

40.—NOTES ON THE IRISH MACKEREL FISHERIES.

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The great herring pond, as the Atlantic is often called, is not only a means of facilitating the communication of men living in countries 2,000 miles apart, but it also affords the means by which certain fish can wander from the shores of one country to the other.

The mackerel (*Scomber scombrus*), owing to the similarity of the species on both sides of the Atlantic, seems to point to intercommunication.

In the following notes which, owing to the press of other duties, have been commenced only forty-eight hours before the date for posting, I shall allude to one of our great Atlantic fisheries, and this I am able to attempt, owing to the knowledge I have gained of the American fisheries from the valuable publications of the U. S. Commission of Fish and Fisheries, and from my interesting but too brief visit to the hospitable roof at Woods Holl in Massachusetts.

The spring mackerel fishery.—This, the most valuable of the Irish sea fisheries, commences on the west coast of Ireland in the end of March or the early part of April. On the 6th of April in this year (1893) and on the 4th of April last year the first large takes were made. Owing to the observations made on the American coast as to temperature, I was led to make similar observations here, and I found that the night on which the open-sea temperature reached 50° was the night on which the large schools appeared. The fish were taken by boats near shore and for over 20 miles to sea. All along the coast the boats had shot their nets with little or no result for over a week previous to the date named. In 1892 I shot a train of mackerel nets 10 miles outside the Arran Islands off Galway Bay on the 11th of March, and again on several following nights when the sea temperature was 46° and air temperature 37°, with frequent snow showers. On each night we captured two or three mackerel and a few herrings. The mackerel were of small size, about 13 to 14 inches long. They were of both sexes and about half ripe. This went on until April 6; then the sea temperature rose to 50°, and large mackerel, 19 inches long and between 2 and 3 pounds in weight, were immediately captured in thousands all along the coast. There seems, therefore to be a few mackerel always to be caught, possibly wanderers from the great body. How far mackerel may thus be scattered all over the North Atlantic and the abundance of the supply are as yet unknown.

Another fact to be considered is that though mackerel are not captured in the open sea in any large quantities until the sea temperature reaches 50°, still the canoes and row boats which can shoot their nets close to shore and in certain bays get the large

spring fish usually two or three weeks earlier than boats fishing in the offing where the sea may be from 40 to 80 fathoms deep. And this is the case when the temperature is still low. This seemingly points to the conclusion that mackerel when approaching the shore keep deep down, not necessarily at the bottom; that by the rising of the sea-floor they are forced upward along the coast line, but that otherwise they do not rise to the upper waters to spawn until there is a suitable surface temperature. In May and June they shed their ova, and during these months the schools are composed of fish of various sizes.

The ordinary gill nets for mackerel are fished at the surface, but in some of the bays the fishermen sink a portion of the net and moor it in that position. In the spring, on the north coast of Mayo, the fishermen sling their mackerel nets after the manner of herring nets, and often find mackerel in greatest quantities when the nets are slung several fathoms from the surface.

When spawning is over, the fish scatter and the spring fishing comes to an end. While the schools are on the coast they often wander to and fro, but I have met with no evidence to show that in approaching the coast they travel along it, either to the north or south. From Cork to Donegal, which are the extreme limits of the fishery on the Irish coast, they appear at the same time. Locally, however, the schools move about a good deal and come to certain localities in greater numbers in some years than in others.

In America the mackerel fleet proceeds southward to Cape Hatteras in order to meet the schools of fish which apparently migrate from south to north, and although Cape Hatteras is about 35° N. latitude and the coast of Ireland is 20° farther north, the same isotherm reaches the two places about same date; so the American and Irish spring mackerel fishery open simultaneously.

Statistics show that on the American coast fishing advances along the coast *pari passu* with the isotherm of 50°.

On our side of the Atlantic we have no great stretch of coast to compare with that from Cape Hatteras to Nova Scotia, but that no such migration takes place may be inferred from the fact that large numbers of French boats come to the Irish coast to commence the spring fishery and there find the earliest and the largest fish. The Cornish mackerel fishery is the southern extension of the Irish. It is not, however, earlier and the general run of fish are smaller.

