

to be explained. With every separate rifle, and at each range and change of bullet, the temperature of the atmosphere was taken on the dry and wet-bulb thermometers, also the pressure on the barometer, and the direction and velocity of the wind; and the full details having been published in the pages of FOREST AND STREAM there are ample data to work upon by any one disposed to investigate the subject.

Another kind of irregularity, which may be detected on glancing over the above table, is one which was observed at the Putney trials and was remarked upon in the *Field* at the time. Some of the bullets, instead of spinning evenly during their flight, gyrated with a sort of corkscrew-like motion, which carried them sometimes above and sometimes below the true line of trajectory, besides moving now toward the left and then toward the right side of the target. Vagaries of this kind, on the part of one or two bullets, would sadly interfere with the regularity of a series of shots, spoiling the "string" by their divergence from the bulls-eye, and occasionally disappearing from the target altogether. Occurrences of a similar character were comparatively frequent at Creedmoor with some of the rifles, and, although they are not always noticeable in the above table of trajectories, owing to this being an average of five shots, some of which may tend to counteract the effect of the others, still in certain cases they are quite obvious to the eye. In a trajectory that is regular, the height of the bullet at three-quarters of the full length of the range is always a little greater than it was at the first quarter; and at the half distance it is higher than at either of the other points. But, on referring to the Whitney-Kennedy rifle, under the head of .500-bores, it will be seen that, in the 100-yard range, some of the bullets dipped between the first and second screen, and then rose to the third. The extent of these variations is, of course, more noticeable in the full records giving every shot than it is in the average result.

Space cannot be afforded here for entering into details of the shooting of all the weapons, and I must confine my remarks to the most salient features in the experiments.

Of the .500 bores, the Bullard repeating rifle came out first, as was warranted by its carrying a larger proportion of powder than any rifle in the trial, except the English express and the two American muzzleloaders. With the solid bullet the powder ratio was 1 to 3 1/2, and with the hollow bullet 1 to 2.6; and, as has been pointed out before in the *Field*, the hollow bullet has the higher trajectory, for the greater speed of the light projectile at the beginning of the range and its rapid loss of velocity toward the end both tend to make the curve higher in the center. The Winchester and the Whitney-Kennedy repeaters used the same ammunition; and, with cartridges taken from the same box, it might reasonably be supposed that they would show very nearly equal results. The Whitney-Kennedy, however, exhibited in a marked degree the corkscrew gyration of bullets alluded to above, as is demonstrated by the following record of the five successive shots at the 100-yard range with the solid bullet. The Winchester was irregular at 75 yards in the last two shots, but there is a great contrast between the general results, as will be seen by comparing the average of the three most regular shots with the average of the whole five.

WHITNEY-KENNEDY.			WINCHESTER.			
Round.	25yds.	50yds.	75yds.	25yds.	50yds.	75yds.
1.	1.09in.	1.84in.	1.55in.	1.55in.	1.97in.	1.66in.
2.	1.80in.	1.84in.	2.79in.	1.90in.	2.60in.	2.12in.
3.	1.23in.	-0.88in.	-1.71in.	1.78in.	2.14in.	1.77in.
4.	2.15in.	2.43in.	3.53in.	1.86in.	1.96in.	2.79in.
5.	1.10in.	-0.39in.	-0.01in.	1.86in.	2.38in.	2.76in.
Average.	1.48in.	1.18in.	1.23in.	1.74in.	2.20in.	2.21in.
Av. (3 rds.)	1.66in.	2.36in.	2.63in.	1.78in.	2.22in.	1.85in.

It will be seen by the minus marks (-) prefixed to two shots of the Whitney-Kennedy, that they dropped so much after 25 yards that a horizontal line drawn from the muzzle of the rifle to the target would actually have been higher than these bullets were at mid-range; but they rose again between 50 and 75 yards, and must have risen still higher before they completed the 100 yards. Casting out the two most irregular shots with both rifles, there is not a vast deal of difference between the averages of the three remaining rounds; but only one of the bullets from the Whitney-Kennedy can be said to have had a fairly even flight. It is not easy to say what could be the cause of this difference in performance with the same ammunition unless it were the difference in the rifling. Both were 6-groove rifles, but the Whitney-Kennedy had one turn in 30 inches, and the Winchester one turn in 60 inches, the rifling with the former being also twice as deep as the latter. It is evident, therefore, that more rapidity of spin does not secure accuracy of flight. It is rather curious that the hollow bullets shot more steadily than the solid ones in both rifles; but it will be observed that the hollow were only 12 grains less in weight than the solid, and consequently the latter would be rather the shorter of the two, while experience seems to show that these vagaries are of most frequent occurrence with bullets which are very short in comparison with their caliber.

