

join to produce the warmest period at a season when, by the orders of an all-wise Creator, doubtless it is the most useful; and as well to bring the greatest cold when its benefits also may be most suitably bestowed. A marked and most interesting instance of the effect of this reception and discharging of heat, both by land and water, may be observed in Cuba, and other tropical Islands. For months together the phenomena of sea and land breezes occur daily and nightly. Between about 8 and 10 a.m. may be noticed a dead calm; gradually (the water being less heated than the land) as the power of the sun's rays increases, a breeze, at first gentle, and by noon strong, blows in from seaward, and continues till late in the afternoon, falling towards sunset, and dying away completely by 6 or 7 in the evening; a short lull occurs, but soon puffs of wind off the shore are felt, and night has scarce fallen ere a steady land breeze is blowing, ceasing as the sun again rises, to the calm first mentioned, to be followed as before, till causes outside of these disturb the rotation; as happens more frequently from midsummer till the end of autumn. We know then that both land and water have a certain amount of heat to be overcome, and here we see the land more sensible to the changes of the atmosphere than the water, and the draft of air setting always from the cooler to the warmer; leading us on to a consideration of the laws which the currents of our atmosphere follow, but which I will not attempt to enter upon at this time.

---

ART. X. ON THE FISHES OF ST. MARGARET'S BAY. BY  
REV. JOHN AMBROSE.

THE TURBOT.

THE mere announcement of the name of this fish will cause the English Apicius to prick up his ears. Long has it been cast in our teeth that our extensive list of food fishes is sadly incomplete, seeing that it includes neither the turbot nor sole. In vain do we endeavour to draw off attention from this want, by pointing to our luscious halibut, which could not have been con-

tained even by the large pot specially recommended by the courtier Montanus, to the Emperor Domitian, for the accommodation of his extra-sized turbot. And, alas! for us, we have not the art possessed by certain cooks of ancient times, who could make a turbot or an ortolan out of hog's flesh. In our earnest desire to satisfy our British visitors, we may sigh in vain for the wonderful skill of the cook of Nicomedes, king of Bithynia, who when his master longed for a John Dory when he was at a distance of three hundred miles from the sea, supplied him with a fresh one within the hour. But, after all, better perhaps than the lost art of counterfeiting turbot, is finding the Nova Scotian namesake of the real Simon Pure in our own waters. There is a fish of this name, rather plentiful in the deep muddy ravines—the home of the hake—off the mouth of our Bay. This fish is considerably larger than the flounder, and readily takes the bait thrown for cod, when the latter fish is not at hand to drive away his mud-loving neighbour,—and a sure sign of the scarcity of cod at any particular spot, is one of these turbot on the fisherman's hook.

Our turbot, when full-sized, are about two feet in length. They are always caught in deep water, say from 30 to 60 fathoms.

#### THE FLOUNDER, (*Platena plana*,)

Abounds on our coast, and a very nice pan fish he is. He spends the winter in moderately deep water, protected from the frost, and finding abundance of food in the muddy bottom. But when the sun's power begins to be felt in the spring, the flounder—with almost all the rest of our common shore-fish—comes into shallower water, for light and heat are both required for his summer-life and its occupations. No fear has he of the cruel spear which first stirs up the mud to attract his attention, and excite his hopes of a tit-bit, and the next instant transfixes and brings him helplessly flapping to the hand of the boy-fisherman, whose basket is soon filled for the clamorous swine. It is hard to say who may be the enemies of the flounder during winter, but one—the loon (*Colymbus glacialis*) is at that season frequently shot with flounders in his crop.

On first approaching the shore in spring these fishes are full of spawn, but they begin to deposit it in April. By the end of June the work of spawning is accomplished. Their food during winter—judging by the contents of the stomachs of such as are brought up from the mud on eel-spears—consists of eel-grass and fine silt. Towards spring, as they become more active, they burrow for sea-worms. But when once in shore they are ready for the offal of the fish-stages, and assist in disposing of much waste matter.

### THE EEL.

As is well known, spends the winter in the mud. At first, on the approach of cold weather, they burrow pretty deeply, and live on suction from the surrounding mud. Towards spring, they feel the relaxing temperature, and perhaps becoming hungry after their long fast, work up a little towards the looser mud, and pick the succulent roots of the eel-grass. They leave the mud altogether, about the first of May, and approach the light and heat of the shore. Their favourite haunts in winter are the coves into which the fresh water of some river or brook mingles with and renders slightly brackish the waters of the sea. In such places, probably, the silt of the bottom is charged with a larger quantity of animal matter, besides being the proper *habitat* of the eel-grass.

