

V.—THE UNITED STATES EXHIBIT AT THE BERLIN INTERNATIONAL FISHERY EXPOSITION OF 1880.*

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The oldest, most important, and most faithful ally of the German Fishery Association is North America, and more especially the United States Commission of Fish and Fisheries at Washington, at the head of which is Prof. Spencer F. Baird, who deserves great credit for his efforts in behalf of pisciculture. This gentleman, whose name is well known in Europe, is also Director of the National Museum and Secretary of the Smithsonian Institution. The three institutions over which he presides are closely connected with each other, the two last mentioned extending their aims beyond fishery and fish-culture, and devoting themselves also to other fields of science. Nothing could have raised our expectations, here in Berlin, to a higher pitch than the news which reached us some months ago, that we should be privileged to view the piscicultural achievements of the United States, to which von Behr, of Schmoldow, had so often directed our attention. Our expectation has now been realized, and we are happy to see among the representatives of the United States who present to our view the American exhibit, as the result of the labors of the National Museum at Washington, a gentleman already well known in our capital, one of Professor Baird's assistants, the famous pisciculturist Fred. Mather, who has repeatedly crossed the ocean in order to enrich German fish-culture with the treasures of the American rivers, and to whom we owe, among other things, the successful introduction into Germany of the California silver-salmon, *Salmo quinnat* [*Oncorhynchus chouicha* (Walb.) J. & G.], which thrives so well in our streams. The large and rich exhibit of the United States at our Fishery Exposition, which occupies nearly one-fourth of the first floor of the Museum of Agriculture, is systematically arranged in classes, according to the programme; and it might have been predicted that the majority of the articles exhibited would testify to that common sense and practical genius which long since have made our trans-oceanic friends the foremost inventors of the world. It is, indeed, not saying too much if we state that the united achievements, in this field, of all other nations cannot be compared with the astonishing

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wealth of practical articles placed on exhibition by the National Museum in Washington. Whilst with nearly all other nations fishing is considered such a venerable occupation that it is almost considered a crime to make any change in the catching implements and instruments which have been hallowed by the traditions of ages, the practical sense of the American does not have the slightest regard for such traditions, but simply goes on inventing something new all the time.

When the American wants to cut or carve a fish, he of course uses a knife; but far from contenting himself with a single kind of knife, he thinks that every fish demands a special kind of knife. It will almost seem ludicrous to our readers if we state that America has exhibited no less than ten different kinds of knives for slaughtering fish; but each one of these knives finds a peculiar and practical use. Many hundreds of thousands of mackerel, codfish, and shell-fish can be "prepared" much quicker, if the right kind of instrument is used. This does not, however, exhaust the list of knives; but the Exposition shows us knives for peeling off the fat of the whale, boat knives to cut the harpoon-line of the whale-boats in case it has become entangled, knives for decapitating fish, for cutting their throat, for scraping off the scales, for making slits, &c. But this is not yet sufficient; the exhibitors have taken special pains not only to show that the inventive genius of the American nation has created something entirely new in the ethnological field, but also to satisfy the historical interest. For this reason the implements and tools made by the ancient aborigines have been gathered and embodied in this collection, including the stone and bone knives of the Indians and Esquimaux; the spears and javelins of the Esquimaux on the Mackenzie River near the Arctic coast, and on the northwest coast; the salmon-spears of the Passamaquoddy Indians; the fish and bird spears of the Alaska Indians; Esquimaux harpoons, made of stone, bone, and iron; spear-heads of the natives, made of American copper; spear-heads and hooks made of the split bones of various animals, and harpoon-points with fins made of fish-bladder; arrows with which the Esquimaux kill fish, &c.

As these Arctic natives live exclusively by the fisheries and the chase, we may be certain in case the collection of the National Museum in Washington is complete, that we see here, besides the numberless inventions and implements of recent date, an almost exhaustive collection of implements used by the ancient aborigines of the farthest regions of the North. If we suppose this to be correct, this small portion of the great exhibit would permit us again briefly to touch the most important questions of anthropology. It is well known that when, some years ago, the German anthropologists met in convention at Constance, they devoted a good deal of attention to the drawings of animals which prehistoric man, at a time when the mammoth had not yet become extinct, is said to have rudely etched with stone on ivory, horn, or bone. At that time the advocates of the genuineness of the "famous grazing

reindeer" of Thayingen, mentioned in support of their assertions the skill shown by the Esquimaux of our days in adorning their various bone implements with sketches of human beings, animals, houses, and other things. Reference was made at the time to a number of articles of this kind which had been in some of our museums for a considerable period, and to reproductions of the same which, besides the famous French drawings of the mammoth, &c., had found their way in various works treating of prehistoric times, such as Lubboch's *Prehistoric Ages*, Beer's *Prehistoric Man*, and others. If any collection could have shown us implements adorned in the manner above described, it would certainly have been the American exhibit; but, unfortunately, nothing of the kind is found in it. Some of the articles placed on exhibition show considerable skill in carving, strongly reminding us of the style of ornamentation common on nearly all coasts of the Pacific Ocean. It is a peculiar, but not altogether inexplicable, circumstance, that the wooden fish-hook of the natives of the farthest Northwest of North America is frequently ornamented with wooden figures, and that we also find here some very beautiful and characteristic boat-ornaments of carved wood. It is presumed that Mr. Günther, of Dorotheen street, the official photographer of the Exposition, will produce pictures of these ornaments which are of such interest to our anthropologists.