Among the .450-bores, the Marlin magazine rifle performed very erratically, and the report says: "Do what might, with a consumption of over 25 rounds, it was only possible to get one shot through all the screens and on the target. The weapon was several times cleaned, and particular attention paid for any traces of leading in the barrel, but none were detected; yet the arm threw the bullets now high, now low, in every and various directions." There was, strictly speaking, no average with this rifle, for when, a fortnight later, it was tried at a shorter range, only one shot could be got upon the target; so that to one shot in each range the record is confined. The Bullard repeater, with the same weight of powder and bullet as the Marlin, gave very steady shooting. The Marlin rifling had one turn in 20in., and the Bullard one turn in 30in. On the other .450 rifles it is not necessary to dwell, except the Bland double Express, which was the only rifle of this bore that shot both solid and hollow bullets. Owing to a scanty supply of ammunition, this rifle was not tried so fully as it would have been; but four records from each barrel were obtained at the 200 yards range, and the separate average results stood as follows:

	50yds.	100yds.	150yds.
Right barrel average.	4.94in.	7.47in.	5.33in.
Left barrel average.	5.14	7.59	5.75
General average.	5.04	7.53	5.79

This general average is the one entered in the above table for the 200 yards range; and for the shorter range, with both solid and hollow bullets, only the right barrel was used. As at Putney, there was some little irregularity of gyration exhibited by this rifle, two of the bullets being higher at the last screen than they were at the middle; but it was only to a small extent. One curious fact, however, remains to be

stated. Five shots were fired from this rifle at 100 yards, the barrel being wiped out after each round; and five other shots were fired without cleaning. The trajectories were lower in the uncleaned rifle, the average being as follows:

	25yds.	50yds.	75yds.
Cleaned barrel (average).	1.25in.	1.46in.	1.30in.
Uncleaned barrel (average).	1.17	1.33	1.28

This result may possibly have been due to the lubrication left in the uncleaned barrel lessening the friction of the bullet, which consequently started on its flight with a higher velocity.

The two muzzleloaders of .420 bore gave remarkable results, but, as previously stated, the proportion of powder was higher than in any of the other rifles, and the trajectories were correspondingly low; but again evidence was given of the corkscrew gyration, as will be seen by the following figures with Major Merrill's rifle:

Round.	25 Yards.	50 Yards.	75 Yards.
1.	1.180in.	1.373in.	1.270in.
2.	1.339	1.498	1.205
3.	1.038	1.399	1.419
4.	1.170	1.051	1.051
5.	1.031	1.210	1.421
Average.	1.130	1.306	1.273
Do, (4 shots)	1.121	1.370	1.239

It will be observed, on examination, that only one of the five bullets flew with strict accuracy, although most of the divergencies are comparatively trifling. In the second round the bullet at the third point is lower than at the first, instead of being higher; in the next the bullet is highest at 75 yards; in the fourth round the bullet is higher at 25 yards than at the two next screens; and in the fifth round it is much lower at 50 than at 75 yards. Omitting this last round makes a marked change in the center and renders the proportion more correct. These statements, however, are only given in illustration of the previous recorded facts, and the observations are not intended to depreciate Major Merrill's rifle, which is an admirable weapon of its kind; and I imagine the defect must have been in the bullets. Shortly before this trajectory trial, Major Merrill, who is a staunch defender of the merits of muzzleloaders, gave in FOREST AND STREAM lengthy details of the shooting powers of this rifle, accompanied by diagrams of the targets made with spherical balls and charges of equal weight of powder and bullet (1 to 1). The accuracy of the shooting was remarkable; and Major Merrill challenged the world to produce any breechloader that would equal this performance when using powder and bullet in the ratio of 1 to 1. The challenge was not accepted, as may be readily supposed. It is easy enough for muzzleloaders to use any proportion of powder whatever; but breechloaders are not so accommodating, and they are not usually chambered for such a ratio as 1 to 1. With a lesser proportion of powder, however, quite as remarkable shooting was made by breechloaders at the Putney trials. Jeffries' .500-bore, with ten successive shots at 100 yards (five from the right and five from the left barrel), made a string average of 1.004in.; while Holland's single rifle of .295-bore, with twenty successive shots, made at 50 yards an average string of .395in., and with the same number of shots at 75 yards made an average of .696in. But, to return to the American muzzleloaders, Mr. Romer's rifle made splendid shooting at the 200 yards range, there not being an irregular shot in the whole series. These two rifles were each tried only at one range; it had been intended to try Major Merrill's at both distances, but, by an accident, a rifle belonging to his friend, Mr. Romer, was brought for the second trial.