The value of this fishery to the country may be estimated when we state that the value of the fish to the fishermen for the twelve weeks it lasted during last spring on the Irish coast was £150,000. The amount spent on labor, freights, and management was of course in proportion.

Method of capture.—The only method employed for catching the spring mackerel is by gill nets; the larger boats use trains of nets about 2 miles long and drift with them. The row boats and canvas canoes, by which the inshore fishing is carried on, either anchor their nets or drift with them. The spring mackerel are not to be captured by hook and line, and the fishermen have come to the conclusion that they are blind.

The autumn mackerel fishery.—This fishery received a great impetus in 1887 when, owing to the failure of the mackerel fishery on the American coast, a supply was looked for from Ireland. Since then this fishery has proven a great benefit to the

country. America could confer no greater boon upon Ireland than in reducing the tariff on Irish-cured mackerel.

The autumn schools begin to appear on the coast about the end of July, and are soon to be met with all around the British islands and in the North Sea as far as Norway. They are at first of small size; some of the schools, which as a rule make their way up into the large bays and creeks, being little larger than sprats. Those about a foot long are taken in great numbers on hook and line. The size of the fish gradually improves, and mackerel up to 2 pounds weight and 18 inches long may be met with in August. The small fish are still met with. All that I have examined were sexually immature. It is possible that the larger fish are those which spawned in the spring, but I have failed to find any remains in the ovaries.

As September advances the fish cease to accept bait, and net fishing is once more universal. Seines are largely used, the American purse seine having become common. Gill nets are also used. The season lasts much longer than the spring fishing. In some cases it has gone on right through the winter; and this, combined with the facts that it is carried on chiefly by local fishermen, and not by all the strangers who congregate in the spring season, renders it a greater benefit to the country. The fresh-mackerel business necessitates concentration to insure ice and transport, while the pickled-mackerel trade, which is chiefly the autumn fishery, is not so limited and consequently is prosecuted far and wide along the coast.

It is evident that these two fisheries are a severe strain on the supply, and the questions naturally arise, How long can they last? and, Ought restrictions be placed on them? The one is a killing of spawning fish, but is, however, the most important herring fishery; the other is the killing of fish sexually immature. The one is valuable owing to the very high prices which are to be obtained in the spring; the other, though prices are not more than one-quarter as good, is valuable from its wide distribution on the coast and the length of the season when it can be prosecuted. In America, where the mackerel fishing has been prosecuted for over 200 years, we find enactments as early as 1670 prohibiting the capture of spring mackerel on account of being spawning fish. In a few years later the law was repealed. In Ireland the great development of the spring mackerel fishery dates back to only 30 years ago, and the autumn fishing to 1887. Prior to those dates the fishery was so insignificant as not to be worth mentioning in the old fishery reports. The questions which were discussed on the American coast centuries ago are before us now. For the answer fuller knowledge is necessary, both as to the life-history of the fish and the distribution of the species. It is the one problem, and can be tackled on both sides of the wide Atlantic.

There are a few points of difference to be noted between the American and Irish fisheries. In the American spring fishery the mackerel school on the surface and can be seen and taken by seines. With us this is not the case until the autumn; very often the best nights for fishing are when there is no sign whatever of the fish. In the American spring fishery the fishing hook and line has been largely used. With us the mackerel can not be caught with bait until summer. Baiting the water, so common in America, has not been found of much use on the Irish coast. In America the spring and autumn fishing are continuous. On the Irish coast there is a distinct blank time between the two fishings.