After this digression, which has shown us one of the many branches in which the American exhibit has produced so much interesting matter, we will return to our report proper, and, lingering for a few moments in this class, we cannot fail to notice the 200 artificial flies, exclusively used for catching salmon, trout, and bass, manufactured by Messrs. Bradford & Anthony, of Boston, and the collection of 120 flies for catching *Salmo thymallus*, exhibited by Messrs. Conroy, Bisset & Malleon, of New York, showing an endless variety in this one specialty. Owing to a lack of proper space, one of the most interesting of the fishing-boats placed on exhibition, a canoe made of birch bark, from the northern part of the United States, containing the characteristic figures of two reddish-brown Indians engaged in fishing, has unfortunately got rather an unfavorable place. We need scarcely tell our readers that the exhibit comprises a large variety of models of canoes, and of Esquimaux kayaks and "ummisks." Friends of aquatic sports will be interested in the exceedingly practical portable boats; no more can be desired than the portable boat, exhibited by Osgood & Chapin, Battle Creek, Mich., which measures 15 feet in length. It weighs 20 pounds, is intended for four men, and can be propelled very rapidly by two oars. Even when loaded with a weight of 850 pounds it only draws 8 inches of water. The price of such a boat is \$45. One of the most important boats used in the United States for fishing is the "dory," which somewhat resembles our Pommeranian coast-boat. No fewer than six such "dories," completely equipped for different fishing purposes, are found in the exhibition; one, completely rigged, in the upper

story, the others below; some of them in the International Hall, which contains a completely equipped American whale-boat, as center-piece between the two large northern whales. Although this boat looks very pretty and almost new, we are informed that it has been engaged in many a hard contest with the largest of all living beings.

But we must not be detained too long in this class, for the others also richly deserve our attention, especially the one comprising the marine animals. To carry live fish all the way from the United States to the Berlin Exposition would seem a problem fraught with insurmountable difficulties, considering that many of our neighbors did not attempt to bring live fish. Nevertheless, Mr. Fred. Mather, the experienced transporter of fish, was not deterred by the difficulties attending such an experiment. He forthwith constructed a suitable transporting apparatus, a large metal vessel, which was filled three-fourths with water. Immediately over the water there were attached to the walls of the vessel sponges, which, through the rocking motion of the ship, were alternately filled with water and let it drip down. Through this contrivance the 124 fish which lived in the vessel were supplied with air, and succeeded in reaching Europe in good condition; but immediately upon their arrival they died. With the exception of American oysters exhibited in the Ice Hall, it had been found impossible to exhibit any live specimens of American marine animals, whilst a very large variety of salt, pickled, and otherwise prepared fish were exhibited in the hall for preserved fish. As in nearly everything else, America is also quite original in this branch of industry. This is especially shown in the very appetizing manner in which codfish is prepared. Beautiful pieces of clean white meat (all the refuse matter is otherwise utilized) ready for use actually tempt one to eat some of this fish, which, by most people, is not considered a delicacy. Soaked in water for six to eight hours, and then put on the fire for twenty minutes, this fish makes a cheap and palatable dish. Our Berlin fish dealers ought certainly to import some of it. Among other American prepared fish we must mention salmon, ready for the table, to be eaten either warm or cold, from A. Booth & Co., Astoria, Oreg., and fresh mackerel from W. K. Lewis & Brothers. (It may here be stated that Mr. Fritmann, of the *Tyska Fisk-röckeriet*, has in vain attempted, at considerable expense and labor, to introduce into Germany freshly caught Swedish mackerel.) We must also mention canned American oysters, exhibited by a firm in Baltimore. It is well known that the Americans also eat the beard of the oyster, and these oysters are, therefore, put up with the beard. On this account, and for other reasons, we cannot accustom ourselves to these oysters, even after the beard has been removed and they have been fixed with pepper and lemon-juice. It is probable, however, that if fried tolerably hard, they might find favor with some of our people. On the other hand, we must give the highest praise to the fresh lobsters from Underwood & Co., Boston; spiced sardines, exhibited by an unknown firm; and sour eels in jelly, from S. Schmidt, New York.

