: Did not fish; at home. *Tuesday, 6th*: It rained in a. m.; went out in Gardiner's Bay in p. m.; caught 47,200 fish, which we took to the Miamogue Works; pleasant in p. m. *Wednesday, 7th*: In the morning we went up in Peconic Bay; made four sets, but the bunches were very small; we went down in Gardiner's Bay in p. m.; made one set and then went in to the Miamogue Works; had 56,400 fish; weather fine. *Thursday, 8th*: Went in the Sound and went west as far as Old Man's Harbor; made five sets; caught 68,400 fish, and arrived at the Miamogue Works at 9 o'clock p. m.; very pleasant day. *Friday, 9th*: Windy; the fish did not show good and we caught only 8,200, which we took to the Miamogue Works; the steamer gave out in p. m. *Saturday, 10th*: We lay in Greenport in a. m.; I made out the fish commissioner record; I went home in p. m.; warm day. *Monday, 12th*: We went down to Fort Pond; saw no fish; then went up in Peconic Bay

and made one set; caught 9,200 fish, which we took to the Miamogue Works; fine. *Tuesday, 13th*: We went in the sound and went up to the head; caught a few fish just at night and anchored in Cow Bay; weather continues pleasant. *Wednesday, 14th*: We went out in the morning and worked at the fish until 3 o'clock p. m., when we started down sound, reaching the Miamogue Works about 12 o'clock in the night; we made six sets altogether and had 110,000 fish; weather good. *Thursday, 15th*: We went up sound and made two sets off Crane Neck; then went up to Execution Light where we made three more sets and came to anchor for the night in Glen Cove; weather good. *Friday, 16th*: Started out in the morning and made six sets; after which we started down sound and arrived at the Miamogue Works at 9 o'clock p. m.; had 155,600 fish; weather continues good. *Saturday, 17th*: Went up to Greenport and I went home. *Monday, 19th*: We went in the sound and to the west; reached Execution Light at 4 o'clock p. m., when we made a set and caught about 50,000 fish; then went up in Little Neck Bay and made another set about as good as the first, and by the time we were through with them it was dark, so we dropped the anchor where we were and salted the seine (we salt the seine every night after we get through fishing, since I have been in a steamer, instead of hauling it out as we used to do in a sailing gear); very pleasant day. *Tuesday, 20th*: Windy and stormy; fish did not show in the morning, so we started down sound, reaching the Miamogue Works about 4 o'clock p. m.; had 101,600 fish; pleasant in p. m. *Wednesday, 21st*: We went up to the head of the sound, arriving there about 4 o'clock p. m.; made two sets; caught about 15,000 fish, and anchored in Little Neck Bay; we saw a few small bunches on our way up, but did not think them large enough to bother with; a very pleasant day. *Thursday, 22d*: In the morning we started down sound, but we saw no bunches of fish large enough to set for until we arrived off Southport, where we made a set and caught about 15,000 fish; then we went on to the east, and when abreast of New Haven we saw a large bunch driven by porpoises; we made three quite fair sets and started for the Miamogue Works, where we arrived at 9.30 p. m., after having a stormy passage, for it rained and blew NE. and we were bothered to find our way through Plum Gut; we had 115,200 fish. *Friday, 23d*: We went over to New London to get a stay-bolt fixed; in the morning the wind was NE., afterward it came around SE.; some of the steamers found plenty of fish to-day east of Gardiner's Island. *Saturday, 24th*: We looked east of Gardiner's Island and through the bay, but could find no fish; they were not here to-day; so we came to Greenport and went home. *Monday, 26th*: We went out in Gardiner's Bay; caught 78,400 fish, which we took to the Miamogue Works; pleasant day. *Tuesday, 27th*: Went up sound and made two sets just east of Stratford Shoal Light; caught about 35,000 fish; had a heavy thunder squall; went into New Haven at night; it was a calm, warm day. *Wednesday, 28th*: We came out of New Haven in the morning and made one set; caught a few fish, but the wind blew quite strong from the north, so the fish would not show; so we came down sound and in Gardiner's Bay, where we made one set; then we came into the Miamogue Works; had 62,400 fish. *Thursday, 29th*: We fished in Gardiner's Bay; caught 53,600, which we took to the Miamogue Works; weather pleasant. *Friday, 30th*: We made three sets in Gardiner's Bay in a. m.; then went up in Peconic Bay and made two more sets and came to the Miamogue Works; had 30,400 fish; weather pleasant. *Saturday, 31st*: Did not fish; I went home.