The boats employed.—Instead of the 80-ton schooners of the American coast, with their two seine boats, and along shore the dories, the Irish fishing is prosecuted—

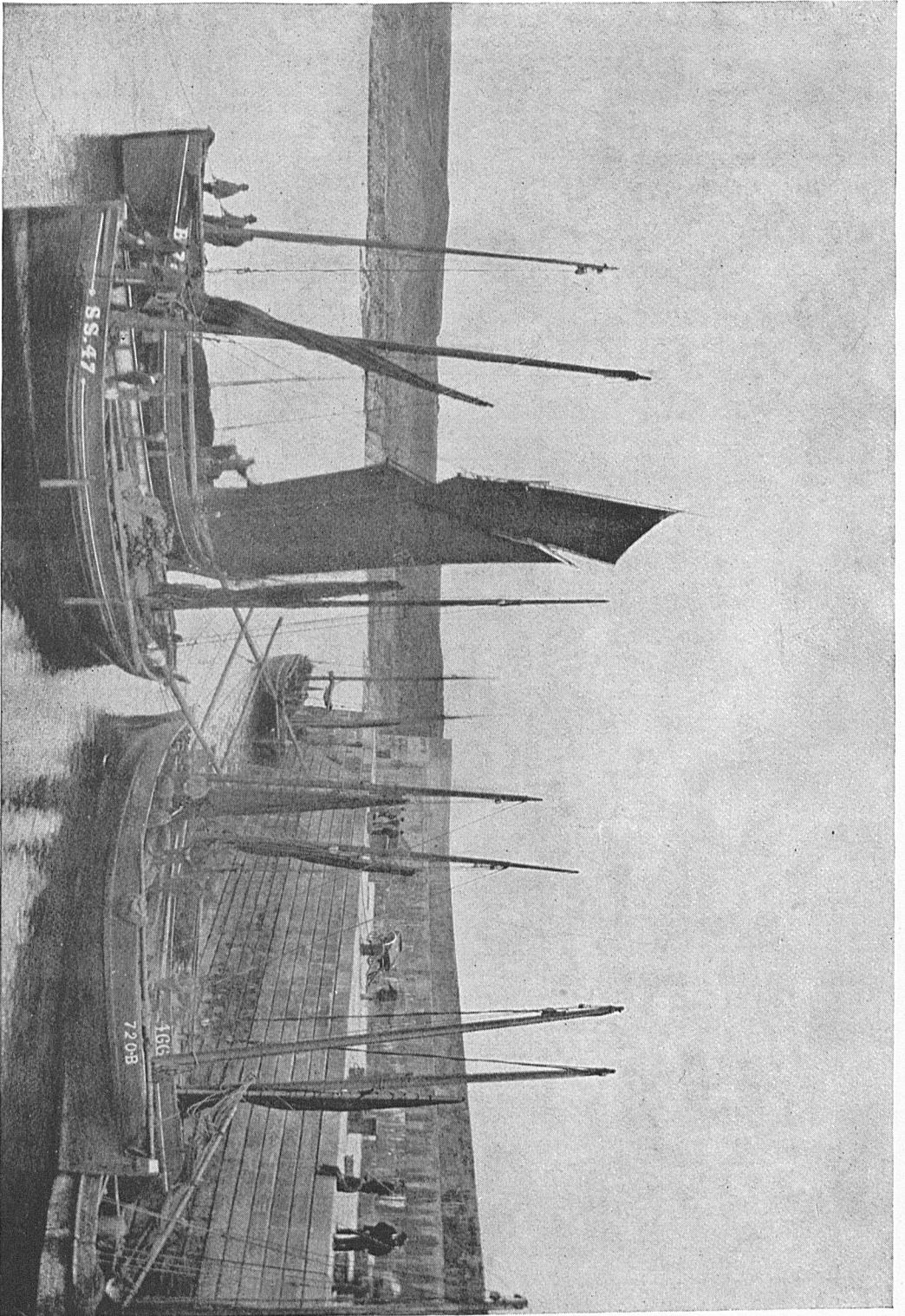
(1) By 30-ton boats which can lower their masts when the nets are shot, and are in many cases provided with steam gear for hauling the nets.

(2) By rowboats and by canvas canoes which take three to six nets to the fishing-ground. In some bays in the west of Ireland from 60 to 100 of these canoes take part in the fishing. They are particularly seaworthy, and, owing to their great lightness, can easily be removed from the beaches when heavy seas break upon the coast. They differ in construction on various parts of the coast; those on the Kerry coast are the most carefully built, while the most primitive design is met with in Donegal.