Eels of the same species differ much in their habits. They go up the rivers and brooks in the spring, and return to the salt water, for warmth, probably, in autumn. But many remain in fresh water all winter, burrowing in the muddy bottoms of the lakes. In Hosier's river, near my residence, in March last, two men speared in one day fifty dozen large eels. These were not found to be so palatable as the eels taken in salt water at the same season. Altogether, from the same place in the river, some eighteen hundred eels were taken, so soon as the unlooked-for discovery of this new spot became known.

In the semi-annual migrations, many eels are taken in weirs, in our streams. This is considered rather destructive; but one has but little pity for a fish that devours so many of our young salmon.

Our shore-people have none of that squeamishness which excludes eels from the tables of our inland population. When once the ice has become sufficiently strong to carry a man over the eel-beds, not a fine day in winter passes without seeing a party of eel-spearers at almost every muddy-bottomed cove around the Bay. There, standing on two or three spruce boughs to keep his feet off the ice, but often regardless of cold feet, stands the patient and laborious fisherman, darting with both hands his spear, by its long slender handle, into the mud below. Ten or fifteen dozen eels in a day are considered good catch, though if one does not happen to strike a good spot a man may not catch more than two or three, as eels are gregarious, even in their winter quarters. Many years ago eels were much more plentiful in the in-shore mud-banks than now,—for of late years their haunts are so torn up by the spears, that the eel-grass is not nearly so abundant as formerly.

Eels are much more delicate in winter than in summer, when they live on garbage and become very fat. In the warm days of July and August, they thoroughly enjoy themselves, basking in the sun, as they lie on the bent tops of the floating eel-grass, at half tide or low water. They also hang perpendicularly, mostly with the tail, but occasionally with the head downwards. Then the keen-eyed fisherman, from his boat, detects his prey, invisible to the uninitiated, and secures the writhing victim between the tenacious jaws of his wooden spear. A great many also are caught in eel-pots of wicker-work, into which they enter, like rats into the funnel of a cage-trap, and—once in—cannot get out. These pots are baited with squid, when they can be had—as this is the favourite food of the eel,—but more frequently a crushed lobster is placed within as the *attrait*. The pot is then sunk by attaching a rock to it, and, after a reasonable time, is hauled up, often well-filled with the squirming prey.

Bobbing for eels is seldom practised here. One summer's afternoon, when a boy, I caught a large number of fine fat eels in the flood tide of the coffee-coloured Shubenacadie, near Maitland, by the very simple plan of wading into the river to my knees, holding the bait on the muddy bottom with one hand.

and allowing the eels as they came, to pass their heads between the thumb and fingers of the other, thus grasping and throwing them ashore as fast as they came to hand. It is a little surprising that, even if the people living on the banks of the Shubenacadie cannot bring themselves to enjoy the luxury of eating these excellent fish, they do not take the trouble to catch and sell them to others less fastidious than themselves, and more able to appreciate the good gifts of a bountiful Providence.

Eels do not always confine themselves to the rivers, bays, or inlets, but are sometimes found outside of the shore range in the Atlantic itself. Mr. Charles Richardson, of Indian Harbour, as well as several others, testify to having caught them tangled in their herring or mackerel nets, two or three at a time, at a distance of two miles from the coast line. Perhaps, as the in-shore beds become too much disturbed by the spears, and denuded of grass roots, eels—with the sure instinct of self-preservation—venture out to the oozy and worm-charged gulches of the ocean, where no spear but the trident of Britannia can bear rule.

Our fishermen greatly wonder at the secrecy of re-production among these fish. They say that although they catch them at all seasons of the year, they never by any chance find either spawn or young eels in them. But, after all, there is a season immediately after the breaking up of the ice, and also on the point of its first formation, and before it is strong enough to carry, when eels are not caught here.

I have remarked that many eels go up the river in spring, and return to the sea in autumn. This is easily proved at Mill Cove, on the western side of this Bay, where a high mound or dam of round beach-stones crosses the outlet of a lake at high water mark. Here at the seasons mentioned, these fish may be seen in large numbers all travelling in one direction among the wet stones from the sea to the lake, and *vice versa*. Large numbers are then taken by hand.

Our fishermen have a high opinion of the efficacy of eel-oil in removing the ill-effects of a sprain. For this reason they bind the skin of an eel around the injured limb. A small quantity of eel-oil dropped into the ear, is also one of their specifics for a recent deafness.

Eel,—Conger, leaves the deep water and comes about the stages and along the shores in April. They are neither so numerous nor so highly prized as the common sort. They burrow in the mud, in winter, like the others.

There is a sort of eel of very large size and great fatness—not short, like the conger, but proportioned like the common eel, which is found in a small lake on Gravelly Island, near Aspotogan, at the western side of the mouth of this Bay. These giants are occasionally to be seen lying in shallow water. At first sight they are often mistaken for large pieces of sunken wood, so still do they lie, but at the first touch off they dart into the dark depths of the lake.