August 2d, Monday: In the morning we went down in Gardiner's Bay; made one set; then went up in Noyack Bay where we made two more sets; the wind blew very hard SW., so we went down to the Miamogue Works; had 48,800 fish. *Tuesday, 3d*: Went up in Peconic Bay; saw a small bunch of fish that was not worth setting for; then we came down in Gardiner's Bay and made one set; caught 10,800 fish, which we took to the Miamogue Works; fine. *Wednesday, 4th*: It stormed in the morning, so we did not start out very early; then went in the sound and off Horton's Point; made one set, but did not catch them, as they went under the seine; then some part of the engine broke and we went to New Haven and had it fixed. *Thursday, 5th*: We went west as far as Southport; caught a few fish, but they were small; at night went into New Haven again; pleasant day. *Friday, 6th*: In the morning we came out of New Haven and went east; made a set off the mouth of the Connecticut River, then we went to the Miamogue Works; had 32,400 fish, and after getting them out and coaling up, we took a look up in Peconic Bay, but saw no more; so went to Greenport. *Saturday, 7th*: We went over to Cornfield Light Ship, then to Horton's Point; and as we saw no fish came to Greenport; pleasant weather. *Monday, 9th*: In the morning we went down to Fort Pond, then up sound to Smithtown Bay, then crossed the sound to Southport, where we saw some steamers at work; we saw a few fish, but it was so late we did not set for them, but went into Bridgeport; pleasant; wind SW. *Tuesday, 10th*: We went out in the morning; made nine sets, but the bunches were small; at night we anchored behind the light, east side of New Haven Harbor; pleasant day. *Wednesday, 11th*: In the morning it rained, but we started down sound very early, and arrived at the Miamogue Works at 8.30 o'clock, and had 81,200 fish; we coaled up and started back in the sound, as it had cleared off and bids fair to be a pleasant day; we made four sets, just east of Faulkland Island, and caught 57,200 fish, which we took to the Miamogue Works; pleasant in p. m. *Thursday, 12th*: We went to Fort Pond, then up sound in p. m.; we caught about 50,000 fish, just east of New Haven, and stopped in New Haven through the night. *Friday, 13th*: Went out in the sound; made three sets, just east of New Haven, then made a small set off Faulkland Island; after which we hoisted our boats and started for Plum Gut; we had gone about 5 miles when we discovered a good bunch of fish, so we stopped, lowered the boats, and filled the seine full; I did not expect that we could catch them, for the water is deep out in the middle of the sound, and we were all surprised when we threw the big lead, for it struck bottom before half the line was out; I did not know there was a shoal like that so near the middle of the sound; the fish could not dive the seine and we saved about 75,000, the largest haul we have made in a long time; after scooping them in we hoisted our boats again, and started for the Miamogue Works, where we arrived about sundown; had 148,400 fish; fine day. *Saturday, 14th*: Did not fish; cleaned the boiler, and put a new piece in the bunt of the seine; weather continues good. *Monday, 16th*: Went in the sound and fished from Baybrook to Faulkland Island; made five sets and three "stabs;" caught 48,800 fish, which we took to the Miamogue Works; weather pleasant. *Tuesday, 17th*: In the morning we went up in Peconic Bay, but saw no fish that would pay us to stop for; so went up sound and fell in with fish just east of Faulkland Island; caught 46,800, which we took

to the Miamogue Works; weather continues fine. *Wednesday, 18th*: Went up sound, but caught no fish; went around a number of good bunches, but they would dive the seine every time; a very fine day. *Thursday, 19th*: We fished in Gardiner's Bay; caught only 12,000; the wind blew quite hard from the SW.; after we had been to the works and put the fish out we went up to Greenport and saw a three-masted schooner burn, which was loaded, in part, with benzine; it was a magnificent sight, but quite a loss to somebody. *Friday, 20th*: We fished in Gardiner's Bay; made six sets and caught 57,200 fish, which we took to the Miamogue Works; weather fine. *Saturday, 21st*: We went down near Gardiner's Point, and a hard shower came up; we waited awhile, and then came up to Greenport. *Monday, 23d*: Went out in Gardiner's Bay; caught 98,400 fish; but one of the tubes to the boiler gave out, so we went into the Miamogue Works about 2 o'clock p. m.; it was foggy in the morning, but pleasant the remainder of the day. *Tuesday, 24th*: Went out in Gardiner's Bay, and made two sets; then went below the island, off Fort Pond, and made two sets more; caught, in all, 41,000, which we took to the Miamogue Works; fine day. *Wednesday, 25th*: We made two sets in Gardiner's Bay in a. m., and in p. m. we had a squall, and the wind came out NE. and blew quite strong; so we caught no more; went into the works; had 8,800 fish. *Thursday, 26th*: Wind blow quite strong from NE.; we caught no fish. *Friday, 27th*: We caught in Gardiner's Bay 24,800 fish, which we took to the Miamogue Works; wind east. *Saturday, 28th*: Went up in Peconic Bay; caught 56,000 fish, which we took to the Miamogue Works; pleasant. *Monday, 30th*: A storm from the east; we lay in Greenport; I went to Jamesport and got a man to take the place of one of my crew who was sick. *Tuesday, 31st*: Went down to Gardiner's Point, but saw no fish, then up in Peconic Bay, where we made two sets; caught 31,200, and took them to the Miamogue Works; wind east.

