

ART. IV. SOME OBSERVATIONS ON THE FISHING GROUNDS AND FISH OF ST. MARGARET'S BAY, N. S. BY JOHN AMBROSE.

[Read Jan. 8, 1866.]

As a list of the fishes of St. Margaret's Bay, is a lengthy one, I shall confine myself in this paper to an account of some of those salt water fishes, which form the staple export from this parish.

In the first place it will perhaps be necessary to give a general idea of the fishing grounds, especially off the mouth of the Bay. This I have obtained, and as far as possible, verified from the accounts of some of the most experienced and successful line-fishermen of Peggy's Cove and Dover.

Leaving Peggy's Cove on a S.S.W. course, we first pass over a "hard," *i. e.*, rocky, sandy, and gravelly bottom, for a distance of nearly half a mile, with a depth of fifteen fathoms, until we find ourselves over a depth of thirty fathoms, with soft black muddy bottom. This gulch extends in a line parallel with the coast, and opens into a similar one running up the Bay. It is about fifty yards wide, bounded on both sides by hard bottom, at an average depth of thirty fathoms. This muddy ravine is the celebrated "Hospital," where diseased codfish are found. Since my last account of this place, I find on further enquiry, that hake in a healthy state frequent it, as muddy bottom is the favourite feeding ground of that fish. But cod abhor the mud bottoms, and are only found in such localities when unable to go elsewhere. Healthy cod are caught at each side of this gulch, but within it the cod are found to be "logies," (*i. e.*, *sick*,) and wounded fish. As codfish will attack and devour the helpless of their own kind, from the spawn up, a muddy gulch not frequented by their strong and rapacious brethren, is plainly a place of safety for the disabled, where by the simple and monopathic method of giving a wide berth to all interested parties, they hope for peace and convalescence, and wait patiently and humbly for such food as chance or a passing fisherman may throw in their way.*

Crossing the smiling waters, over this dark abode of sickness, want and pain, and finding our depth, from fifteen at the further side gradually increasing to thirty fathoms, at the distance of about

*There is another "Hospital" with muddy bottom, well-known as the haunt of sick cod, a short distance outside of Billing's Island, off Prospect.

a mile from Peggy's Point, we approach what at the fishers' point of view would be called a hill, rising from the plain to a height of nearly 130 feet, and having a sort of broken level at top, of some three or four hundred square feet, and at a depth of nine fathoms from the surface of the water. This is called "Quidi Vidi," and often affords excellent cod-fishing, as the rocky bottom on and around it, is the resort of such fish as the cod seek for their prey. After another space of deep soundings, we pass over a rocky shoal called the "Big Shoal," lying at a depth of ten fathoms, and affording good cod-fishing. We next pass over the "Nubbock," twenty fathoms deep. Other rocky shoals lie in different directions out here, having an average depth of about thirty-five fathoms around them, but the summits of all lying at a safe distance below the keels of commerce. At the distance of some eight miles from Peggy's Cove, we cross the "Ridge," a long hill extending from abreast of Pollock Cove to Green Island, some eight or nine miles. The east end of this lies at a depth of about 60 fathoms, but the west end shoals off to about 30 fathoms. The east or deep end consists of clay and rock—a favourite bottom for cod; the west end is rocky, also affording fair fishing. Next comes the "Inner Gulch" of black mud, about 60 fathoms deep and a mile wide,—then level bottom of sand and gravel, about 45 fathoms deep and two miles wide. We now pass the "Outer Gulch" of black mud, 60 fathoms deep and a mile and a half wide. Here are few or no fish, but a sort of large flounder or turbot, which is good eating; but for some unaccountable reason is known among our fishermen as the "Skunk." Next we pass "Cross Island Ridge," running parallel with the coast line, and like the former "Ridge," deepening towards the east end. This Ridge extends for a length of some ten or twelve miles. Next comes a gulch of black mud, 65 fathoms deep, and nearly three miles wide. Next are the "Shore Soundings," a sort of ridge extending like all the rest in a line parallel with the shore, shoal at the west and deep at the east end. The shoal part here, however, is sixty fathoms deep. Bottom, rocks and clay at the east end,—rocks at the west. Next we have the "Big Gulch" with a bottom of black and fetid mud, so soft that the lead buries itself in it. The depth here is about one hundred fathoms, and the width about three miles. Then comes a ridge, lying deep and narrow at the east end

