thing to do with our success remains an open question; but the fact is, that we very soon began to obtain remarkable strikes, and were rewarded by bringing to net during the remaining two hours that we fished no less than twenty-three of the finest speckled trout that either of us had ever before seen at one time. The smallest weighed over three-quarters of a pound, the next smallest a trifle over a pound, and ranging up to the three largest, which pulled the scales at 2¼lbs. each. They were, indeed, a splendid string, and had afforded us magnificent sport in handling with our 7oz. split-bamboo rods, and excited the admiration and possibly the envy of all who saw them when they were proudly exhibited on our return to the log sportsman's hotel at Smith's Lake. The greater part were served for supper, and were found of fine flavor and the meat firm and of the salmon color.

The writer tried an experiment with a few of the largest to determine whether "jerked trout" would be palatable and could be kept for any length of time, and the result was so satisfactory that it is given for the benefit of the readers of the FOREST AND STREAM. The trout after having been nicely dressed and washed, were placed over night in a weak brine, that they might thoroughly slime. Then after washing and then drying with napkin, they were slightly peppered sufficiently as for cooking. A jerking rack was improvised by putting cleats and birch slats across near the top of a box 3ft. long, set on end. The trout having been placed on the rack, an iron pot with coals fed by bits of birch, was placed under them, and the front of the box closed by a board held in position by a stick slanting to the ground. A slow fire was kept up—except during the night—for two days, and the trout were thus slowly cooked and thoroughly dried and smoked, and were reduced nearly one-half in bulk. Some were served hot from the rack and pronounced delicious. Others were kept and served at intervals of one to three months, and found to be in nice condition and very palatable. A number of sportsmen who partook agreed that trout thus prepared would be a convenience for preserving and prevent wasting when more were caught than could be at once used, besides being an acceptable variety to camp stores, and in shape to carry for lunch or home use.

The red-ibis was the most eagerly taken of the flies used; the grizzly came in as a fair second, while the white-miller was but occasionally struck.

There are numerous bodies of water in the Adirondacks where large trout are known to exist, but are exceedingly difficult to catch, especially late in the season. Notably so is Spring Pond near the Bog River chain of ponds, mentioned in Colvin's report of the Adirondack survey, stocked originally by the veteran sportsman A. E. Kerr. After the experience recorded, it might prove advantageous for sportsmen to add a few bass flies to their trouting paraphernalia, and try deep trolling when visiting such waters. The season having closed ere another opportunity presented, the relative merit of additional worm appetizer remains yet to be tested. E. S. W.

GARRETTSVILLE, O.

THE CARP AS FOOD.

Editor Forest and Stream:

I beg to differ with you as to the edible qualities of carp and suckers. Their very habits would at once to my mind settle this question. They live in the mud or sluggish water except when running up to spawn. Their food consists of dead and decayed substances that lie upon the bottom and are sucked up, squiggled and then swallowed with portions of mud. Sometimes they come in contact with the spawn of other fish, which are gulped with as much avidity as a piece of half decomposed animal matter. You say "they are always kept a few days in pure cold water before they are killed." Of course this would tend to work off some of the food effluvium and improve the flavor of the flesh. Again you say "much of the blame attached to this fish really belongs to its surroundings." Of course it does—living in the mud and picking any decayed matter deposited there would make the fish offensive to both smell and taste. But why does he seek such "surroundings?" Simply because it is his nature. Why don't the sucker exhibit more enterprise and sometimes capture a live bit of food if he expects to adorn a plate on a gentleman's table? But no, he has no such elevated notions. His instincts are low, his tastes are low and he must always be classed with "those that breathe out contagion to this world." H.

Editor Forest and Stream:

I was interested and amused by reading to-day, in your issue of this week, the communication of Mr. Hapgood, of Boston, that great center of learning and information; concerning the capture of a "mysterious millpond monster," which is duly described with semi-scientific minuteness, worthy of Bostonian culture. Being myself a Massachusetts man, I naturally felt proud of the elucidation, and especially because it treated of the best-abused fish in American waters, and one which I delighted to champion for a dozen or more years past, as the files of the FOREST AND STREAM will abundantly testify. I cannot understand why the communication should have reminded me of another Boston incident, but it did, and although "chestnuty" I will repeat it. When the Colorado beetle, or potato bug, had been for several years ravaging the country, a specimen was caught in the suburbs of Boston, and duly brought before a highly-cultured class of Boston scientists for identification. A young lady of the class adjusted her eye-glasses, and examining the beetle promptly announced its scientific name, whereupon the poor beetle at once rolled over and died. Is it not possible that the shooting of this fine carp, in the zenith of its spawning season, saved it a more horrible, scientific death?