With respect to the smaller bores, I must leave the records to speak for themselves for the most part. It may be said, however, that they generally shot with greater steadiness than the larger bores—owing, in all probability, to the bullets being longer in proportion to the caliber; and some of the very best results were given by rifles of .400 and under. The Bullard .300-bore was not shot at 100 yards, owing to its action getting out of order. The so called "Hunter's Pet" (.320-bore), was the lightest rifle in the trial, having a skeleton stock and a barrel only 18in. long. It gave a great deal of trouble in testing, as the shots flew so wildly that about a score had to be fired before five could be got through the screens on to the target at 200 yards; at 100 yards there were similar divergencies, though fewer in number. Those bullets that were got on the target showed satisfactory regularity; the trajectory, however, was the highest of the whole series, but, as the proportion of powder was only about one to ten, the result is not very surprising.

In conclusion, I can only congratulate your American contemporary on having brought its self-imposed and most troublesome task to so highly satisfactory an issue. T.

**WOOD POWDER.**—When the advertisement of the American Wood Powder Company was brought to us by Mr. Elliott Smith, the president of the company, we accepted it upon that gentleman's representations respecting the mode of manufacture and the safety of the product; and, further, with the express stipulation on our part that the advertisement should remain in the FOREST AND STREAM only provided that Prof. Henry Morton, President of Stevens Institute, to whom we would submit samples of the powder, should report upon it corroborating the representations of the manufacturers. We at once sent some of the powder to President Morton for analysis. His report was expected immediately, was delayed, asked for from time to time, and has never been received. Considering the time that has elapsed, we can hardly be expected to hold the matter longer in abeyance, and it can be taken as no injustice to the manufacturers to refuse a further publication of their advertisement until we secure from Prof. Morton a report which would warrant its insertion.

**MISSISSIPPI.**—Aberdeen, Feb. 27.—The quail season has pretty well closed, although the law in this county allows them to be shot until March 15. The birds have stood the cold well and we have a fair number to carry over to the next season. If the spring proves dry we will have a fine stock for the next shooting season. Some snipe have come in and a few small bags have been made; but our best shooting occurs in March. During the severe weather in January a great many ducks were in the river, principally mallards, and several large bags were made. This was an unusual occurrence for this locality, as ducks have been very scarce for several years past.—WILL.

THE "POLITICAL SCIENCE QUARTERLY," a review devoted to history, economics and jurisprudence, will be published by Ginn & Co. of this city, the subscription price being \$3 per year. The magazine will be edited by the Faculty of Political Science of Columbia College.

## Sea and River Fishing.

Address all communications to the Forest and Stream Publishing Co.

### ADIRONDACK FISHES.

Editor Forest and Stream:

My note in your issue of Feb. 11 has already brought a valuable contribution to my work on the fishes of the Adirondacks. I could not find a specimen of the little miller's thumb, *Uranidea gracilis*, and inserted a description on the authority of Dr. C. Hart Merriam. A few days ago a pint fruit jar filled with them came to me from Malone, Franklin county, N. Y., and suspected that they came from Mr. A. R. Fuller, of Meacham Lake, to whom I wrote and received the following very valuable contribution regarding their habits:

MEACHAM LAKE, N. Y., March 1.

Friend Mather:

I write to-day because I can write and may not be able to write a word for a week. When I sent "my thumbs" I could not write, but I thought you would know where they came from. I hope the package reached you safely and that you were able to identify the fish. I did not find as large ones as I have seen, but did get larger ones than we generally see in the brooks. I have no doubt they can be found in nearly every pond and stream in the Adirondacks; but they are so very insignificant that nine out of ten persons would never notice them. The little light brown or spotted ones look something like a sculpin; we find them in great numbers in this lake and in all the streams about here. The larger dark ones with red mane and tail I have never seen in any other water but the little brook from which I took the lot. I have seen them there at all seasons of the year. I wish I could sit down with you for an hour or two and go over your report. I find several things which I think I can help you to describe better.

