

without any aid from man, by fresh arrivals from other localities. Experience has shown that fish in surrounding localities will not change their ground to fill up vacancies; but in obedience to the law of their existence, will continue in their own habitat. Without artificial propagation therefore, when exhaustion is extreme, restoration is impossible; and even in cases where depletion is but partial, a long term of years is needed to secure improvement, which may be greatly shortened by artificial means. Besides, the question presents itself, what is to become of the fishermen while the fishing-grounds lie fallow? Scientific fish-culture presents the remedy by planting millions of young fry in the depleted waters, which in a brief period, will restore the exhausted fisheries. This process can be continued, year after year; and even heavy drafts will fail to bring exhaustion, when the stock is in this way constantly replenished.

These are not mere unsupported theories. They have been amply sustained by the results which have attended the artificial hatching of codfish in the United States and Norway. The cod is the grand staple of marine industries on this side of the Atlantic. Many thousands of men and a vast amount of capital are employed in the cod-fisheries of North America, the annual returns being not less than twenty or thirty millions of dollars. During many years past this industry has shown serious symptoms of decline, especially on the coasts of New England. In many localities where cod were once abundant, they are now scarce or have altogether disappeared. Even the great cod-fisheries, such as those around the shores of Newfoundland, and at Lofoden in Norway, have, in recent years, presented signs of decline which must be regarded with feelings of apprehension in looking to the future. In view of these facts, the question, can science provide a remedy? presents itself with fresh emphasis.

In 1878, Professor Baird entered on a lengthened series of experiments designed to determine the practicability of the artificial propagation of cod on a large scale. In one of his earliest reports he remarked: "Whatever may be the importance of increasing the supply of salmon, it is trifling compared with the restoration of our exhausted cod fisheries; and should these be brought back to their original condition, we shall find within a short time an increase of wealth on our shores, the amount of which it would be difficult to calculate."

Great difficulties were encountered in hatching the cod ova, but they were overcome; and after the experimental stage had been passed, Professor Baird was able to report that the feasibility of the artificial propagation of the cod family was fully established. "It is now," he said, "believed to be possible, not only to greatly increase the supply of the cod where it is at present found, but by carrying the young to new localities, to establish cod-fisheries so far south as the coast of North Carolina, where the fishermen may find regular occupation during the winter, now their poorest season in capturing these fish in large quantities, and supplying the adjacent markets, and even exporting them." At a later date he said, in reference to the artificial breeding of marine food fishes: "We have at our command the means of so improving and increasing the American fisheries as to obviate the necessity, in the future, of asking a participation in the inshore fisheries of the British provinces, and thus of enabling us to dispense with fishery treaties or fishery relations of any kind with the British or other governments."

The progress of the artificial breeding of marine food fishes since these words were written, proves that Professor Baird was not over-sanguine when thus prognosticating the