and wider and shoaler at the west. The east end, i. e., as far as our men go, is composed of yellow clay, shells and small blue stones, and affords better cod-fishing than the west end, which is rocky, without the favourite mixture of clay and shells. The course from Peggy's Cove Point to the middle of this Bank is S.S.W., and here, looking back towards Aspotogan, we find the top of that well-known hill (a height, by the aneroid, of 410 feet,) just sinking below is our watery horizon. This ridge, extends along the coast from White Point at the Strait of Canseau to Cape LaHave, nearly approaching both these headlands. It is composed—at least that part of it which lies S.S.W. of St. Margaret's Bay,—of slate and quartz. Can it in any way form a sort of connection between the slate and auriferous quartz of Guysboro' and the similar geological formation at the "Ovens," and thus account for the gold washings on the shore at the latter place, which are known to wash in from outside, and become more productive after the heavy storms of winter?

But to return. On this Bank is found the best cod, ling and halibut fishing off our shore. Here lie at anchor, often for three or four days at a time, our venturesome open fishing boats, directly in the track of steamers and large ships, bound to the United States. A light is kept burning in the rigging all night, *but not unfrequently all hands*,—two or three in number—retire to their little cuddy, and having put a few sticks of wood into the stove, "turn in" for the night and sleep soundly till daylight, regardless of the steamers or ships, which in the darkness of the night often rush close past the little craft with her spark of a light,—so close, that one Schlagintweit of Turn's Bay, lying on this Bank, found after his comfortable night's sleep, that some large craft had passed him so closely and rapidly during the night, as to carry away his schooner's bowsprit, without awakening himself or any of his unconscious crew.

Here, one of our men, more vigilant, saw a brig in the night bearing down before the wind, right towards his little craft, and it was only by frantically shouting, snapping percussion caps on a musket, and waving fire-brands, that the notice of the brig's crew was attracted, and our poor fellows saved from sudden destruction. Here Tom Tomline, a fat and easy-going La Have skipper, having anchored his "Banker," hoisted a light in the fore-rigging, and

ordered all hands to turn in. All, nothing loth, were soon fast locked in the embraces of Morpheus, whilst the lantern, having burst, set fire to the fore-rigging, burnt up the fore-sail and that part of the hempen cable which lay coiled on deck, so that the schooner slipped her moorings, and drifted off, blazing, until a neighbouring craft sent a boat and awakened Tom and his snoring crew, just as the cinders were beginning to drop down among them from the burning deck over head. Here our open boats lie for three or four days at a time, riding like ducks on a sea which often obliges schooners to heave up and run in, owing to the superior buoyancy of clinker over carvel built vessels. The sea is heaviest in these off-shore soundings, when wind and currents contend against each other, for at times during summer the current sets so strong westwardly, that the fishing leads will not take bottom, but trail off at an acute angle. At other times there is little or no current. In spring this current sets southwardly, during summer westwardly, and in autumn in a south-easterly direction. Coasting vessels bound west often take advantage of this ocean current in the summer season, during calm weather or high head winds, by standing well off shore.

Here is the home of the large cod, ling and halibut, and here are abundance of bank-clams, scallops, and other shell-fish, which their admirers root out of the clayey valleys, on the sides of this submarine hill. Here is no end of star-fish of all sorts, as well as herrings, John Dorees, small cod, cat-fish and the other deep sea food of the more valuable fish. Here the cod are of a different kind from their brethren in-shore, being what are called "bull-eyed" fish, i.e., having their eyes very prominent, and covered with a thicker skin than ordinary. Both of these peculiarities are no doubt required for the great depths for which an all-wise and kind Providence has fitted them. Here a crew of three men will, in the course of two or three days fishing, catch from twenty to thirty quintals of cod, with perhaps a quintal or more of ling, and occasionally two or three, or even half-a-dozen fine fat halibut. Cod, generally, but cusk invariably, evert the stomach in being rapidly hauled up from deep water. After the stomach has thus been turned inside out, so as to project beyond the mouth, the fish, even if it break from the hook, will float to the surface, and

there die. Here, if the lines happen to drop in a good spot, such as a little ravine with a bottom of clay, sand and shells, the fish are very frequently caught in pairs, and as fast as the bait can be sent to the bottom.