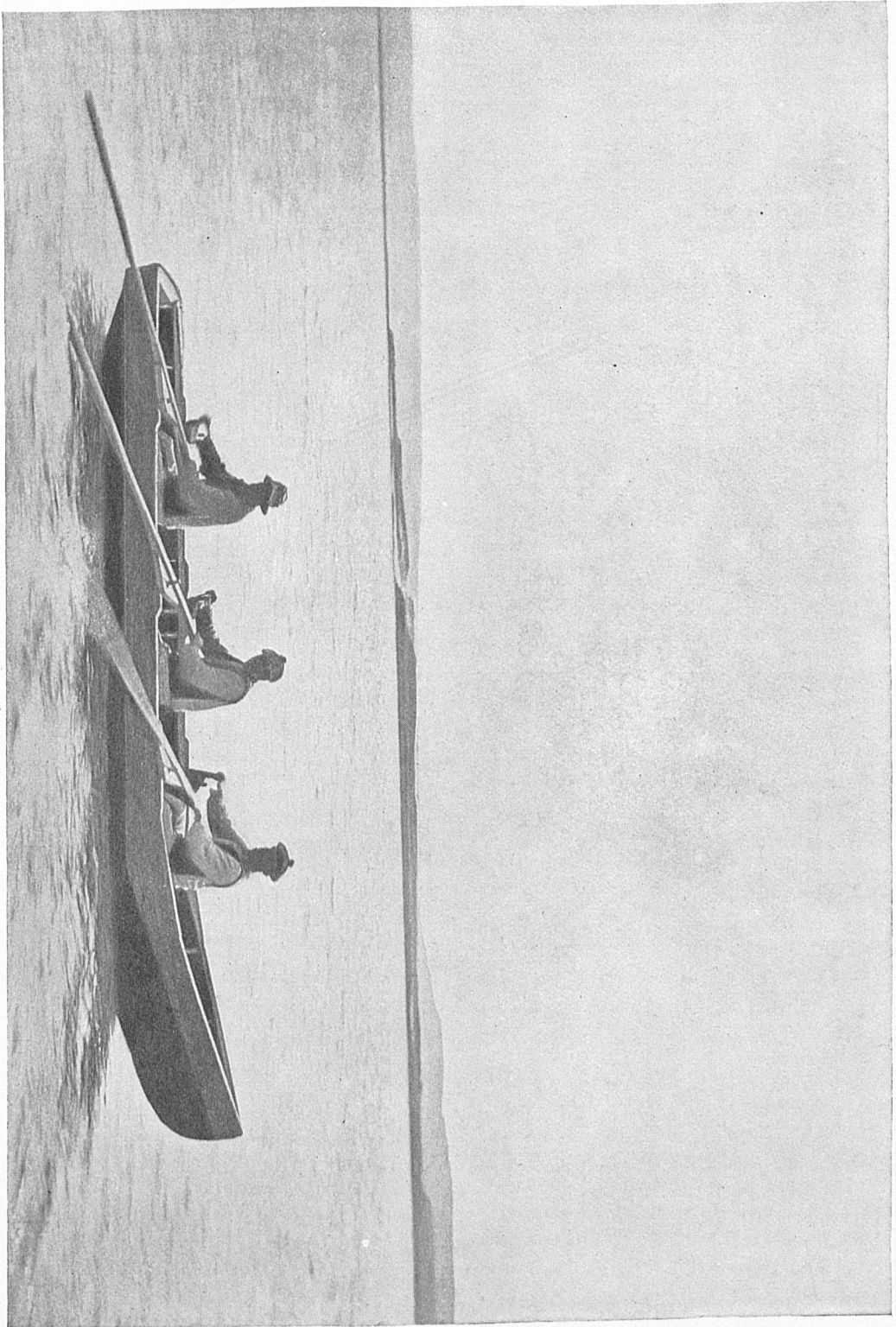
The sheer of the floor, coming right out of the water both fore and aft, gives them the best qualities of the dory, and the delicate framework enables them to adopt more graceful lines than is possible in the American craft.

During the spring of the present year 662 large boats (including 93 from France) fished mackerel on the Irish coast, and 809 row boats and canoes.