September 1st, Wednesday: Went down below Gardiner's Island; made one set off Tobacco Lot; then came up in Gardiner's Bay, where we made another set, after which we came to the Miamogue Works with 16,800 fish; fine. *Thursday, 2d*: Went up sound as far as Mattituck Creek; caught 60,000 fish, which we took to the Miamogue Works; weather continues pleasant. *Friday, 3d*: We went down in Gardiner's Bay, but caught no fish; then went into the fish works and coaled up, and went to Greenport. *Saturday, 4th*: Did not fish; very warm day. *Monday, 6th*: Went down in Gardiner's Bay, and off Gardiner's Point we made three sets; caught 35,600 fish, which we took to the Miamogue Works; warm day. *Tuesday, 7th*: We caught in Gardiner's and Peconic Bays 35,600 fish, which we took to the Miamogue Works; cloudy and stormy, with wind east. *Wednesday, 8th*: Wind blew hard from the NE.; we went in Noyack Bay, made one set and caught 39,200 fish, and went down to the works with them; then we came to Greenport. *Thursday, 9th*: We went up in Noyack Bay and Peconic Bay in the morning; but the wind blew hard from the NE., so we came to Greenport and carted the seine in the lot and took a piece of bunt out of one seine and put it in the other; stormed hard in p. m. *Friday, 10th*: Wind NE. and storming; at 9 o'clock a. m. the wind shifted and blew from NNW.; we did not go out; I knit on the big net. *Saturday, 11th*: We went out and made one set in Gardiner's Bay, then went below Gardiner's Island and made one set, and came up south way and made a set off Payne's Works; caught in all 49,200 fish, which we took to the Miamogue Works, arriving there at 2 p. m., and Greenport at 4, and I went home; weather good. *Monday, 13th*: We went out in Gardiner's Bay, but saw no fish, so went up sound as far as Mattituck Creek, where we made five sets and caught 72,000 fish, which we took to the Miamogue Works; fine. *Tuesday, 14th*: We went out in Gardiner's Bay, but the wind blew hard and we saw no fish; so came into Greenport. *Wednesday, 15th*: We caught in Gardiner's Bay 9,200 fish, which we took to the Miamogue Works; wind blew hard. *Thursday, 16th*: We caught in Gardiner's Bay 14,000 fish, and took to the Miamogue Works; pleasant, but wind blew. *Friday, 17th*: Went in the sound, and west as far as Riverhead, where we made six sets; caught 106,400 fish, which we took to the Miamogue Works; very pleasant day. *Saturday, 18th*: In Greenport, cleaning boiler; I went home; very warm day. *Monday, 20th*: Went down in Gardiner's Bay; made three small sets, and just at night we found a large body of fish between Little Gull Island and Gardiner's Point, which we set into and caught about 50,000, then we went into the Miamogue Works; had 74,800 fish; it was foggy in the morning, but soon came off pleasant. *Tuesday, 21st*: Went out in Gardiner's Bay and below Gardiner's Island; caught only 2,400 fish and took them to the Miamogue Works; pleasant. *Wednesday, 22d*: Went up to the head of the sound, and as we did not see very many fish we went through the Gate and past New York and anchored just inside of Coney Island; wind NW. all day. *Thursday, 23d*: We fished off the Hook, and in Prince's Bay; made six sets, and went into Hawkins Brothers' Works at Barren Island; had 37,600 fish; pleasant. *Friday, 24th*: We started out from Barren Island as soon as we could see, and went over to Sandy Hook, but saw nothing worth stopping for; so we came through Hell Gate again into the head of the sound, and off Glen Cove we found fish and made two sets; then we went east as far as New Haven, where we stopped over night; wind blew fresh in p. m. *Saturday, 25th*: Started out of New Haven, and steered SSE. for Long Island; made one small set on our way down and caught 38,000, which we took to the Miamogue Works; weather good. *Monday, 27th*: Wind SW.; went up sound as far as Glen Cove, where we made two sets, and caught about 25,000 fish, and came to anchor off Glen Cove. *Tuesday, 28th*: We went out of Glen Cove, and as the wind blew too strong for the fish to show, we went through Hell Gate to Sandy Hook, where we made three sets and caught 94,500 fish, which we took to Barren Island to Hawkins' Works; the wind in a. m. was S. by E.; p. m. it was WNW. *Wednesday, 29th*: Went out early; went first to Sandy Hook, then east a few miles, then west as far as Coney Island, where we found some very good bunches of fish; we made three sets and caught 126,500 fish, which we took to the works; pleasant day. *Thursday, 30th*: Went out from Barren Island, and went over to the Hook; then went up by Coney Island, where we made five sets and caught 114,000 fish, which we took to the Hawkins, Barren Island; wind west, but pleasant.