Mr. Richard Daubin, of Peggy's Cove, some years ago was with a party of seven others, who were fortunate enough to see two of these large eels in Gravelly Island lake. The method of capture adopted was to fasten a strong codfish hook to a pole, and having cautiously brought their boat as near the eel as possible, to let down the pole gently and gaff him. This they did first to one the thickness of a man's thigh, but in a moment he broke the hook and was out of sight. However, having re-adjusted the gear, they were lucky enough to gaff another about the thickness of a man's arm, and after a hard tussle to get him into the boat. Part of his fat and *strong* carcass furnished all who chose to partake with a bountiful repast, leaving the remainder for another meal.

The Rock-eel is about 9 inches long, and is frequently seen along our shores. Its name is derived from its habit of keeping on rocky bottom—at least during summer. In winter it moves off into deeper water, but not so far as most of the others. Shell-drakes are often shot whilst fishing not far from shore, in early spring, with rock-eels in their crops. The rock-eel does not seem to burrow in the mud, like the common eel, or the conger, as it is never taken with the spear.

Some twelve years ago, when mackerel were very abundant along our shores, and large quantities of them were caught at Peggy's Cove, the water of the Cove became very offensive from the immense quantity of garbage which was thrown off the stages. All the rock-eels in the Cove died, and over the whole

surface of the nearly putrid water, these, as well as sculpins, flounders and cunners or perch, were continually rising here and there in a dying state. Flounders would run ashore on the flat rocks, half way out of water, and there remain to die. The clear sea water was but a short distance from the mouth of the little cove; but it would seem that these fish, like the drunkard, were not aware that they were being destroyed until it was too late to escape. The young pollack made their exit from the lethean pool in time, and not one of these prudent and self-denying young fellows was found among the dead. The *Teredo Navalis*, busily at work destroying the fisherman's stages, as usual, at last met his match. The poisonous water arrested his mischief, and soon closed his labours forever.

The water at that time must have been in a terrible state, seeing that any boat newly painted white, if brought into the Cove but for one night, would in the morning be found black below the water line, and lead-coloured above it, and no scrubbing could remove the stain, or restore the original colour.

I may here observe that the *Teredo Navalis* requires pure sea-water for its existence. Vessels or boats, moored in the mouths of rivers or large brooks, do not suffer from its ravages in this Province.

#### THE PERCH, CUNNER OR ROCK-FISH.

This fish, having spent the winter a little off shore, comes in about the first of May. It spawns in August. It is most useful in clearing the coves of garbage, but although what might be called a coarse feeder, it has a particular weakness for the eyes of fresh herring. When a herring-net is moored with one end close to shore, in summer, almost all the herring meshed in the in-shore end, if left any considerable time in the net, are found to have had their eyes extracted by the perch.

Though, as I have just observed, perch are famous scavengers, the super-abundant offal twelve years ago in Peggy's Cove was too much for them. Many died, but of all the small fish in the Cove, they were the last affected.

Some perch always remain in the deep water outside feeding on the cod-grounds, in from thirty to sixty fathoms

of water. Many of these are of a red colour, and of a much larger size than their in-shore brethren.

I have enumerated perch among the edible fishes, because though used only as food for swine at St. Margaret's Bay, they are eaten in many other places, and are said to be very palatable when skinned and properly fried.

Some years ago in Portland, U. S., I saw a large picnic party leaving the wharf in a small steamer with music and flying colours, for an excursion down the Bay. The party, I found by an account of their excursion, afterwards published, was no other than the "Ancient and Honourable Fraternity of Cunnors," and one source of amusement for the day was angling for and eating their finny namesakes. Happy days were these, before the terrible scourge of civil war fell upon that wonderfully prosperous country. Well would it have been for that people if innocent amusements had served as a sufficient outlet for their excitable temperament, and brotherly love had proved too strong for ambition and political animosity. Well will it be for us if we be warned by their example, and the sight of the wreck prove stronger than the voice of the syren. "*Nam tuarum res agitur paries cum proximus ardet.*"

---

ART. XI. ON SUBMERGED FOREST TREES IN CUMBERLAND BASIN. BY P. S. HAMILTON.

NEAR the margins of the head waters of the Bay of Fundy are found, in several places, certain accumulations which geologists have distinguished by the name of "submerged forests." One of the most extensive and most plainly visible of these is to be found near the head of Cumberland Basin, and has been carefully examined and geographically described by Prof. Dawson in his "Acadian Geology," page 32; but similar appearances may be seen elsewhere on the shores of Chiegnecto Bay, and also of Cobequid Bay and of some estuaries of streams emptying into Minas Basin. At the several places referred to, on the extensive slope of the flats between high water and low water