

**REPORT UPON A CRUISE MADE TO THE TILE-FISH GROUND IN  
THE SMACK "JOSIE REEVES," SEPTEMBER, 1882.****By CAPT. J. W. COLLINS.**

The area of sea bottom lying inside of the Gulf Stream, near the parallel of 40° north latitude, and between the meridians of 70° and 71° 20' west longitude, in depths varying from about 90 to 125 fathoms, is where the tile-fish (*Lopholatilus chamæloniceps*) has been found abundant during the past three summers, and this locality is known as the "tile-fish ground," and here, as well as much farther south and west, dead fish of this species were seen floating in vast numbers at the surface of the ocean last March and April. The object of this trip was to ascertain by practical methods, and as complete a research as circumstances would allow, to what extent the tile-fish had been depleted by the mortality of last spring, or if they had been practically annihilated in the region where they have heretofore been known to occur. The investigation of this subject was therefore a matter of unusual interest, whether we look at it from a scientific standpoint or whether we take into consideration how much benefit might result to those engaged in the fisheries, should the tile-fish be found in anything like its former abundance, and its commercial value be established. This species has been pronounced a most excellent food-fish by competent judges, and there is reason to expect that its market value might have been fully equal to that of many of our choice fishes had sufficient numbers been taken to place it before the public as an article of food.

In obedience to the tenor of your orders that I should proceed to the tile-fishing ground and ascertain the presence or absence of the *Lopholatilus chamæloniceps*, I have the honor to submit the following report:

I left Gloucester September 15 (1882), to join the schooner Josie Reeves, which was then at Greenport, Long Island, waiting my arrival. I had previously forwarded the fishing apparatus, trawl lines, &c., that I had prepared for the trip. My intention was to have started on the 14th, but the prevalence of an easterly storm, accompanied by high winds, together with some difficulty I had in obtaining the lobster-pots, delayed my departure.

Going by the Fall River line, I reached New York on the morning of the 16th. On arriving at the city I went at once to the office of Mr. E. G. Blackford, Fulton Fish Market, in order that I might learn of him whether all the tanks, jars, and other materials for preserving specimens (which articles were sent to his care), had been forwarded to the smack. All of these details had been carefully attended to by Mr.

Blackford; and I learned from him that, besides the provision made for the preservation of material in alcohol, there was sufficient ice on board of the schooner for the refrigeration of our bait and any number of fish we were likely to capture.

Having ascertained these facts, I went by the afternoon train (the first one leaving New York) to Greenport, where I arrived at 6.40 o'clock in the evening. Mr. Barnet Phillips, who accompanied us on the cruise and who had joined the smack in New York, and Captain Redmond, the skipper of the Josie Reeves, met me at the depot. I went with them on board the schooner then lying at the wharf where the menhaden steamers rendezvous when in port.

I learned from Captain Redmond that all the material for the trip, with the exception of the lobster-pots which I had sent from Gloucester, had been received and was snugly stowed away on board of the smack. However, owing to the prevalence of rough weather during the preceding four or five days, no menhaden had been caught, and therefore it had been impossible to procure a supply of bait for the cruise. It is true, perhaps, that bait might have been obtained from the weirs in the vicinity of Sandy Hook when the smack left New York, but to have taken it then, with a storm of uncertain length impending, would have been very unwise, since the probabilities were that it might be unfit for use before a chance offered to go to sea. Under the circumstances, there was nothing to do but to wait until Monday.

Captain Redmond thought our best chance of obtaining bait would be from the weirs in the vicinity of Greenport. Therefore, on the next day, the 17th, we procured a team and drove to all the fish traps which could be reached. We found, however, that the prospect of getting "bunkers" from the pounds was not good, for most of the pounds had been either torn up or so badly injured by the storm that there was little chance of securing enough menhaden to answer our purpose. The only thing that could be done under the circumstances was to wait until the fishermen went out in the Sound, when, if the fish "played" well, we might get bait from the seining gangs.

At daylight on Monday, the 18th, there was a smart southerly breeze with indications of rain. The steamers had started between midnight and dawn, and the sailing gangs, which were out early, looking for fish, finding the wind too strong down Gardner's Bay, began working up by Greenport under reefed sails, towards the more sheltered waters of the Great Peconic Bay. Altogether the prospect of getting a supply of bait was not promising for that day. Towards noon, however, the appearance of the weather changed very much, and the afternoon was fine, with a moderate southwesterly wind.