October 1st, Friday: Went out in the morning and went through Prince's Bay, and then went east a few miles, then back, and by Coney Island and through Prince's Bay again; we saw plenty of small bunches of fish, but nothing that we thought would pay us for lowering the boats and washing the salt off the seine; then we went up to Jersey City and coaled up; a pleasant day. *Saturday, 2d*: We lay in Jersey City; cleaned boiler, &c.; I wrote up my record, &c.; weather good. *Monday, 4th*: Three of my crew were quite sick, so that it was impossible for me to fish, conse-

quently I started for Greenport; we had a strong breeze from the SW.; set the sail and arrived at Greenport at 4.30 p. m. *Tuesday, 5th*: A stormy day; we carted the seine in the lot; it cleared off and we tarred the new seine in p. m. *Wednesday, 6th*: We hauled the E. S. Newins out on the railways in a. m.; we worked on the seine in p. m. *Thursday, 7th*: A part of the crew went to the Suffolk County fair, but those of us that staid in Greenport worked on the seine and helped put on the condenser. *Friday, 8th*: We finished the new seine and carted it down, and stowed the old one away in a. m.; we launched the steamer and went down to the oil works and coaled up in p. m. *Saturday, 9th*: Did not fish. *Monday, 11th*: Went out in Gardiner's Bay and caught at three sets 54,400 fish, which we took to the Miamogue Works; weather good. *Tuesday, 12th*: We went up sound and off Mattituck Creek; made two sets; caught 18,400 fish, and a squall of wind and rain came up, so we started for the oil works, where we arrived just after sundown; wind blew hard from the N. *Wednesday, 13th*: We hauled out the steamer to fix the condenser again. *Thursday, 14th*: We went out and worked at the fish in the deep water off Gardiner's Point; set the seine six times and caught none; they dive the seine; a pleasant day. *Friday, 15th*: We went out, but could find no fish, except in the tide-way where the water was deep; we set the seine twice and caught none; weather good, but we were in bad humor. *Saturday, 16th*: Did not go out; I went home. *Monday, 18th*: The wind blew hard from the NW.; we made one set in Gardiner's Bay and caught 16,400 fish, which we took to the Miamogue Works; weather continues pleasant. *Tuesday, 19th*: We went down to Watch Hill and then through Fisher's Island Sound; made one set just west of the Dumplings, but the wind breezing up strong from the SW. we went into New London. *Wednesday, 20th*: Went into Gardiner's Bay; made three sets and one "stab;" caught 83,000 fish, which we took to the Miamogue Works; light wind from the E. *Thursday, 21st*: Went out in Gardiner's Bay; made one set, then went to Fort Pond, then up sound as far as Faulkland Island, then to the oil works; had 12,800 fish; wind SSE. and looks like a storm. *Friday, 22d*: We went out in Gardiner's Bay; wind E. and storming; made two sets and caught 30,200 fish, and went to the works with them early; got them out and arrived at Greenport about 3 p. m.; the wind blew and it stormed hard. *Saturday, 23d*: We went down as far as Fort Pond; wind blew quite hard from the W. *Monday, 25th*: Went down to Fort Pond, but saw no fish; then came up to the Miamogue Works and coaled up; wind blew quite strong from the NW. *Tuesday, 26th*: The fire-box to the steamer has cracked and they are putting a patch on it. *Wednesday, 27th*: In Greenport at work on the fire-box. *Thursday, 28th*: Went down to Fort Pond, then up sound to Horton's Point, then back in Gardiner's Bay; made one set, but caught none; pleasant day. *Friday, 29th*: Went out, but caught none. *Saturday, 30th*: I went home; it stormed in p. m.

November 1st, Monday: Went down around Gardiner's Island, then up to Plum Gut; made one set, but caught none; weather fine. *Tuesday, 2d*: Did not fish; attended election. *Wednesday, 3d*: Went out in Gardiner's Bay; made two sets and caught 42,400 fish, which we took to the Miamogue Works; a pleasant day. *Thursday, 4th*: Went down as far as Fort Pond, but saw no fish; then came to Jamesport; wind ESE. and cloudy. *Friday, 5th*: Wind east, and stormy; we lay in Greenport. *Saturday, 6th*: Foggy; we went down in Gardiner's Bay and caught, at three sets, 52,800 fish, which we took to the Miamogue Works. *Monday, 8th*: We went down in Gardiner's Bay; made one set and caught about 1,000 fish; then went to Fort Pond, but could find no more, so came to Greenport; the wind blew strong from the NW. *Tuesday, 9th*: Went out in Gardiner's Bay and then to Fort Pond, but could find no fish; so went to the Miamogue Works and decided to quit for the season; then went to Greenport and stripped sail and rigging from the steamer. *Wednesday, 10th*: We started very early in the morning for Jamesport, and left boats and seine, and most of the crew to cart the seine in the lot to dry; I went back to Greenport with the E. S. Newins and fixed her for the winter, and came home on the cars, and the fishing season of 1880 with us is ended; two or three gangs staid out about two weeks longer, and had a few days of good fishing about the middle of November, and caught some fat fish.