In May, 1871, I met Louis Agassiz at his home in Cambridge and we talked fish for three hours. He asked me about this fish which I called miller's thumb; he had never seen it in America, and he said no one knew much about its habits, how or where they spawned or how long it took the eggs to hatch. I told him I had seen the eggs quite often, and when I got home I took several lots into the hatching troughs and hatched them, and kept the little chaps about ten days. They dig under a stone and fasten the eggs to the under side in a pile bottom side up, or like a conical pile of shot turned over, point down; the cones vary from a quarter to one inch in diameter at the base, and are about the same distance from base to point. I put six or seven of the cones into the boxes, and kept watch of them. It was fifty days from the time I put them in until I saw the first fish, and the little chaps kept their sack of grub three to five days; they were about three-eighths of an inch long. The eggs are about the size of No. 8 shot, the temperature of the water was 45 to 47. I was somewhat surprised that it took so long for the eggs of warm-weather spawners to hatch. You can separate the eggs from the stone and they will still keep the form of the cone; the pile is well stuck together. I once put a large thumb into a pail to take to the house, and also caught a newt like the one I put in the jar. In a few minutes on looking in the pail, I saw the thumb had the newt by the middle, and after a long struggle the newt went down my thumb, and when the head came to the thumb's gill, the newt slid out, and I sat down and laughed. I thought it about the neatest escape I ever heard of, and I expected to see the thumb try it over, but he did not.

A. R. FULLER.

The jar has not yet been opened, but seems to contain fifty or sixty specimens from one and a half to six inches in length. I think it possible that there is but one species in the jar, although there are several found in the northeastern States. Through the glass of the jar they appear to resemble *U. gobioides* more than *U. gracilis*. Concerning the breeding habits of this fish I knew nothing, and think that Mr. Fuller's experiment is the first that has been made in hatching them.

FRED MATHER.

### THE TROUT OF SUNAPEE LAKE.

CONCERNING the notice of the "sun trout," or charr, found in Sunapee Lake by Mr. Elliot B. Hodge, Fish Commissioner of New Hampshire, which appeared in our editorial columns of Jan. 14 and was further commented upon by Mr. Samuel Webber in FOREST AND STREAM of Feb. 11, we are now enabled to lay before our readers the decision regarding its species which has been arrived at by Professor Baird and Dr. Bean. The following correspondence, which we are permitted to publish, explains the matter in full:

Editor Forest and Stream:

I send you with this Dr. Bean's last report on the Sunapee Lake trout. In some respects I am surprised at the conclusions he comes to. It seems strange to me that he finds no difference between these fish and the blueback trout of Maine, as I believe I can show trout as many pounds in weight as he can show me a Maine blueback in inches in length. Again, the Maine trout seek the streams for the purpose of spawning; the Sunapee trout do not, they are lake spawners. I do not doubt that they belong to the *Oquassa* type, but that they are identical with the blueback trout of Maine I do. I have not time to write you more at present. You will please return me all the papers at an early date.

Yours very truly,

E. B. HODGE.

E. B. Hodge, Esq., Plymouth, N. H.:

DEAR SIR—I beg to inclose herewith a final report from Dr. Bean in regard to the trout from Sunapee Lake, and would suggest your having it published in FOREST AND STREAM. Yours truly,

SPENCER F. BAIRD.

WASHINGTON, Feb. 17, 1886.

Prof. Spencer F. Baird, Director U. S. National Museum: Sir—I beg leave to offer herewith a report upon some trout of Sunapee Lake, New Hampshire, which were received from Mr. E. B. Hodge, the first and largest on Nov. 3, 1885. It is a male twenty-two inches long and weighed six pounds. It is catalogue No. 37,357. Three additional examples arrived on the 9th of January, 1886. These are catalogue Nos. 37,408, 9 and 10. The first two being females and the last a male. The smaller of the females is about twelve inches long.

I find that these trout are identical with the blueback trout of Oquassa, the Rangeleys, and other lakes of Maine. The same species also occurs in the township of Desalmonnes,

Province of Quebec, in a lake just below Lac Sac A Comie, which is situated about seventy miles east, and about forty miles north of Montreal. A specimen was caught in this lake by Mr. C. H. Simpson early in the present month and was brought here by Mr. E. G. Blackford on the 10th inst. It is catalogue No. 37,670.