We were reluctantly compelled to wait for our lobster-pots until the arrival of the steamer from New London at 11.30 o'clock a. m. We then got under way, but seeing no indications of the presence of menhaden

as we ran down Gardner's Bay, we decided to work up the Sound, feeling confident that we should have a better chance there to meet the fleet of steamers that had gone in that direction; there was also a probability of getting menhaden from the pounds on the Connecticut shore. When off Cornfield light-ship we saw several "bunches" of "bunkers," but as there were no seiners in sight we kept on our way. The pounds along the shore, which we approached quite closely, had met with the same fate as those at Greenport, being rendered unfit for fishing by the late gale. At about 8 o'clock in the evening, having reached the vicinity of Guilford, where there is an oil and guano factory, we came to anchor near Falkner's Island, expecting to have an opportunity the next morning to secure bait from some of the fishing gangs which were thought to be at that place. Another reason for our anchoring was that the tide had turned against us, and, the wind being light, we could not hold our own under sail.

The morning of the 19th was calm and fine, and after daylight we saw numerous "bunches" of menhaden playing at the surface near where we lay anchored. At that time there were the two sloops of a "sailing gang" lying at anchor close in shore, but they did not get under way until some time after sunrise, when they began working off shore, taking what advantage they could of the occasional "cat's-paws," which, later, became more steady, though the wind continued very light. The boats gained little, however, and feeling anxious to secure their assistance in procuring bait, and fearing that they might go in some other direction if the wind breezed up, I, with two of the smack's crew, started to board them in one of our dories. We had about two miles to row, but the distance was soon passed over, and we boarded the larger of the sloops—the one having the fishing gang on board—the other being the carryway boat.

Having first told the captain of the gang that there seemed to be an abundance of fish near our vessel, I asked him if he would sell us bait enough for our trip, telling him for what purpose the cruise was undertaken. Though entirely willing to furnish us with bait, so far as he was personally concerned, the captain explained that he was not permitted to sell any menhaden for such a purpose, but said that if I would go ashore and get the consent of Captain Fowler, one of the proprietors of the factory, and who, we were told, is president of the Oil and Guano Association, he would most gladly supply us with bait. Accordingly we went to the factory, but learned that Mr. Fowler had just driven off to "town" (Guilford) and would not return for the day. The foreman in charge of the factory, to whom we explained why we landed, thought there would be no objection to our procuring bait, but was not disposed to assume any responsibility.

As nothing further could be done we returned to the Josie Reeves, and, the wind having breezed up slightly in the interim, we got under

way and stood in the direction of the sloop we had boarded, and which at this time had worked off on the ground a little over a mile distant from us. Soon after filling away we saw the boats out, setting the seine, and the breeze being too light to gain much in the vessel, I started off again with two of our men to buy what bait we needed if the seiners succeeded in making a good catch. A fair-sized "bunch of fish" had been surrounded, and our men helped to gather in the twine during the "drying in" process. The "boss" of the gang thought he had from 15,000 to 20,000 fish in the net, and there was every prospect of securing the entire lot, when, just as the men were ready to "bail out" the fish, a large hole was torn in the seine (due to the rottenness of the twine, or the bite of a shark or dog-fish), and the bunkers went streaming out through the "tear," leaving only a few—perhaps one-tenth of the whole—which were hastily gathered in one corner of the bunt, and scooped on board of the carryway boat. The skipper had consented to supply us with bait, on condition that I should write a letter to the owners of the factory explaining the purpose for which it was obtained.\* The failure to get this school was as much a disappointment to us as to the fishermen themselves, possibly even more so, for we were very anxious to improve the favorable wind to run down the Sound, and also felt some uncertainty about getting bait before night.