CATCH OF MENHADEN BY A LONG ISLAND FISHING CREW FROM 1852 TO 1880.

The following table shows the number of menhaden taken by Captain Conklin and his crew during each year from 1852 to 1880, as recorded in the preceding journal. It will be seen that in the early years of the fishery the season began later and ended earlier in the year than during recent years. In 1878 and 1879 a few fish were taken in April, as follows: In 1878, April 22, 55,200 fish; April 26, 153,600; April 27, 4,000; April 29, 182,000; April 30, 136,400. In 1879, April 21, 54,800 fish; April 23, 113,600; April 28, 120,800.

Date.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.
May 21									7,200						5,000
24									21,000						24,000
25															12,000
26									5,000						24,000
27															
28															
29									12,700						
30			28,000						10,200						22,400
31									18,000	6,000			40,000	12,800	44,800

Date.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
May 1														
2					4,000							141,500		
3														117,800
4										89,000				
5										20,500				193,800
6													16,800	120,000
7	60,000											184,800	130,800	
8												132,800		
9				100,000						38,500			92,000	
10	81,658			18,600	51,000								24,800	
11	12,000								3,000		16,000	40,800		68,000
12														
13	7,000					37,000							125,600	
14	22,400			11,000		47,000		54,500						
15						29,800		26,600	35,500				152,400	
16		26,224		44,100		36,300								
17						27,500			48,000			256,800	62,000	172,800
18				7,800	26,800	10,000			13,100					
19					32,000			30,500					36,400	
20								40,600		7,500			149,200	
21								27,000	46,275		45,000			7,400
22					10,000	59,300	9,000				24,000	51,000	68,800	
23				16,000	12,800	74,000	16,500			16,000	6,500	110,000		
24					5,800	44,540			5,225	19,000		212,600		202,800
25				4,800	18,000	34,800			28,000	6,000				141,000
26				2,000	42,200		52,000	20,000	9,250					161,200
27	3,000				11,500	49,541	58,000	30,500				164,000	92,800	67,200
28						90,222	21,500	132,000					36,800	
29	8,300				42,000	7,300		80,600		13,000	107,000		205,600	
30					29,500	22,900		34,000		18,000	16,000		208,800	
31					53,200	47,271			7,500	28,000				16,000

Date.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.
June 1			21,000										33,000	24,000	65,200
2			21,000		10,000								32,800	20,000	21,800
3			7,000		24,000			3,000					64,000		
4				9,000	10,000	9,500			10,000	4,000			30,000		
5			8,500	21,600		15,000			5,000						51,000
6		10,000						9,000	19,000						5,000
7			10,000				25,000		10,000	9,000	3,000		56,000		18,800
8		14,000	18,000			7,500	6,000		24,000				43,000	6,500	11,000
9		4,500	10,000		12,000	17,000	25,500	24,000							
10		4,000			40,000			22,000							
11		20,000		9,500	13,000			18,000	8,000	16,500	6,500				
12	1,500		11,000	25,000	15,000					32,700		28,000			
13		2,000	8,000	20,000	10,000	7,500				7,100	4,150	20,000		45,000	12,000
14	10,000		12,000	15,000	20,000		22,000	21,200		14,000	22,800		18,750	12,600	
15			11,000	31,000			25,000	40,000					41,000		
16			15,000	8,400	26,000			10,000	14,000	20,000		30,000	37,138		
17	6,000				7,800		1,700	15,000		18,100	23,050	76,000			
18		5,800		24,600	10,000		93,000	15,400	5,000	16,175		7,000			
19			4,000	37,000	42,000		30,000		66,000	21,680				6,000	
20			1,000		34,000	15,000		50,000	8,000	29,100	27,500			17,000	
21							13,000	40,000	6,000	20,000				5,300	12,000
22						35,100	27,000	40,000	8,000	43,600		4,500		11,000	11,000
23		13,000			42,000		25,000	36,000			11,000		27,550	43,000	
24					31,000		25,500	28,000		32,600		2,000	22,100		
25						20,500	19,000		12,000	44,600	31,750		33,825		4,800
26						7,700				22,500		30,000			28,800
27				8,000	25,800			27,000		17,200		1,000	43,500	10,000	
28	3,000			9,400			35,000		52,000	44,000			56,100		23,400
29				2,000			37,000	35,000				14,000	10,100	7,000	
30					28,000		32,000	47,000					23,500		

HISTORY AND METHODS OF THE FISHERIES.