The blue-back trout is described in recent ichthyological works under the name of *Salmo*, or *Salvelinus*, *ogusasa*. The same species also occurs in Labrador and in Greenland, in which countries it reaches an immense size. Mr. L. M. Turner sent from Labrador a number of very large examples, much larger than any other specimens of *Salvelinus* to be found in the museum. One of these specimens (from Turner) is twenty-six and one-half inches long, and, in its present condition, weighs seven pounds, after lying in alcohol two years.

The oldest available name at present known to me for this species is *stagnalis*, of Fabricius; and our species should stand as *Salvelinus stagnalis*. I can find no difference of specific importance between Mr. Dresel's Disco Island specimens, Mr. Turner's Labrador examples, Mr. Hodge's Sunapee Lake blue-backs, Mr. Simpson's Quebec specimens and the *ogusasa* of Maine.

Among the characters which I take to be of specific value are the following:

Proportions of the various parts of the body, length and number of developed fin rays, size and number of the scales, shape of the caudal fin, number and size of the gill-rakers, shape of the gill-covers, character of the dentition of the hyoid bone, size of the eggs, number of the pyloric coeca and general features of coloration. I find for example that none of the charrs, in which the hyoids are specially developed, have mottled fins, such as are always observed in the common brook trout, *S. fontinalis*.

It is highly desirable to obtain from Mr. Hodge a full account of the feeding and breeding habits of this blue-back trout of Sunapee Lake. Our knowledge on this subject is very limited. It is highly desirable also to secure additional specimens of the blue-back from Maine, and these should be as large as possible. There is not now in the Museum a single individual from Maine that will reach twelve inches in length. Very respectfully yours,  
T. H. BEAN,  
Curator, Dept. of Fisheries.

It has formerly been supposed that the range of the blue-back trout was confined in the United States to a few lakes in Maine, and that it was a fish of very small size. It will be seen from the above correspondence that its habitat is not as restricted as has been thought, and that its size is sufficient to command it to the notice of anglers. Mr. Hodge says, "he can furnish even larger specimens than those which he sent to Professor Baird. When we saw the small specimen from Canada, at Mr. Blackford's in Fulton Market, we said, 'If the fish had come from Maine we should think it could be nothing else but a blue-back trout.'" Its graceful shape, forked tail, absence of mottling on fins were sufficient to show that it was neither our native brook trout nor a salmon; yet its coloration did not seem to be so decided a blue as specimens we have seen from Maine.

#### BLACK BASS vs. PICKEREL.

PICKEREL fishing through the ice on New England waters has been only fairly good this season—not up to what it was a year ago, and far behind several seasons ago. Not nearly as many pickerel have reached the Boston market this year as usual, for the reason, the dealers say, that they have not been taken. From a number of well-known lakes and ponds in Maine comes the report that pickerel are scarce. Curiously enough these reports come from waters which have been stocked with black bass, or into which waters the bass have drifted.

The Cobscookcootee waters, Maranocook Lake, and the other ponds in Winthrop and Readfield, Me., are not yielding the usual quantity of pickerel; all these waters have been stocked with black bass. The same situation is true of the Sebago waters. A gentleman of excellent judgment, reared in the close vicinity of the Sebago lakes and ponds, believes that the black bass in those waters are fast thinning out the pickerel. The gentleman is an enthusiast with the rod, spending all the time he can spare on the trout waters, but he is sick of the black bass. He believes the pickerel to be far ahead of the bass, and regrets exceedingly that the bass is fast becoming the king of the Sebago waters. The increase of the black bass in his section is something wonderful; but the pickerel are disappearing. The bass, from one or two ponds stocked, have crept into all the waters near, and it is evident from their multiplication that they have come to stay, and with the determination of exterminating other fish.

"The black bass furnishes good sport with the rod?"

"Oh, yes."