However, another set was made by the crew of the sloop, but the result added but little to the first catch, the whole amounting to only 2,200 fish, which we took on board and packed in ice. By this time it was getting late in the afternoon, the fish had stopped schooling, the sailing gang manifested a disposition to go in harbor, and a loaded steamer, bound to Greenport, which we unsuccessfully tried to head off, paying no attention to our signals, there seemed little probability of getting the rest of our bait before night. But a sharp lookout was kept for homeward-bound bunker steamers, and at 5 o'clock p. m. we were fortunate enough to meet with the William A. Wells, on her way to Greenport with a cargo of menhaden. The captain, who knew the Josie Reeves, and understood why she was there, very kindly stopped his boat and sold us 2,000 fish at five dollars per thousand. He also took our mail.

We then filled away and ran down the Sound with a brisk southerly breeze, carrying all of our light sails. At 8.40 p. m. passed Little Gull Rock and at 10.30 p. m. Montauk Point light bore SW. by W. about 5

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\*This letter was written and addressed to Messrs. Fowler & Colburn, Guilford, Conn., as follows: "Being in want of menhaden for bait wherewith to make a fishing trip to the grounds lying inside of the Gulf Stream, in the interest of the United States Fish Commission, we have applied to the captain of the sloop 'Fanny,' who has kindly consented to furnish us with a supply on condition that I shall write this letter of explanation to you. I trust you will commend his action in this matter, since we have been prevented from obtaining bait for several days on account of the recent rough weather, and because of the importance of this investigation, which might be much delayed, if not rendered abortive, should we be unable to procure bait now."

miles distant. At that time we hauled to, steering a S.S.E. course, and as there was some head sea and the wind had freshened, we took in the balloon jib and staysail.

The morning of Wednesday, the 20th, was fine, with a brisk breeze from S.S.W. About 8 o'clock, however, it was foggy, but soon after it cleared off, and the weather continued fine throughout the day, though the wind was somewhat variable, backing southerly for two or three hours at a time, and then hauling back again.

At sunrise all hands were called, and we began making preparations for setting the gear, and during the forenoon we baited a cod and had-dock trawl, each having 1,000 hooks. We thought it possible in the morning that we might get to the tile-fish ground early enough to make a set with the trawls, but the wind being moderate and variable in the afternoon we did not reach deep water until 3.55 p. m., when we sounded in 118 fathoms, our position at that time by dead reckoning being  $40^{\circ} 4'$  north latitude and  $70^{\circ} 30'$  west longitude, about a mile from the position where the Fish Hawk found tile-fish abundant August 23, 1881. The day was too far advanced, however, for us to set the trawls, so we hove to for the night.

A short time before reaching deep water (shortly after 3 o'clock) we saw several fin-back whales. A little after 4 o'clock we noticed three or four schools of small fish, which were apparently about the size of a large mackerel. At times they showed a ripple like mackerel or herring, and very frequently many of them would spring from the water together, making long dolphin-like jumps. We ran for the schools in hopes to approach them near enough to find out what species the fish were, but they sank before we got close enough to them, and a troll-hook which we put out failed to catch any.\*

The evening was fine, with brisk S.S.W. wind. We lay to under mainsail and jib with head to the eastward during the first half of the night, after which we joggled the opposite way.

Thursday morning, the 21st, was overcast, with a moderate S.S.W. breeze, but after sunrise the weather cleared off beautifully with a slight increase of wind.

At daylight we set the trawls under sail, beginning in 160 fathoms and running the gear northwardly towards shoaler water. After the trawls were out we sounded at the lee ends, getting a depth of 135 fathoms, the bottom being mud, sand, and broken shells. Our position was latitude  $40^{\circ} 3'$  north and longitude  $70^{\circ} 28'$  west. Captain Redmond went in one of the dories (as he did during the whole time we were on the ground), leaving me to manage the smack with the assistance of the cook, while Mr. Phillips busied himself in taking notes on this method of fishing, which he now saw for the first time.

Being entirely unacquainted with the strength of the current in this

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\* It is probable that the fish we saw were mullet.

locality, we put four buoys on each trawl—two on an end—to make sure that the gear should not be lost by the submergence of the kegs. We found, however, after the trawls were set, that there was only a moderate tide setting to leeward in a northeasterly direction, and apparently only at the surface.