Date.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
July 1		64,380	15,500		16,000	33,500	43,650	57,500	35,000	27,000		130,800	34,800	
2		53,680				124,000	15,000	47,000	35,500			104,000	60,400	48,800
3					71,000						6,000			
4														
5		5,000			115,500					25,000	137,500			
6					29,500				44,500					47,200
7								10,000	41,000	77,500	48,000		13,400	56,400
8			86,000				29,000		18,500	34,000				68,400
9	73,160						6,000		12,500		131,000	90,800	65,200	8,800
10	18,000	4,000	21,000			55,000	34,000	80,500		17,500	29,000	94,400		
11	18,300				120,000	70,000	15,000				59,000	104,000	74,000	
12	36,200			35,000	96,000	16,800			47,500	12,000	6,000	102,000		9,200
13		12,240	33,000	13,000	70,000			96,500	27,500	49,000	23,000			
14		5,000						35,000	30,500	35,500			187,200	110,000
15	30,100			50,000		36,000	12,000	54,500	16,000			100,000	282,000	
16	78,300					18,300	51,500	24,000	27,000		103,000	11,200	87,200	155,600
17	33,300		2,500		19,280	20,500	51,500	8,500			100,500	40,600		
18	39,780	27,540		24,500	23,500	42,400	24,500			24,000	109,000	92,000	20,600	
19			29,000			21,000				73,000	115,500	148,000		50,000
20		31,000	7,700	11,500								6,000		101,600
21		18,000	55,000	31,500	18,000		53,000		58,500	9,000			52,000	15,000
22	42,080	18,800	60,500	24,000	4,000		54,000	24,000	17,000					130,200
23	33,660	10,180	31,500			37,500	73,000	26,000	73,000		18,000	216,400	59,600	
24	96,820		17,500		24,000	27,500	41,000	92,500	31,500	62,000	70,500	162,800	126,400	
25	84,520					28,500	15,500	67,000	3,000			38,500	109,600	
26	40,000				54,400				71,500		101,500			78,400
27		79,000	60,500	18,000	51,500				53,000	26,500				35,000
28					83,200		42,000	30,000	87,000	1,500	40,500		129,800	62,400
29		60,000	12,000	38,500		16,200	25,000	28,000		0,000		128,000	9,600	53,000
30		27,000	55,500	12,000		50,000	22,000		12,500		80,500		37,600	30,400
31			8,500	24,000	53,000	95,000	68,500	6,500			84,000	224,000	59,600	
Aug. 1		11,000							67,000			30,950	33,000	16,000
2		8,000							70,000			13,680	55,400	
3											29,000		32,000	
4								15,000					28,600	
5		22,000								7,000	33,000	24,000	36,600	
6								45,000	45,000	24,000				
7											12,000			26,200
8		2,500									8,000	35,580	30,000	75,600
9	3,500	16,000			20,000		32,000	28,000				44,700	37,600	
10	21,000	9,700					15,000		16,000		50,000	10,850	53,600	17,200
11		1,600			24,000		7,000			2,000	2,700	20,700	40,800	21,600
12	11,000	8,000	15,000		31,000		16,000	6,000			43,000	17,200		
13	12,000	26,000		3,500	43,400					33,000	9,314			45,000
14				15,600	31,000					18,000				
15			4,000	8,000	26,000				35,000				37,600	28,600
16	8,000		22,000	13,000			6,000		45,000				31,000	
17	17,000		9,000				4,000		18,000	28,000	20,000	4,200	31,200	48,000
18	8,000				27,000		5,000	28,000				40,000	72,600	62,600
19	18,000		14,000				10,000		38,000	20,200	40,000	44,000		
20	11,300	8,000		27,000			23,500			26,500				76,000
21				16,000			22,400		9,000	21,000	44,000	25,400		36,800
22		15,000		8,000	23,000				10,000		30,000			58,700
23		8,000		4,000	20,000			19,400	20,000				32,950	21,500
24	2,500		18,000	6,000			34,000		77,000			23,411	55,600	40,000
25		15,200	9,400	10,000	27,000	17,500	23,000		27,000		25,000	17,650	42,200	
26					24,000	19,000	12,000	14,000		12,000	17,000	43,400		
27	11,000				13,000	8,000	26,000	30,000		28,000	20,000	21,145		7,400
28					7,400		30,000	5,000		6,000	62,000			16,500
29		18,000		12,000				7,000	29,000		20,000			51,100
30		31,000	3,000	9,000	15,000		29,000	25,000	18,000	10,000		28,850	11,400	
31	13,900		10,000	12,000		3,000	14,000					87,000	12,400	90,200

THE MENHADEN FISHERY.