But seriously, now, is it a wonder that the Massachusetts Fish Commission cannot understand why the people of the State do not engage in carp culture, when they know so little of the carp? (See last report of the Commission). Hundreds of Massachusetts farmers would engage in the fascinating industry if they knew the intrinsic value of the carp, the ease and comparatively slight expense of inaugurating the business, and when started systematically, how very little attention is required ever after, and finally, how much more profitable the business is than the same areas devoted to any other farm industry. As before intimated, the carp has been outrageously belied, and mainly by those who do not know a carp when they see it. I have investigated several cases where carp have been publicly pronounced a very inferior table fish, and by prominent gentlemen, who would not knowingly misrepresent any subject under discussion. In every instance I have ascertained that they had eaten of carp which had been taken out of season, as was the case with the one shot in the pond at Shirley, Mass., "early in September." In the vicinity of Boston, carp will commence spawning in May, and continue spawning from time to time until October, providing the weather is moderately warm and the conditions of the pond are favorable. These months, then, are properly the close season, when the carp is unfit for table use. But, even during the cold months, if taken direct from waters having muddy or otherwise filthy bottom, they will be found to be in poor flavor. If, however, they are placed in clear, cold water for two or three weeks, and screened or floored from contact with the earth, they will be found to be second only to the *Salmonidæ*. MILTON P. PEIRCE.

COLUMBUS, Ohio.

FLORIDA EXPLORATIONS.—Feb. 9 the Grampus took a seine boat fully equipped for cruising along the shore and in the lakes and lagoons of Florida to Indian Key, 75 or 80 miles from Key West and about 30 miles from the point where Dr. Henshall was to go in her among the islands, to enter Biscayne Bay. Feb. 11 the Doctor, with two seamen and a local pilot, left the Grampus for Biscayne Bay. The Grampus returned to Key West Feb. 12 and was joined by Mr. W. C. Kendall, who will accompany her to the Gulf fishing banks as naturalist.

GOOSE FISH IN BRACKISH WATER.—A correspondent, "C.," living in New Jersey, mentions the capture of a goose fish or angler (*Lophius piscatorius*) near the mouth of the Cohansey River, about Dec. 20, 1888. This is a very unusual locality for this marine species and it is not to be wondered at that the fishermen did not know it. The length of the fish was four feet. The stomach and mouth contained fifteen large menhaden. Daniel Biggs was the fortunate captor of the curiosity.

LARGE BASS CAUGHT THROUGH THE ICE.—West Winsted, Conn.—*Editor Forest and Stream:* One week ago to-day Will White, of this borough, caught a smallmouth black bass 21in. in length and weighing 5¼lbs. On the following Saturday the same fisherman secured another of the same species weighing 4¼lbs. Both these elegant fish were taken from Little Pond about 1½ miles north of Winsted, and were caught while fishing through the ice for pickerel with tips.—B.

NEW HAMPSHIRE TROUT IN JANUARY.—Conway, N. H., Feb. 16.—E. B. Hodge, Fish and Game Commissioner of the State, was here this week and had ten fishermen brought before J. C. Wood, J. P., charged with catching brook trout in January. They all pleaded guilty and were fined in sums from $5 to $50 each and costs. This will put a stop to illegal fishing in this part of this State for the present. They were catching brook trout ranging from 2 to 6½lbs. each.—SACO.

NOVA SCOTIA FISHES.—Mr. Harry Piers, an assistant in the Colonial Museum at Halifax, records the following fishes as new to the fauna of Nova Scotia: Oceanic bonita (*Euthynnus pelamys*), harvest fish (*Stromateus triacanthus*), swell fish (*Tetrodon* sp.). The last we suppose from the description to be the common *T. turgidus*. The oceanic bonito was eaten at one of the hotels and pronounced excellent.

Fisheulture.

SAWDUST IN STREAMS.