We began hauling the trawls at 8 o'clock a. m., and picked up the last dory at 10.15. Only three fish were caught. These were a hake (*Phycis*), a grenadier (*Macrurus*), and a whiting, or silver hake (*Merluccius*).\*

After getting the boats on board we ran to the westward, the men in the mean time being busy in baiting the trawls, which we set again at 2.30 o'clock p. m. in from 130 to 150 fathoms,† our position being latitude 40° 2' north, longitude 70° 41' west.

The gear was hauled late in the afternoon. We caught about 20 hake (*Phycis*), four or five silver hake (*Merluccius*), several skates (*Raia*), of which we saved two specimens, and three handsome fish of a species which I had not previously seen,‡ besides a limited number of invertebrates. All of the largest fish were iced, as well as one of the rare ones, which we were in hopes might prove of special interest, and which we preferred to keep in ice so that it would retain its color. The other two were put in alcohol, as also were the invertebrates.§

Owing to the fact that we were uncertain about the strength of the current in the morning, and had so little time for the afternoon set, we did not put out any of the lobster pots. It is, perhaps, proper to remark here that, fishing as we were under sail, and exerting ourselves to the utmost to make as many trials as possible in a given space of time, little could be done with lobster pots in deep water, though it is entirely reasonable to suppose that they might be set from a vessel at anchor on hard bottom with excellent results. When making "flying sets," to "try the ground," it is desirable that the gear shall sink as soon as possible, in order that it may soon be hauled in again. Lobster pots, of the ordinary pattern, are somewhat unwieldy and sink slowly, and the necessity for speedy action when fishing under sail makes it

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\* These, with the exception of the first, were put in jars, with other material (invertebrates), and labeled "Lot No. 1."

† In all cases the trawls were set at right angles to the trend of the ground, which here extends nearly east and west, sloping quite rapidly to the southward, so that a trawl, being nearly a mile long, might be in 150 fathoms where its southern end lay, while at the northern extremity there would not be more than 120 or 130 fathoms. It seemed desirable to place the gear so that, as far as circumstances would permit, various depths might be reached, since it often happens that some species of fish which may occur in great abundance at a depth of, say, 130 fathoms or more, can be rarely taken in shoaler water, while other kinds would be found most plentiful where it was not so deep.

‡ This species has since been identified as the *Sebastoplus daotylopterus*. Immature specimens had previously been found on our coast, but no adults had been taken. It also occurs in the Mediterranean and at Madeira.

§ This collection was labeled "Lot No. 2."

desirable to pull them in again before they have been sufficiently long on the bottom to secure the best results.\*

After hauling our trawls we ran to the westward about 10 miles and hove to for the night, with the "jib to the mast."†

During the day the wind had backed easterly, and at sunset was southeast, blowing a moderate breeze. The weather at that time was fine, but the sun "setting in a bank" gave us reason to suppose that it might be less favorable on the next day.

Friday morning, the 22d, there was a fresh southeast breeze, with indications of stronger wind and, possibly, rain before night. Orders had been given the previous night to exercise considerable care to keep our position, and so well was this attended to that at daylight we sounded in 140 fathoms. At this time the men were called out to bait the gear. One man was sick, therefore we set only one string of trawl, which we put out at 8.30 a. m., in 125 fathoms, latitude  $40^{\circ} 1'$  north, longitude  $71^{\circ} 2'$  west, by dead reckoning.

We hauled the gear at noon, three men going in the dory. At this time there was a strong and increasing wind with a choppy sea going. As there was little probability of its moderating enough to set again in the afternoon, we took the dory on deck, took care of the catch, and stowed the trawls below.

On this occasion ("Lot No. 3") we caught twenty-five or thirty hake, several silver hake, and eleven specimens of the remarkable red fish which we had first seen the day before. One of the latter was so badly eaten by slime eels that it was thrown away. Several of the finest specimens were put on ice, while the rest, with the exception of two, which we ate, were put in alcohol. Mr. Phillips, believing the species might be new to science, and deeming it an important matter to determine its qualities as a food-fish, suggested that we should eat one, as no one could say when another opportunity might offer to obtain fresh specimens. Fully concurring in his opinion, I had two of them cooked, and we found them most delicious, with firm crispy flesh, and a delicate flavor that would be hard to equal.

In the lobster pot only slime eels were taken. These were placed in alcohol.