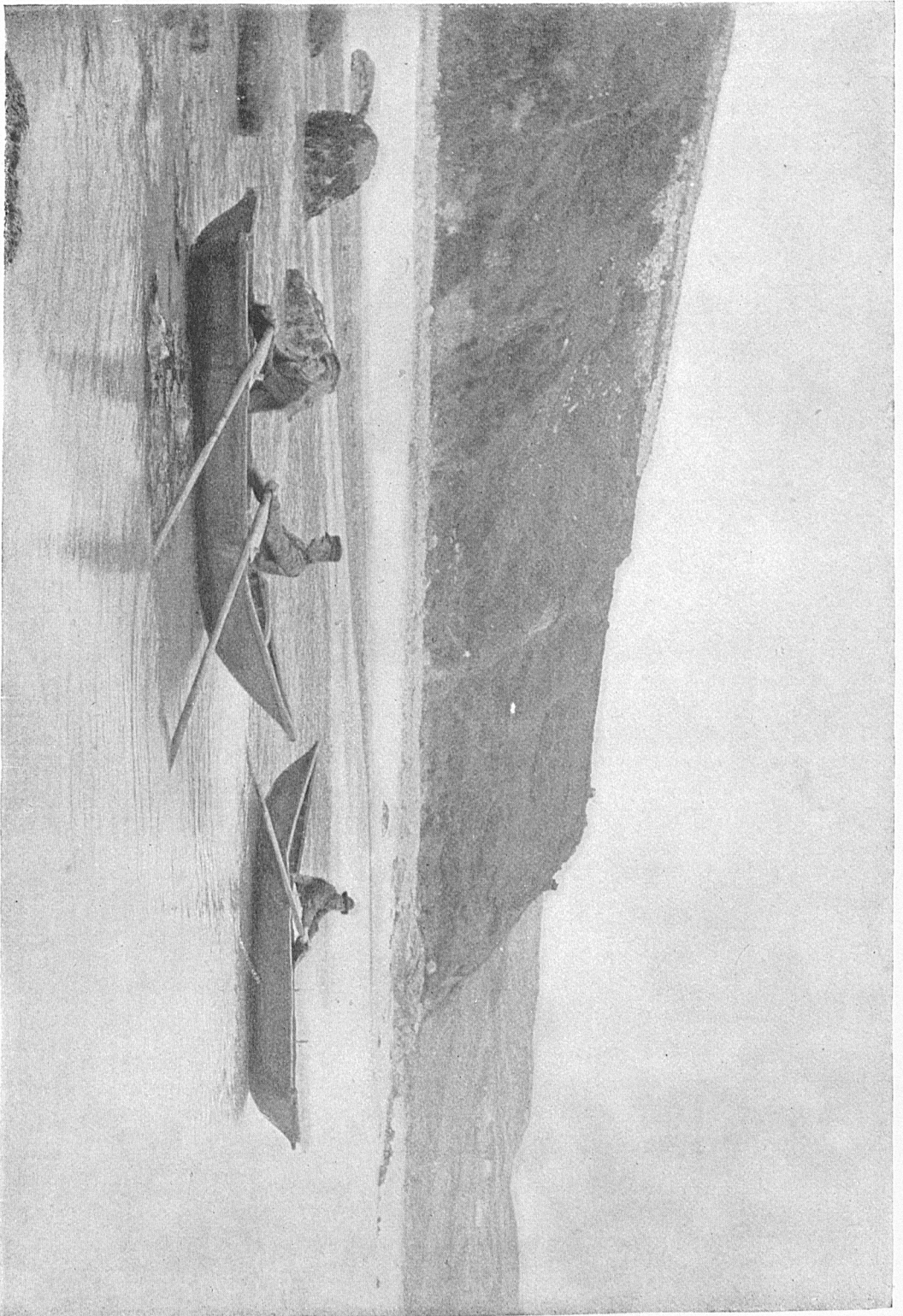
Annexed are four photographs taken by Mr. R. Welch, of Belfast, who has made a large series of such views.