THE effect of sawdust in lakes and streams has been discussed by many writers and with conflicting opinions. In the second part of the Report of the U. S. Commissioner of Fish and Fisheries, Mr. James W. Milner gives the result of his observations on the Great Lakes. Speaking of Green Bay, he says that whitefish were formerly taken in abundance in the spawning season in a number of rivers emptying into this bay; but sawmills are numerous at present on all of these streams, and the great amount of sawdust in the rivers has caused the whitefish to leave them. The effect of the sawdust, he states, is to cover up the spawning grounds and destroy the food of the fish. Watson, in the third part of the same report, charges the sawdust with the destruction of the purity and aërated condition of the water, so changing its character as to revolt the cleanly habits of the salmon. He mentions the experience of Mr. Arnold, who had seen the gills of salmon filled with sawdust. Mr. Mather, in Transactions American Fishcultural Assoc., 1882, and in these columns of the same year, thinks that sawdust is destructive to the young by covering up the spawning grounds and by polluting the water with turpentine from the pine and tannin from oak. Mr. J. J. Brown, of Ludington, Mich., in Bulletin V., U. S. Fish Commission, charges the sawdust and shingle shavings dumped into Lake Michigan with the annihilation of the feeding grounds of fish. The statements of "Sportsman" and Livingston Stone in recent numbers of this paper, are very positive as to the deleterious influence of sawdust in polluting the water, killing the young and promoting the growth of fungus. Mr. Stone believes that after the spawning grounds are covered with sawdust the stream can produce no more trout.

Charles G. Atkins, in Part II., Report of U. S. F. C., speaks of the Penobscot River. He finds that sawdust has interfered with the success of certain fishing stations, but the salmon are not prevented from ascending to their spawning beds, which are free from obstruction and seem to suffer no injury from the refuse. Prof. H. Rasch, an eminent authority in Norway, communicated his views on the sawdust question to the Norwegian Hunting and Fishing Association in 1873. He admits that rivers on which there is considerable cutting of timber gradually become more and more destitute of salmon, but thinks that the injury is not to the fish directly, but is caused by limiting and partially destroying the spawning grounds. He cites the river Drammen, which was greatly polluted by sawdust for many years and in which the salmon decreased constantly until the fishermen at Hellefos begun hatching them artificially and planting the fry annually. Having access to the upper part of the river, which was comparatively free from sawdust, the ascending fish seemed to be little affected by the mill refuse from below Hellefos. His opinion, based upon experience on the Drammen River and the Soli, was that unless the salmon are prevented by impassable dams from ascending above the mill locations, the sawdust will not drive them from the streams nor materially injure them. "Piscator," Charles Hallock, and Milton D. Peirce have produced statistics and observations to prove that sawdust in streams of Nova Scotia and Massachusetts has not injured the fishing for trout and has not unfavorably affected any of the river fisheries.

From the foregoing survey it will be evident that there are two sides to the question as to the influence of sawdust in streams and lakes, and it may be possible that some of the States which have legislated against the deposit of this substance in certain waters have placed unnecessary restrictions upon an important industry. Unless spawning grounds are actually covered and feeding grounds destroyed, there would seem to be no case against the sawdust. At all events, the instigators of this legislation should produce evidence of deleterious effects to be remedied by legal enactments, and show that such pollution is necessarily and always fatal and cannot be mitigated by measures to aid the ascent to the spawning beds.

Editor Forest and Stream:

In your last issue, in an article treating on sawdust in streams, it is held that such pollution does not prevent the population of the waters unless the spawning grounds or feeding places are invaded by the deposit. It seems to me that as long as such a contingency might exist, it furnishes a sufficient warrant for prohibitive legislation on the part of the States. I would add in the interest of the owners of saw mills, that if they would give the matter a moment's serious thought they could see in the laws forbidding the dumping of their refuse in the streams a means of permanent benefit to themselves. Let them dig a pit, such as used for charcoal burning, except that a flue should be run up from the center to promote draught. The flue could be constructed of flat stones, and the entire cost would only be the labor, while the benefits would be lasting. Into this pit all the ashes and refuse of the mill could be put and burned, the fire being introduced from the top of the flue. When the mass is reduced to ashes the mill owner will find himself in possession of a fertilizer especially valuable for low lands contiguous to all bodies of water—his own lands or those of his neighbors. Farmers have little use for sawdust, but they all understand and appreciate the value of ashes. J. D. J.

NEW YORK.