It is perhaps worthy of remark that in all the fish which were eviscer-

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\* On the ground where we were fishing it would probably have made little difference, for the slime eels (*Myzine*) were so plenty that they invariably consumed the bait when the pots were set at a later date, and it is very likely that their presence in such great numbers would have prevented the entrance of other and more desirable species, which might otherwise have been captured.

† This is a favorite method of heaving a vessel to on the fishing ground among the market fishermen from New York to Portland, Maine. The jib is trimmed flat so that its clew is nearly amidships, or it is held in about the same position by a "tail rope" from the weather bow. The helm is then secured in such a manner that the vessel, by lying first on one tack and then on the other for greater or less time, will hold her position much closer than would be expected. However, to accomplish this successfully, requires the peculiar knowledge of these vessels, and the skill to manage them possessed by the fishermen, and which only long experience can give.

ated not the least trace of food was found, and I am at a loss to know why species so voracious as the hake, whiting, and others, which we took, should be found in a locality where there is evidently little food to be obtained.

The scarcity of sea-birds might be cited as an indication of a limited amount of small fishes, or other forms near the surface. However, an occasional hag (*Puffinus*) was seen, and several varieties of jaegers, which appeared more common in this region than other forms.

At 1 o'clock p. m. we kept off and ran to the westward 15 miles by the log.\* At 3.45 p. m. we sounded, and having got a depth of only 50 fathoms, let the vessel jog under mainsail and jib, on the port tack, slowly head-reaching to the southward. At sunset there was less wind and occasional light showers. By the exercise of much care, and sounding frequently during the night, the vessel was kept on the edge of the ground so closely that at 5 o'clock on Saturday morning, the 23d, we were in 150 fathoms. At this time there was a moderate S. S. E. breeze, but considerable ground swell, which increased somewhat later in the day. The sky was overcast with broken clouds, though there was no appearance of thick weather.

All the men were called to bait the trawls at dawn. Being anxious to make two sets during the day, and knowing that we could not if we set two trawls at once, we baited only one string—a thousand hooks—which we set between 8 and 9 o'clock a. m. in from 100 to 125 fathoms; latitude 39° 54' north, longitude 71° 22' west. After the trawl was set we left one of the dories fast to the lee end, since the ground swell rendered it difficult to see a buoy flag any distance. We began hauling the gear at 11 o'clock, a dory going to each end of the trawl, and shortly after noon the men had finished the work. But little was taken on this haul—"Lot No. 4"—it consisting of a few hake, three dogfish (*Squalus*) and a few invertebrates on the trawl, and nearly a bucket full of slime eels (*Myxine*), and a single crab in the lobster pot, which we had fastened near one of the anchors.

As soon as we had finished hauling we kept off southwest by west and ran a little over 5 miles on that course, when, having got a depth of 110 fathoms, we set one of the trawls, which we had baited during the forenoon while the first one was out. The position of this set was, latitude, 39° 50' north; longitude, 71° 25' west. The trawl was hauled at 4.30 p. m., by three men, who went in one of the dories. This was necessary, as one of the crew was ill, and also because at this time the increasing wind and sea made the hauling of the trawl a matter of some difficulty for two men to accomplish. The catch, which contained nothing of interest, consisted of about thirty hake, and a single specimen each of dogfish (*Squalus*) and monkfish (*Lophius*), all of which we iced.

\*I take this occasion to mention that the captain of the yacht "Madeline," which lay in winter quarters at Greenport, kindly lent us the yacht's patent log, which we found very serviceable. The log was returned through Captain Redmond, with a letter of thanks and acknowledgment of the favor conferred.



The investigation having now continued uninterruptedly for three days, and 50 miles along the edge of the ground having been tried over, with not the slightest indication of the presence of the tilefish, to search for which was the object of the trip, and the appearance of the weather being such that strong winds and a rough sea might be expected for the next two or three days at least,\* I concluded that nothing could be gained by staying longer on the ground. One reason for this decision was that our bait, though we had had it on board only five days, had already begun to show signs of deterioration, and it was obvious that, should we have rough weather for three or four days, which was very likely to occur at this season, the menhaden would be entirely unfit for use, and the cruise would have to be given up then even if there should be a return of fine weather. The chances, therefore, were that a longer stay would only add to the expense of the trip without the attainment of any additional results. Other important business, which required my attention, also made it extremely desirable that no time should be wasted. Besides all this the time for which we had chartered the smack had nearly expired, and Captain Redmond was very desirous of resuming his business of lobster carrying, since he feared his trade might be injured by a longer absence.