Date.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Aug. 1				23,000	30,500	78,700	15,500			37,000		83,900	52,000	
2			22,500	25,500	28,400	68,800	14,000			47,500		102,800		48,800
3		3,500	24,000	44,500	38,000			42,000		6,500	42,500			10,800
4		15,800	40,000	54,800	10,500		9,500	73,000	77,000		19,500		102,400	
5	60,000		44,750	25,000		95,800		28,500	123,500				60,000	
6	33,300			85,000		76,800	13,000	23,000	57,500		95,000	39,400		32,400
7	29,500	40,000				44,300			86,000	32,000	44,000	77,600		
8	12,640			17,000	16,000	52,000				32,000	27,000	12,000		
9					40,500	83,500	0,000		94,500	6,500	32,000			
10		4,500		61,000	40,000			81,000	41,500		87,000			
11		63,000		28,000	38,000		24,500	12,000	12,500					138,400
12	33,660			48,000	15,000	92,000		3,000	26,900			90,000	129,600	
13		35,500				96,000					107,000	52,000		223,400
14	27,540	51,000				84,300		44,000	66,500	12,000	42,000			
15	68,700				45,000	77,000					56,000	180,800	16,800	
16				29,500	25,000		5,500		14,000		17,000	14,400		48,800
17		26,500		68,500	39,500			50,000	69,000	28,000	63,000			46,800
18		26,300	9,000	31,500				44,000	20,500	58,500				
19	8,800	2,000		38,500		42,500		29,500	62,500					12,000
20	8,700	87,000	30,500			96,700		15,000	52,000			121,000	55,200	169,200
21	52,800	76,280	16,000			71,000		76,000				56,000	87,600	59,200
22	42,400											38,000		
23	60,000			22,500					112,000		79,500	48,400		96,400
24		89,700	62,000	12,000				20,000	88,500			29,600		41,600
25		31,600	25,000	3,000					17,000				41,600	8,800
26	20,000					74,300	63,500	86,500	28,000	56,500		60,000		
27		29,500	14,000				28,500	24,000	31,500		29,500	6,400		24,800
28	19,600					40,700	12,000	27,500	24,500	57,500	93,000	161,600		56,000
29	40,800					52,500				74,000	85,000	66,400	27,300	
30			9,000	62,000	73,200				24,000	54,000	110,000	38,800		
31		66,000		64,000	76,500				31,000	32,000	38,500	27,200		31,200

Date.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.
Sept. 1						24,000	15,600	30,000						28,800	30,400
2	7,000					8,800	18,000						28,200		
3				22,000	18,000	11,500	5,600				15,000		21,335		42,100
4	19,000			14,500	3,800						30,000	23,800		34,000	
5		8,000						15,000			12,000			25,600	6,300
6				0,800				1,000	40,000					30,500	54,600
7				16,000		20,000	11,000	13,000				26,000		47,200	18,600
8			9,000		12,000	30,500	18,400					36,150	21,500	16,000	
9					6,000	22,000	33,000			44,000		64,000			
10						26,000	4,000		26,000			21,000			6,600
11												9,000			
12				20,000				3,000						14,200	
13							26,500	5,000		22,000				33,400	
14						29,000						4,000		24,200	
15						35,800					5,000	16,700		25,400	
16			4,000			13,000					15,000	6,200	48,725	50,600	
17										23,000	6,000	12,250	28,550		4,800
18															
19									20,000	10,500			42,740		
20													17,000	14,800	
21												16,000	43,900		
22												24,000		14,000	
23											30,000	20,000	9,000		
24		9,000						8,000		25,600		25,000	24,000		
25										22,500	3,000				
26											10,500	21,500		23,600	
27			5,000										12,000	9,000	
28												6,000			
29							7,600						15,550		
30										22,000	3,000	15,000			