But a little of it has satisfied all the sportsmen near the waters in Maine best stocked with them. Lovers of the rod who dwell on the banks of the Sebago waters or the Winthrop ponds, drive thirty or forty miles to trout streams and ponds. They take their annual trips to the Androscoggin Lakes. But they do not "tackle up" and fish for the black bass which are often within less than a mile of their doors. The most of them have tried the bass fishing; a few catches was enough. Says one gentleman: "I caught a savage, ugly-looking fish, but his ungainly carcass was destitute of all the lines of beauty which go with the fresh-caught trout or salmon. A pickerel is king to a bass in the way of looks. Then when I had caught my row of ugly, black gudgeons, what was I to do with them? They are no good as a fish to eat. We left our catch of bass to rot, and I learn that every other sportsman, who has tried them cooked, does the same."

Who has ever seen a black bass in market? Perhaps a few might find their way there, but a very few would block the way ever afterward. Not so the pickerel; he is a good market fish. Thousands of pounds find their way into the Boston markets every year. It is too bad to take so much poetry out of what has been written concerning the black bass as a game fish, but to eat his warty, wormy hide is too much. The fact that he is of no earthly use when caught, helps to kill the glamour of catching. In some of our inland, muddy waters the bass may do, but to the sportsman who can reach the clear, sparkling trout waters, he is of no account.

The people upon the bass waters of Maine will probably ask their next Legislature to do no more protecting of black bass, and possibly to make some law against his further encroachments. In several sections of that State the people wished the black bass in their waters, but they now more heartily wish him out and even the pickerel back again. The white perch is a far better fish, and he might have been

propagated in many of the ponds now given up to black bass. But both white and brindled perch are fast disappearing from waters where the black bass reigns. There are a plenty of Maine sportsmen who seriously blame the prime movers in introducing black bass, because they did not look more thoroughly into the habits and value of those fish before putting them into waters where there was any hope of even pickerel.

MAINE.

THE SAME OLD STORY.—One of the chief attractions of Lake Hopatcong as a summer resort is being rapidly destroyed by the waste from the Forcite Powder Works being allowed to run into the lake. A party from this town went on Wednesday to the beautiful inland sea for a day's fishing through the ice, and after fishing for several hours and not catching anything, they moved on up the pond to a place where a party of men, who reside along the borders of this sheet, were fishing, and found empty creels there also. Upon inquiry as to the probable cause of the fish not biting, one of the natives volunteered to show our townsman where the trouble lay, and going to where the ice was clear he told him to look through and in doing so innumerable dead fish were seen floating away under the ice. The gentleman further said that if a live bait were sunk down to within a foot of the bottom of the lake, it would die in a minute, and he believed that the mortality was caused by the discharge of the waste acids into the lake by the powder company. In walking a mile our informant counted over a thousand dead fish of all varieties. The matter should be looked after by the proper authorities, and sportsmen who are interested in preserving the lake as a fishing resort should make an effort to let the authorities know that danger of its entire ruin exists. If the fishing is ruined, the popularity of Lake Hopatcong as a summer resort will be short-lived.—*Hackettstown Gazette*.

A NUISANCE AT HOPATCONG.—Morristown, N. J., March 6.—*Editor Forest and Stream*: Lake Hopatcong, lying in the hills of Northern New Jersey, is suffering from the poisonous refuse of a powder factory which is drained into the lake. The lake has been a favorite resort for anglers for some years past and the black bass have been increasing in its waters since they were planted there some ten years ago. This winter thousands of dead fish have been seen through the ice, lying on the bottom of the lake and the natives about the shores claim that they were killed by the acids or other material discharges from the powder works. Cannot something be done to stop this?—G. E.

THE NEW YORK TROUT LAW.—As the law now stands, all fishing through the ice for brook trout is forbidden at any time. Trout may be taken in the counties of Queens and Suffolk from April 1 to Sept. 1, but in the rest of the State the lawful season is from May 1 to Sept. 1. We learn that Senator Traphagen has introduced a bill which provides that trout legally taken on Long Island, in the counties mentioned, may be held, but not sold in other counties. This will permit anglers who fish on the island to bring their fish to their homes in New York or Brooklyn, and will remedy one of the errors which we have pointed out. We think, however, that a bill which opened the season south of one of the lines mentioned in our editorial last week, on April 1, would be more satisfactory all around, as many anglers wish to fish in other waters near the city besides those of Long Island. It was manifestly unjust to allow fishing on Long Island and then forbid the angler, who in nine cases out of ten came from the city, to bring his trout to his own table.