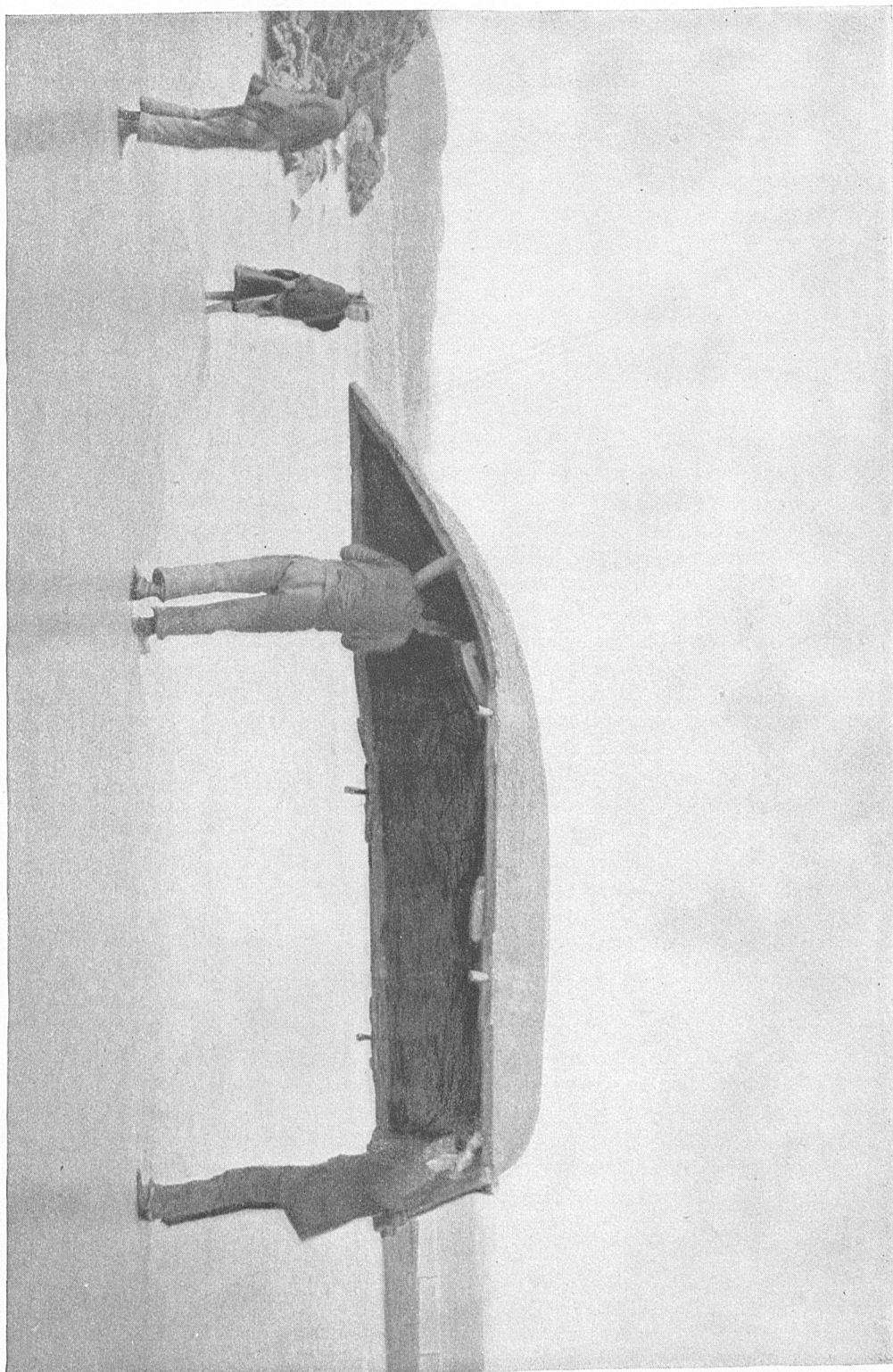
ARDGLASS HERRING FISHERY. "HAULING OUT." THE LARGER CLASS OF MACKEREL BOATS



SOUTH ISLES OF ARAN ISLANDERS ROWING A CANVAS CURRACH.



DONEGAL CANVAS CURRACHS, ROSAPENNA.



CARRYING A DONEGAL CURRACH.