I had hoped to continue the investigation for eight or ten days, at least, and to have prosecuted the research some distance farther south, though the probabilities are that little more could have been accomplished, so far as catching tilefish is concerned. Nevertheless, it would have been more satisfactory if the weather had permitted us to stay long enough to settle all doubts as to the presence or absence of the *Lopholatilus* within certain limits. However, this not being practicable for the reasons given above, it was decided to run for the land. Accordingly we kept off at 5 o'clock p. m. The wind at that time blew fresh, and continued strong and steady through the night. At 2 o'clock Sunday morning, September 24, we made Block Island light. After getting nearly abreast of the island we hauled up more, and, passing through Buzzard's Bay and Quick's Hole, reached Wood's Holl about 9 o'clock a. m., just in time to escape a dense fog which, coming in from sea, completely obscured all but the nearest objects. The apparatus which we had on board of the Josie Reeves, and as much of the collection as was considered valuable, was landed during the day, and Captain Redmond was left free to proceed to New York as soon as the weather permitted him to sail, which he did on the following morning.

Before closing this report it is proper that mention should be made of the efficient aid rendered by the captain and crew of the Josie Reeves in the prosecution of this investigation. The cheerfulness with which

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\*The spell of rough easterly weather that began at this time continued uninterruptedly for eight days, and there is little probability that the least chance would have offered to set trawls, especially when we consider that a large fleet of mackerel schooners was kept in harbor during all this time, and many vessels engaged in the cod and halibut fisheries were prevented from sailing by the same cause.

they engaged in the most arduous labor, and the zeal they exhibited in collecting and in doing all that pertained to the work we had to perform, was certainly commendable, and rendered my duty much pleasanter than it otherwise would have been.

I would also improve this opportunity to acknowledge the obligations I am under to Mr. Phillips for suggestions which were valuable and well timed.

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**REPORT UPON THE MANAGEMENT OF GERMAN CARP BY A MISSISSIPPI CORRESPONDENT.\***

**By JOHN YOST.**

[From a letter to Prof. S. F. Baird.]

About the middle of December, 1881, I received at Jackson, Miss., in good order, twenty Carp from the United States Fish Commission. Unfortunately the pond intended for their reception was stocked with other fish, such as Sun-fish, Bream, and Cat-fish. I undertook to drain it, and having procured a dry-goods box about two and one-half feet square by twenty inches deep, I bored a number of small holes to allow the free circulation of the water running from a spring. I put a rock in it to hold it down, also a few shovels of dirt. Then I put the Carp in the box. They remained there eight days. I fed them on crumbs of corn bread. I could see some of them every day and supposed they were doing well, but when I had drained my pond and it was ready for their reception, I was surprised in taking them out to find ten of them under the rock and dead. That left me but ten live fish, and two of them were sick. When I turned them loose in the pond they swam slowly off into deep water, and have not been seen since. I have two ponds side by side, with but a few feet of earth to separate them. Into the one where the box was sunk I put the common fish. While taking the Carp from the box one of them accidentally fell in with the Cats and Bream. I had not seen any of the Carp until the first day of the present month, when a boy fishing for the common fish caught the Carp that had accidentally got among them. The bait used was a worm. I measured his length, which was 12 inches from the nose to the parting of the tail. When put in the pond about December 26 they were each of them about 3 inches long. In the case of this one it shows a gain of 9 inches in length in six months. Of course, I put him with his own kind. I have not seen them, however, since they were put in, December 26, 1881. I suppose they are doing well from the condition in which I found that one. For food I give them cabbage leaves, lettuce, tomatoes, peaches, apples, and corn bread. I discover small fish in their pond. I would like to know at what age they breed.

BRANDON, FRANKLIN COUNTY, MISSISSIPPI, *July 30, 1882.*

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\* Had this gentleman followed instructions to have his pond in entire readiness, and free from all other fish, his success would doubtless have been greater.—EDITOR.