MORE MUSKRAT FISHING.—Manistec, Mich., March 1.—In your issue of Feb. 25 I read with interest Mr. Dyer's account of catching a muskrat through the ice on a pickerel hook. In the winter of 1860, while fishing on Charles River, near West Newton, Mass., with a friend, we had almost the same experience. Running to one of the lines which we had down, I pulled out a dead and limp muskrat securely hooked in the side of the head near the mouth. As the bait was missing, we at once concluded that, while trying to secure the shiner or minnow, the muskrat had hooked himself and immediately drowned. It is singular that the one Mr. D. speaks of was alive when taken out, for when fast or caught under the ice they soon lose their breath and are drowned. So it is probable that the one he refers to had but just been hooked. It is evident that muskrats sometimes feed on fish. I have caught them in traps set for mink and baited with fish.—E. H. B.

ST. LAWRENCE RIVER FISHING.—The Utica Association for the Protection of Fish and Game and the Anglers' Association of the St. Lawrence River have adopted the following resolution: "Resolved, That these associations approve the extension of the close season for bass and muskalonge from May 15 to June 15, as recently made by the department of marine and fisheries at Ottawa, and heartily recommend that the close season in the State of New York, and particularly in the St. Lawrence River and Lake Ontario, be extended to the same date, as the best means for protecting the fish while on the spawning beds."—PORTSA (Utica, March 6, 1886).

THE BASS AND MUSCALONGE SEASON in the St. Lawrence, Clyde, Seneca and Oswego rivers, is from May 20 to Jan. 1. In other words no black bass nor muscalonge can be caught in those rivers, or had in possession, or sold, only from May 20 to Jan. 1, under a penalty of \$10 for each fish so killed or had in possession. This open season is generally understood, and accepted and respected, and it is that there may be no mistake about the time that I send you this note, writes "Old Sport" to the *Syracuse Journal*.

THE SUSSEX ANGLER'S CLUB has just been organized and has purchased Grant Lake, on Pochuck Mountain, near Deckertown, N. J. The lake covers fifty acres, and is so liberally supplied with bass that it will not need stocking. The officers are: Cyrus C. Force, of Brooklyn, President; Schuyler B. Jackson, of Newark, Vice-President; Howard Littell, of Deckertown, Treasurer, and Theodore S. Morrell, of Newark, Secretary. The preserve cost \$5,000.

LARGE TROUT FROM THE YELLOWSTONE.—We have a paper pattern of a five pound trout caught in the Yellowstone on Feb. 24 by Mr. Poole, and which is said to be the largest one yet caught there. The pattern is witnessed by Charles H. Stuart and Elwood Hofer.

HERRING IN THE AIR.—A correspondent of *Nature* gives some instances of herring jumping out of the water when frightened. He says that he has observed whole shoals of this fish, in their anxiety to escape when pursued by whales, piled up above the surface of the sea to a height of from three to six feet. On one occasion the fish formed a mass even with the top of the mast of a fishing boat, viz., about fifteen feet, and had part of this mass fallen into the boat it would doubtless have sunk.

## Fishculture.

Address all communications to the Forest and Stream Publishing Co.

### FISHCULTURE AT BLOOMING GROVE PARK.

Editor Forest and Stream:

The Blooming Grove Park Association now have a hatchery in their extensive grounds in Pike county, Pa. The selection of the site was determined some two years ago through the enterprise of Dr. Spencer M. Nash and others, who obtained the services of Mr. Fred Mather to examine the different springs and streams, and also to plan the hatchery. This winter it is in full operation. Mr. Hardy, one of the directors, has presented the club with over a thousand eggs of the brown trout, obtained in England, and which arrived in good order and are now on the trays. The native spawners did not yield many brook trout eggs: it seemed to be an off year with them, and but a few thousand were obtained. From the U. S. Fish Commission the club received 15,000 brook trout eggs, and 50,000 eggs and 25,000 fry have been purchased from Jas. Annin, Jr., Caledonia, N. Y. All the eggs are looking well, the water is cold and the development goes on slowly, which is understood to be best for the young fish. WHITE MILLER.

BROOKLYN, March 3.