My informants do not remember catching spawning fish of the cod kind out here, though at the proper season they frequently catch milters with the milts running out. Of the cusk spawners are found in October on this Bank, with ripe spawn in them. In the months of April and May, both cod and cusk bite best in day time, but from the beginning of June to the end of the fishing season, i. e., the last of November, they take bait most greedily during the night. Both also bite best in southerly and easterly weather, but when the wind is north-east they do not take bait readily, so far, as well as in their time of spawning, resembling the lake trout.

Cod and ling do not run together, but in separate schools, each kind by themselves, as indeed is the habit with most sea-fish. Ling are increasing on our outside fishing grounds, whilst halibut which formerly were plentiful and taken close in shore, are now scarce, even on the outer banks. The oil from the liver of the ling is much prized among our people as an outward application to sprains and bruises. The ling caught in deep soundings differ from the others, like the cod taken in similar localities, by having the eyes more prominent and covered with a thicker skin or film. The back skin of those deep water codfish too, is of a darker, bluer cast, than that of the in-shore fish, and the snout is longer and apparently better suited for digging shell-fish out of the clay. In all depths of water the colour of these fish in some degree resembles, that of the bottom on which they feed.

The in-shore codfish come into the Bay to spawn in October. These are not so long as the deep-water fish, but more junky. Some of the very large and long fish, also, come in at the same time for the same purpose. An immense one was caught last October, near Dover, but was so much mutilated in the splitting, that I was unable to get the accurate measurements of it. There is a tradition of one having been caught off Prospect many years ago, which when dried weighed one pound over a quintal.*

*Mr. Saml. Croucher caught a codfish, which when dried weighed 50 lbs. Mr. Benjamin Smeltzer caught one on a trawl this year, which measured 5 feet 10 inches long.

The in-shore cod, are what are known as school-fish, such as those taken at Labrador, (but slightly larger,) as they run in larger schools than the deep water fish. They spawn all around the Bay on gravelly and sandy bottoms. They will eat their own spawn, but have a great partiality for that of the lump-fish. When these dainties are not at hand, however, the cod is not at all particular about his diet. With "hunger-sauce" he will swallow almost anything. A jackknife was found in the stomach of one of these fish at Peggy's Cove. Another was found to have swallowed a "nipper,"—i. e., a sort of woollen mitten, used by fishermen to prevent the chafing of their hands with the line. Some twenty-five years ago, a Mr. Weeks, of St. John, N. B., informed me that he found a man's ear in the stomach of a cod, which he had bought in the fish market of that city. When I was at Economy, N. S., in the month of March, 1846, a cod was caught near that place with a toad in its stomach. This unfortunate toad had, no doubt, on the approach of cold weather buried himself in some suitable place, but too near the edge of one of those sandy cliffs which overhang the rushing tides of the Basin of Minas, and this falling off at the coming out of the frost had carried with it the semi-conscious toad, to serve as a meal for the hungry cod prowling below. Unexpected reversal of confident hope at inhumation!

"The best laid schemes of *toads* and men
Gang aft alee."

Mr. James S. Keizer, of Peggy's Cove, shot three murre, on one occasion, off at sea, about eight miles S.W. of Peggy's Point. He immediately cut off the heads, which, with the intestines, he threw overboard, preparatory to cooking the birds. He then sailed on, with a moderate breeze, about six miles from the spot where the heads were left, to "Cross Island Ridge," threw over the grapnel, and beginning to fish, very soon hauled up a cod with a murr's head (quite fresh) in his stomach. He feels confident that this was one of the heads so recently thrown overboard by himself, at the spot six miles distant, as blood still remained on the feathers.

Codfish, like too many among mankind, will often by the indulgence of a depraved appetite, ensure their own destruction. The Maine-law or sea-regulation, confines them to a safe species of drink,

but their food is a snare to many of them. They greedily eat garbage, even of their own kind, and find backbiting at sea to be even more dangerous than the like-named amusement on shore, for the sound-bone of fish is too much for their digestion. Cod are frequently caught with a sound-bone, or even the whole undigested skeleton of a cod, cat-fish, or sculpin, in their stomachs, and part of the bony structure protruding through among the intestines. Others have diseased liver, that evidence of a disordered or weak stomach. The sick fish are called "logies" from the heavy lifeless feel of them on the line as they are drawn up from the bottom. The livers of logy cod are always more or less diseased. They are destitute of oil, and of a dark colour, and not unfrequently contain abscesses filled with pus. The liver always shrinks away to far less than the ordinary size, and the fish is found, though of large frame, to be wasted to mere skin and bone. Young fish are very rarely found to be inwardly diseased, so that perhaps, after all, the logies are aged individuals whose vital organs are impaired by the gradual decay of nature.