Editor Forest and Stream:

Let me thank Mr. Hallock and Mr. Peirce for their cool-headed utterances on this sawdust question. I have been for many years investigating this subject, and have under my hand many such facts as I published in my former letter, and it is cheering to have them so effectively buttressed as they have been by similar experiences and facts. That laws have found their way upon the statute books of the country prohibiting the passing of sawdust into the streams is not proof that to do so is an evil. Many other laws have found their way there as well only to be repealed after more was known upon the subject, and I feel quite sure that the law against sawdust ought to and will share the same fate, and because it never should have been enacted, as the necessity for it does not really exist.

At the risk of wearying you on the subject, I add a few more facts, which to me are quite significant. The River St. John, in New Brunswick, is only to a limited extent on its branches encumbered with mill dams, but it is and has been for nearly a century abundantly supplied with sawdust, still it produced during the six years from 1876 to 1881, of salmon, an annual average of 172,942lbs., and during the six years from 1884 to 1887 210,866lbs, an excess during the latter over the former period of 224,544lbs. Its product of alewives during the former period was 10,018bbls. per annum, and during the latter period 16,622bbls., an increase during the latter period of 39,624bbls. The fish killing properties of sawdust do not seem to be very formidable on the river, though much of it is of that horrid pine which "Sportsman" seems to think is so deadly in its results. The following catch of shad on the river during the years indicated also tells its own story in the same direction: 1878, 429bbls.; 1879, 521bbls.; 1880, 613bbls.; 1881, 1,885bbls.; 1882, 1,882bbls.; 1883, 1,728bbls.; 1884, 2,420bbls.; 1885, 2,189bbls.; 1886, 2,716bbls.; 1887, 3,950bbls. These fish were mostly caught during the month of May while full of spawn.

The whole Province of New Brunswick with her large fish-producing rivers, except the St. John, clear and clean of mill dams and sawdust, produced of salmon per annum during the nine years from 1869 to 1877 1,789,930lbs., and during the ten years from 1878 to 1887 but 1,189,980lbs., a decrease of 599,950lbs. per annum; and of alewives during the former period 23,053bbls. and the latter 17,714bbls. per annum, a decrease of 5,339bbls. per annum. Those figures of course include the St. John, so that while anadromous fish of all kinds are increasing on the sawdust-cursed St. John by including the produce of her clean rivers, we see there must be something at work much worse than either dams or dust. Had the reverse of these figures been the result he would be a much bolder man than I who undertook to prove that sawdust did no harm; but as it is I claim that I have made a strong point in favor of the innocence of sawdust. If the deadly dust is as ruinous to fish as some suppose, it should produce results in a series of years which could leave no doubt upon the mind of any person.

The very best thing to be done for anadromous fish in your country as well as ours is to put good fishways in the dams at any cost and add to the fish year by year by artificial culture, and the imaginary sawdust evil will soon vanish and the lumbering interests will be saved a needless expense.

Your New Brunswick correspondent "Fisher" seems to think that I am not informed as to the enormous size of the New Brunswick trout, which he seeks to make one think are very whales as compared with the troutlings of Nova Scotia, which he intimates are too small to be killed by sawdust! When he takes this singular position, he proves nothing so much as that he and his companions—in the contention that sawdust kills fish—are advocating error and wrong, because no two of them can agree as to how or why it is so destructive; see Livingston Stone's view as compared with "Fisher's" and "Angler's". There are as many theories as writers; but all are provokingly economical of facts, and it is facts we want; we have been familiar with groundless theories from childhood, and it is about time the theories were supported, to some extent at least, so give us data and don't ask us to take fancy for fact.

As to the size of trout in Nova Scotia, I have seen thousands that weighed from 1lb. to 4 and 5lbs., and one or a half dozen may be seen in the museum at Halifax weighing from 5 to 7lbs. They catch double the quantity every year taken in New Brunswick. It is quite evident "Fisher" should be more sure of his facts. His Province produced of trout in the year 1886, 65,650lbs., and Nova Scotia the same year, 131,562 lbs., double the New Brunswick catch; and in 1887 the former Province caught but 71,765lbs. in her clean rivers, while the latter Province in her sawdust-poisoned waters caught 155,469lbs., being 11,939lbs. more than double that of New Brunswick, the increase in Nova Scotia in a single year being nearly 20 per cent. as compared with less than 10 per cent. in New Brunswick. Had the result been the reverse of this the facts would at once be accepted as conclusive against the deadly dust; as it is I claim them as being overwhelmingly in the opposite direction.

He discourses on the poisonous gases from rotting sawdust, and I will not waste space in refuting this idea, so flippantly put forth from time to time, but demand that the