### LAND-LOCKED SALMON IN NEW YORK.

AS our readers are aware the land-locked salmon of Maine has been successfully acclimated in that portion of the Adirondacks which has been cared for by the Bisby Club, so far as to live there and to be occasionally captured. We now have an account of their spawning there from the president of the club, Gen. R. U. Sherman, who is also one of the State Commissioners of Fisheries, who, in a letter dated March 3, among some other things, writes:

"A Woodhull and Bisby guide, John Stell, was here yesterday and says that he took at Woodhull dam last fall a male land-locked salmon which tipped the scales at ten pounds. The land-locked salmon gathered on the sloping wall of the dam last fall to spawn. This wall is laid at an angle of forty-five degrees, without mortar. There are open spaces between the stones and I suppose the fish sought to deposit their spawn in these spaces where they would be secure from depredations. Mr. Stell took also several female fish which he stripped and impregnated their spawn and deposited it on a gravelly bottom in the stream below the dam, returning the parent fish to the water in the lake. The fish were in plain sight from the surface and were taken by lowering a hook to their mouths, baited with a worm. The fish took the hook, apparently to keep the bed clear rather than as food. The large salmon was probably from the original plant made in 1870. There have been two plants made since that time, one in 1882 of 10,000 from the hatchery at Cold Spring Harbor, and 10,000 in 1883 hatched at the Bisby Club hatchery from spawn furnished from Cold Spring Harbor. This large fish is probably the largest land-locked salmon ever taken in this State."

### SHORT LOBSTERS.

SOME persons may think that a short lobster is as good as a long one, but everybody will agree that, in that point of size, the long lobster is ahead. Now this is just where the law steps in. It has been for a long time understood that the lobster fishery on the New England and provincial coasts was dying out, or that the noble crustaceans are becoming extinct from constant and unremitting fishing. In order to give the lobster time to grow, and prevent the taking of a three-quarter pounder when each year's growth would add double to his weight, the Legislatures of Maine and Massachusetts have enacted statutes, with penalties attached, making it a punishable offense to catch or sell, or have in possession, a lobster under 10½ inches in length. This law has never been very cheerfully obeyed in either of these States. Only a short time ago Deputy Fish Commissioner F. K. Shattuck of Boston, who has worked diligently, in conjunction with the Massachusetts Fish and Game Protective Association, for the protection of the lobster, became satisfied that short lobsters were being shipped from Portland, Me., to this market, and being sold "on the sly." He also became satisfied that one or two parties, at least, the owners of smacks, were in the practice of sailing down among the islands on Portland harbor, buying the short lobsters off the fishermen, putting them into barrels on the way back, and shipping them to Boston and New York under cover of night. Commissioner E. M. Stilwell of Maine was enlisted, and he took hold of the matter with his usual earnestness. He put B. W. Counce, commissioner of sea and shore fisheries, of Thomaston, on the track. One Warden Johnson also came to Boston, ostensibly with the intention of putting Deputy Shattuck and his detectives on the watch for certain vessels expected with short lobsters. One schooner arrived the other day, and was searched by Mr. Shattuck and his detectives, but no short lobsters were found. Another suspected vessel put into Portland, evidently warned that Boston was getting to be a poor place for short lobsters. But the fight at both the Boston and the Portland ends has been kept up with very satisfactory results. Commissioner Counce, with one of his deputies, on Thursday seized a lot of short lobsters from one William Trefethen, for some time suspected, and later in the day made another haul from the schooner Monterey. But the best move of all was made yesterday, when the commissioners seized in all 3,000 short lobsters, and later in the day about \$200 was paid over by the dealers in fines. Joseph A. Brewer of Chebeague Island, schooner Horizon, has been caught with short lobsters, and fined \$50 and costs. In Maine, the fine for taking or having in possession any lobster under 10½ inches in length from head to tail extended, exclusive of claws and feelers, is \$1. In Massachusetts the fine is \$5. The Massachusetts law reads: "Whoever sells or offers for sale, or has in his possession, a lobster less than 10½ inches in length, measuring from one extreme of the body extended to the other, exclusive of claws or feelers, shall forfeit \$5 for every such lobster; and in all prosecutions under this section the possession of any lobster not of the required length shall be prima facie evidence to convict."—Acts of 1884, chap. 212, sec. 1.

To the lobster trade it may be stated that Commissioner Shattuck is determined to see this law enforced, and he has able detectives on the alert. Also, it may be added that the earnest fish commissioners and wardens of Maine are rendering able assistance by preventing the shipping of short lobsters to this market, as the results mentioned above will show.—*Boston Herald*.

PORTLAND, ME., March 3. William S. Trefethen was before the court this morning charged with having in his possession 1338 lobsters less than 10½ inches in length. He was found guilty and was fined \$1,368 and costs.