Among the other products of the fisheries we must mention the excellent preparation of the air bladder of various fish exhibited by Messrs. Howe & French, of Boston, which has met with great favor among connoisseurs, and threatens to enter into successful competition with various Russian products of this kind. We are informed that this article, also called isinglass, is used in nearly all American breweries for making the beer clear. We cannot pass by Le Page's fish-glue exhibited by John J. Tower, of New York. This article surpasses anything ever seen in this line, and is even used for joining machine-belts, without requiring any sewing.

The principal attraction of the American exhibit is the large collection of useful and hurtful American marine animals, comprising 296 of the more important American fish, reproduced in plaster, photographs, and colored drawings. The plaster casts, especially, attract universal attention. It is to be hoped that our scientists will imitate the example set by America in this respect, for our people would thus be able to become more thoroughly acquainted with the different kinds of fish than is possible without such plaster casts. Nothing is easier than to take a plaster cast of a fish, and if it is colored true to nature, no more exact image can be produced. Look at this plaster cast of a codfish, of a large size, which hangs on the wall. Everything at once reminds you that you have before you a specimen of the cod family, the powerfully developed head, the peculiar formation of the back, the color of the skin; but not of that cod family, hungry specimens of which visit our Baltic coasts, hunting for herring and flounders. A fat and well-fed codfish, like this one, we can only imagine as having been produced by some experienced fish culturist. Such a powerful body, such a mass of firm and juicy meat, can only be produced by the rich food found in the sea near the coasts of Maine and Massachusetts. Here we also see the favorite fish of the Americans, the shad (*Alosa sapidissima*), our German "May-fish," which von Behr is endeavoring to introduce in Germany, and hopes to make a popular article of food. Here we also find *Salmo salar*, the Atlantic salmon, which ascends, for the purpose of spawning, the rivers of North America, Europe (the Rhine), and Asia; likewise the California silver salmon, which grows very rapidly and can stand great changes of temperature; 5 varieties of American pike; and some specimens of the menhaden, which are caught by the million to serve as bait for codfish. Here is also another present from America, the American brook-trout (*Salmo fontinalis*), 8,000 eggs of which we received two years ago, and which lives in the rivers and lakes of British North America, in the northern part of the United States, and in the Appalachian range. Here we finally find von Behr's ideal (or at least one of his ideals), the famous striped bass or rock-fish (*Roccus lineatus*), which is found from Florida to Nova Scotia, and which, if imported into Germany, would be a most useful acquisition. Any one who desires to see this gigantic fish may do so by visiting the

Ice Hall, where there is a specimen, prepared by Mr. Wickersheimer. This fish succeeded in crossing the ocean in good condition, but died upon its arrival here.

The great wealth of fish has by no means induced our American friends to rest contented with sitting down to the rich banquet which nature has provided for them, but they make every effort to give back to the water what they have taken from it. In the first place, they have gotten our carp, in return for the two fish which they have sent us; and this hardy European mud-fish seems to flourish very well in America. They have also imported the *saibling*, and, as far as I know, the *mürane*. Marine animals have been raised artificially on a very large scale; numerous piscicultural establishments have been founded in various parts of the country; and the practical American pisciculturists, such as Professor Spencer F. Baird, Fred. Mather, Clarke, T. B. Ferguson, Holton, Chase, Pike, C. G. Atkins, M. McDonald, and others, have invented a large number of different hatching and other piscicultural apparatus, and have practically tested most of them. The number of such apparatus in the Fishery Exposition is very large, many of them being already theoretically known to us from the descriptions given in the publications of the "German Fishery Association." But the practical Americans go still further. Each one of their many hatching establishments hatches every year millions of salmon, trout, and other fish eggs. But not satisfied with this, the United States has built a fish-hatching steamer, the Fish Hawk, which, fitted with all sorts of apparatus, makes long trips along the coast and up the rivers endeavoring to solve the various piscicultural problems. The exhibition shows us the model of this steamer, as well as a model of its central portion containing the hatching apparatus.

Our limited space unfortunately compels us to close our review; but we cannot leave this subject without having directed the attention of visitors to the exhibition to the apparatus for making deep-sea soundings, exhibited by the Coast Survey (of the Treasury Department); to the rich literature; to the beautifully executed maps of the North American fishing grounds; and finally to a very original production, viz, five water-color paintings, showing the spawning places of the sea-bears on the Pribiloff Islands in Alaska. A full report on the nature and characteristics of that out-of-the-way corner of the world was made a few months ago at the session of the Society for Commercial Geography in Berlin, by Mr. Émil Brass; and Mr. Henry W. Elliott's water-color sketches fully corroborate Mr. Brass's report. The American exhibit also contains the skins of seals, otters, sea-bears, weasels, minks, beavers, &c. It is, of course, impossible to give within the limits of a short newspaper article even an outline of all that is contained in this interesting exhibit; for we would not attempt to compress into one short article matter sufficient to fill a large volume.