Date.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Sept. 1		29,000			45,500			29,500	42,500	40,500			141,200	16,800
2	9,000	27,540			50,200		10,500	11,000	56,500			197,200		60,000
3	38,000		56,500			65,000		21,500	38,000		53,500	183,200	118,600	
4	33,600	23,500			76,200	57,500	47,500			56,000	3,000		46,000	
5	24,000				37,200	56,200	41,500				80,300		10,600	
6	35,200		12,000		55,200	56,600	20,500	38,500	101,000	23,500	18,700	95,000	3,000	35,600
7	25,600		14,000		48,750				59,000	40,500				
8		22,600			26,800		14,000	8,500	80,500					39,500
9	52,400			86,500			24,000	41,500	47,500			253,600	36,800	
10	65,000	97,600	25,200			34,000	17,500				47,500	66,400	90,000	
11	33,200	39,580				90,500	50,500	21,000		66,000	48,000	70,800	129,600	49,200
12	40,000					60,300	21,500			78,500	42,500		72,000	
13						6,000	23,000			78,500	7,500	29,000		72,000
14			31,400	14,000				8,500	60,000	116,500		61,000		
15			11,000					32,500		74,000	92,000		118,000	9,200
16	25,600	6,520	34,500				19,000		77,500			236,000		14,000
17	57,000				23,300	50,500	31,000				5,000	88,000		106,400
18	32,000				39,800						92,500	57,600		
19	12,800			84,000	48,300					20,000	94,400	114,800	96,200	
20			49,400						41,000	98,000	61,500	158,400		124,800
21			53,500	38,000	30,000			15,500	50,500					2,400
22			18,400				30,000	27,500		40,500				
23	31,200		28,000	51,000		36,800	8,500	36,500	52,000			23,200	64,200	37,600
24	2,400		25,600	40,500		33,800	16,500	28,000			44,500	25,600	9,600	
25	12,000		37,800	82,000		75,500	21,000	16,000			16,500	100,400		38,000
26										56,500	20,600			
27				36,000										25,000
28			21,200	21,000				23,500	50,500		52,500			94,500
29			33,200	6,000				12,500		75,600			24,600	126,500
30			54,500		39,600	29,150			16,500			127,000	83,600	114,000

Date.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.
Oct. 1												14,400			
2										30,000				18,000	
3					8,000					10,000	17,500				
4										11,000					
5										9,000			11,200		
6						4,000				20,000			28,600		
7								9,400		40,000					
8										30,000		7,000			
9										25,000					
10												17,500			
11													32,000		
12								32,000				15,200			
13					7,000	2,000		6,000				27,000			
14												17,500			
15											46,600				
16											24,000				
17											32,000			3,000	24,000
18													167,875		41,600
19												12,800	54,000		45,000
20			20,000									20,000	32,500		24,000
21			26,000									34,000	40,000		
22			3,000									63,000			
23												32,000	91,300		8,400
24												80,000		32,000	16,000
25								20,000			51,000	58,500	100,600	4,500	11,800
26											60,000			3,600	
27													56,600	2,000	
28													88,000		75,200
29												26,600			
30											40,600			4,000	
31													71,600	2,200	14,700

THE MENHADEN FISHERY.

Date.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Oct. 1			26,000			17,500	12,000		11,000		49,500	152,000	178,000	
2	39,200		2,500							30,500	46,500	88,800		
3	50,600									34,500		111,200		
4									11,000			155,600		
5				15,000					42,500	22,000				
6							6,000							15,200
7						32,000						119,600		
8	9,800					6,500			11,500					24,000
9		39,000				20,700				19,500				156,400
10	24,000					7,600				55,000	33,500			
11							31,000				29,500			54,400
12		14,000	24,300								46,000			18,400
13		29,000					82,000	52,000	12,500					
14		34,000	5,800	54,150		12,600		17,500				42,400		
15	49,100		17,600			23,700	38,500	44,000			48,500		54,400	
16		26,000					2,000	192,500			35,500			10,400
17		16,500		31,800		41,300	37,500	18,000			32,000			
18	3,200		22,500			12,200	8,500		50,500		53,000	16,800		
19		39,500							38,500	21,500	56,500			
20			15,500					20,000	28,000	98,000				83,600
21	25,000		27,000			21,800		15,500		29,000			124,800	12,800
22	16,300		32,200					12,000	26,500				176,800	
23		69,500	37,500			10,000			22,000	37,000	28,500		62,000	
24	52,800		59,500				8,500			19,000	27,500			
25	25,000						12,000			13,500	43,000	160,800		
26	20,800	2,500							23,000	5,000		78,000		
27				48,200									4,800	
28		33,500	10,300				76,000	57,000		23,000			92,000	
29			33,500					36,000			51,400	66,400		
30							42,000	39,500			79,500			
31	77,600									10,500	22,000			

Date.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.
Nov. 1													39,000	12,800	41,500
2												59,370	79,000		
3												10,600	73,000		12,800
4												30,250			
5												53,900			
6															
7															
8															
9															
10															
11															

Date.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Nov. 1										43,500	73,500	35,600		
2								24,500		39,500				
3			48,400						53,500				140,000	42,400
4		30,500	75,400				3,500						64,400	
5							82,500	23,000			166,000		84,400	
6			34,500				28,500			11,500			12,600	62,800
7	83,200										70,000	97,600		
8										18,500	90,000			
9		39,500												
10														
11	21,800											150,000		