The livers of all our codfish are of a dark colour and destitute of oil, and the fish is watery in the early part of the spring; but as summer advances, and the herring strike in, the cod livers soon give evidence of the good effect of generous fare. Then the tail becomes round, firm and fleshy,—a sure sign of a healthy fish.

Having already given some idea of the cusk, in connection with the codfish, I shall not at present dwell upon the peculiarities of this excellent fish, which although increasing in numbers on our Banks, are still not thoroughly well known by our fishermen. Like the albicore, they appear to be of comparatively recent introduction here. They are caught on the Banks with ripe spawn in them, by which it would appear that they spawn in deep water; but I do not hear of codfish, those irrepressible egg-eaters, being caught on the Banks with spawn in their stomachs. Further investigation will no doubt in some degree clear up the matter.

There appear to be no logies among cusk,—a singular fact (if it be a fact), which piques the curiosity of the student in Natural History.

Leaving this interesting fish for the present, we come to the Hake or "Goat,"* as he is called by our fishermen, on account of the

*More properly the "Spotted Codling."

long tentacles which, beardlike, hang from his chin, and which—as he feeds on muddy ground, like the monk-fish (*Lophius Americanus*), may be intended to act like the tentaculæ of that sea-monster, to entice and deceive such unwary fish as go half burrowing along the oozy bottom in search of sea-worms. Hake are found in the muddy gulches, whither, except in sickness, cod never resort. Here in deep water hake are to be found in the early part of summer; but they strike in shore about the first of August, for the purpose of spawning, and remain, for all that is known to the contrary, until spring. Indeed, there is a small lagoon about three miles this side of Chester, across the neck or outlet of which the mail coach on its way from Halifax passes, by means of a small bridge. It is called “Frail’s Pond,” and is brackish, as the fresh water coming into it from the land side is mingled with the salt water which fills it at every tide. Here, throughout the winter, considerable numbers of good sized hake are taken *in day-time*, by hooks dropped through holes cut in the ice. These are, by our fishermen, jokingly called “tame goats.” It is quite possible, and indeed probable, that this fish may also be found during winter in many other such brackish ponds, which are so numerous along the shore, between this Bay and Shelburne. I should also expect to find cod in such places, or in the mouths of the rivers along our coast in winter, for they are very frequently caught by the hand in the land-wash in this Bay, and in New Brunswick, in the Kennebeckasis river, off Clifton, and not far from Gondola Point, (where even at high tide the water must be but slightly impregnated with salt, and at low water must be very nearly fresh). Justus Wetmore, Esq., last summer informed me, that in the winter of 1864, large codfish were caught through holes in the ice. Indeed, the winter habits of our sea fish are as yet but little known, owing to the present habit of closing up the shore fishing from the middle of November, to the middle of May.

Hake take the same bait as the cod, and will freely take fish of its own kind, herein differing from cod, which after a few nibbles will desert the hook that is baited with codfish, though they will frequently devour small members of their own tribe. It may here be observed that every bait seems to have its own proper season,—

cod, for instance, ravenously seeking squid in the squid season, but showing rather an indifference to it at other times.

Hake are nocturnal in their habits, never taking the hook in day time at the outer ground; but when in the Bay and on rocky bottom in the spawning season, in the latter part of summer, and in autumn, on the dark days, they will occasionally take bait. Just before sunset during the night fishing, or "goating season," i. e., in autumn, the boats are all at anchor on the hake grounds, and as soon as the sun is below the horizon the work begins. If a seventeen feet whale boat with two men happen to hit on a good spot, she will load before midnight. Seven or eight quintals are frequently taken in a night by two hands, but it is very cold and disagreeable work in the frosty nights, about the last of October and during the month of November.

In the spring, though the liver of this fish contains no oil, it is white, and herein differs from that of the cod. In summer, as the herring begin to strike in, the hake liver soon becomes very fat and yields more oil than the cod liver.

When hake and codfish are salted in the same puncheon, the latter fish are made much tougher by the contact than they would otherwise be, and are therefore less prized for home consumption. Our fishermen always take good care to salt the cod separately, when intended to be used in their own families, or sold to such as are particular in such matters. Hake are very seldom used here, but are shipped to Halifax for the West India market.

There are but few logies among hake, and even these show no symptoms of organic disease. They are also full-grown fish, which would seem to indicate that old age is the principal cause of their sluggishness.

Haddock come next on our list. These lively little fish do not, like cod, ling, hake and halibut, keep always near bottom, but are found at all depths and bite greedily. When feeding on the bottom they are—like our worthy President and our patient and energetic brother Willis—great collectors of shells; and many rare specimens now adorning the cabinets of these enthusiastic naturalists, were brought from mysterious depths by the haddock. "The dark unfathomed caves of ocean bear" in our vicinity, but little which has not been inspected by the prying eyes and vigorous nose of the

haddock. They feed by day, and take readily any bait offered to the codfish. They also eat sea-Medusæ or "sea-squalls" as they are called here, and in this resemble the mackerel, which also feed on these jelly-like creatures.

Haddock keep outside in winter, leaving the Bay about the middle of December, and returning about the first of May. The best fishing within the Bay is from the middle of May to the end of June. At this season two hands in a boat will take seven or eight hundred, (equal to six quintals), in a day. It is of no use to attempt to catch codfish from among a school of haddock, as the latter give the larger fish no chance to take the bait. They feed on all sorts of bottom, muddy as well as hard, and are very gregarious in their habits. There are logies among them in spring and summer, but never in autumn. The logy fish are almost invariably afflicted with a sore under the sound-bone, full of pus, and in this case the liver is shrunken and contains no oil, and the stomach is empty. Haddock make a sort of whistling or squeaking noise after being caught.

These fish are salted and dried, like cod and hake, and no attempt has yet been made among us, to imitate the celebrated Finnan Haddies.

I must now draw towards a conclusion, having as yet only begun the enumeration of our fishes. I have had time to read but little on the art of catching and curing fish, but one cannot fail to see that a great deal remains to be done among us, in the way of developing and improving our fisheries, and preparing the fish for the most profitable markets. If the proposed negotiations with Brazil and other Roman Catholic countries should open up new markets to our staple product, a great deal has yet to be learned by our shore and Labrador fishermen in the way of curing fish for such markets, for that which has been tolerated among the negroes of the Southern States and the West Indies, will not tempt the fastidious palates of the more civilized people, with whom we hope soon to trade. Time forbids my entering on the superior mode of curing cod, hake, haddock, and pollock, practised by the leading Jersey houses, which gives them a decided advantage over us in the fish trade. This point was touched upon by the late M. H. Perley, in his interesting work on the Fish of British North America.

But I may venture one more observation. I see that the motto of this City is "*E Mari Merces.*" This being the case, one would naturally expect that some little attention and encouragement would be bestowed by the citizens on one great source of this wealth, viz:—the Fisheries. Exhibitions of fruit and flowers are annually held in this city, and liberal rewards bestowed on successful competitors. This is all very well, and no doubt encourages horticulture and increases the number of conservatories. But when did we ever hear of a fish-show, or of prizes being offered for the best specimens of fresh and *well-cured* fish? Fishermen are expected to go on, hazarding their lives and eking out a mere subsistence in hopeless poverty and self-denial, almost unthought of by their superiors, whilst they keep up the most lucrative branch of industry in the Province; and though Agricultural Societies are gotten up, and fostered by Government, in order to encourage and teach the farmer, and supply him with the best stock and implements, we have yet to hear of the very first effort to teach or encourage the poor fisherman. But if we are to see our fish-trade expand under the contemplated treaties, this indifference must be shaken off, and a vigorous effort made to develop a great source of wealth which as yet is only in its infancy.

ART. V. THE AURIFEROUS DEPOSITS OF NOVA SCOTIA. BY P. S. HAMILTON, CHIEF COMMISSIONER OF MINES.

(Read Feb. 6, 1866.)

IN coming before the Institute this evening, with a few remarks upon the "*Auriferous Deposits of Nova Scotia,*" I must say that my selection of a topic has been rather an acquiescence in the expressed wishes of others, than a deliberate choice of my own. I say this because of the difficulties which, according to what knowledge I have been able to gather, beset the scientific aspects of the subject; and which utterly preclude my producing a paper satisfactory to myself. I will therefore be brief and confine myself to the statement of a few facts upon the extent of the Nova Scotian Gold Fields, and the distribution of gold therein, and upon some geological and mineralogical phenomena connected with their deposits,