FAR BELOW THE SURFACE

UNDERGROUND LIFE IN THE CAPE BRETON COAL MINES.

How the Seams Slope—Villages at the Pit's Mouth—Underground Stables—Darkness That May be Felt—Engines and Railways—Amusing Children.

The block house mine at Cow Bay, has not been worked for some years, and houses, works and shipping pier are going to ruin, for the management was so extravagant and the cost of keeping up the pier, which is exposed to the full force of the sea, so great, that more money was spent than made. The coal is of fine quality, free from impurities and leaving but little ash, and was formerly used in the gas works of New York and Boston. It is said to yield 10,500 cubic feet of gas per ton. The seam affords nine feet of solid coal free from partings and is well situated for working. It is the highest of the basin, so that at the lowest point there is probably too little depth between sea bottom and the seam to permit of safe working in the submarine area.

On the first day at Cow Bay, I walked along the shore towards the mine, the cliffs were composed chiefly of coarse beds with few fossils till within a short distance of the seam where there occurred a band abounding in plants chiefly long, narrow leaves and fragments of ferns, which were scattered thickly over boulders on the shore. Thence, rounding a projecting rock, brought me to the outcrop of the block house seam. Here at the base of the cliff were sandstone beds resting on the first plant layer, above them a thin coal seam four inches thick with a covering of crumbling shale considerably washed out by the weather. Above this, nine feet of sandstone and then the main seam and a shallow pit where some one had been digging his private supplies of fuel. The upper sandstone layer projected somewhat from the coal to carry the remains of a light railway which the person had used; and a four wheeled tub that had once belonged to the mine, still on the track, and another tumbled to the shore below, showed the extent of the rolling stock employed. Beyond was the old wharf, in great parts washed away but still protecting the little beach below the cliffs, and on it a high chimney and remains of the engine room, for the seam dips to the level of the wharf so that coal was hauled from the mine and loaded directly into vessels, thus saving extra handling at the pit's mouth. In the nine foot sandstone layer were the trunks of three large trees, their roots ramifying through the shaley band below. On the table is a small piece of one of the roots showing the scars where the rootlets were attached. Such scarred roots of the coal formation have the generic name Stigmaria which includes many species.

The largest of the trees was about six feet in circumference, and from the bottom of it came this cast of a small stem which had fallen into the hollow trunk. The sea, which, perhaps in the first place, preserved these trunks by filling and surrounding them with sand, will shortly bring them down from their perches, for the enroachment on the cliffs is going on rapidly. The shaley layer in which their roots are imbedded, is full of fossils but the rock crumbles on exposure to the atmosphere so it is hard to find good specimens.

In a walk up the bay I came upon the outcrop of another coal bed, probably the McAulay seam. Above it were a few feet of shale which was stocked with beautiful ferns, and blocks fallen to the beach were covered with large specimens of the genera neuropteric and alethopteris. Besides these the round stems of calimites were common, standing upright in the coarser beds above the fern-bearing shales. Generally the shales crumble on exposure but in parts they are hardened by the presence of lime or iron and then afford clear and lasting specimens—about 14 species were noticed here which with those from the Block House mine would make about 24 different species from Cow Bay.

The McAulay seam has been worked at the Gowrie mines since 1864, indeed this and the Block House seam were mined by the French in the old days of their occupation of the island. It lies 540 feet below the Block House and contains about five feet of good coal. The pit from which the seam is now reached is 205ft. deep and from it a railway about a mile and a half long leads to the shipping pier at Cow Bay village. The pier is guarded by a strong breakwater which is very necessary as it is said that in one storm some years ago about 24 vessels were driven ashore in the bay. In 1890 about 160,000 tons were raised at this colliery.

Taking the post road from Cow Bay to Glace Bay we cross the low ridge of Millstone Grit, separating the two coal basins. This road is wretched in spring when thaws and rain raise the mud, and bring the corduroy patches into undue prominence, and generally uninteresting, especially now that fires have so destroyed the woods on both sides. Approaching the shore we are again among the coal measures, here concealed under the marsh and salt water lake at the head of Glace Bay. On the eastern side is Fort Caledonia, an artificial harbor dredged out of the shallow bay, surrounded by loading wharves, and protected by piers, but all now going to destruction and quite useless. The Ontario and Schooner Pond mines used this harbor, but they have not been working for some years. The Caledonia Company shipped their coal here also, when the Little Glace Bay Co., owned Little Glace Bay Harbor and charged excessive tolls. The Caledonia Company's old trestle still runs along the sand bar. It is filled up with slack and fine lump coal for half a mile and 15 feet high, and forms a mine from which farmers can get their coal cheaply. The man who owns it charges 25 cents a load, but is not always successful in collecting it, for he only obtained 25 cents from this source last winter.

Crossing the Bay we come upon the main area of the Glace Bay basin. The highest beds of the basin are at Table Head, and either way from this fine headland there is a descending section of the strata exposed in the cliffs.

Near the top of the section are soft green and red beds, then shales and sandstones with ferns in one layer at least.

Then the Hub Seam, formerly mined at the Roost Pit. Below this are thin seams of cannel coal, separated by beds of shale and sandstone.

Little Glace Bay harbor here makes a break in the cliffs, but beyond, at McPherson's Point, the harbor seam appears and near the horizon of this seam are several beds filled with fossil shells of the species, naiadites elongata, a brackish or fresh water form, and containing also scales and spines of fish. Next below is the Bouthillier seam, then the Back pit, Phelan, Ross, and lastly the Lorway seam of the Millstone Grit. Of these seven—one, the Hub seam, has been worked, though not for some years. Two, the Bouthillier and Black Pit, have not been touched, though of sufficient thickness to be available when the thicker seams are exhausted, while the remaining four are being steadily mined, the Lorway furnishing coal at the Gardiner mines, the Ross or Emery seam at the Emery, the Phelan supplying the Old Bridgeport, Reserve and Caledonia mines, while International and Little Glace Bay coals are drawn from the Harbor seam.

The Hub seam, the highest of the basin, underlies an area of about one-quarter of a square mile, cropping out on the shore, a short distance to each side of Table Head. It is said to have been mined by the French and to have been set on fire by them on the subjugation of the island by the English. At Burnt Head, near its western outcrop, are the remains of earthworks, perhaps of old French fortifications. Whoever it was who set fire to the mines, the fact that the seam has been burnt at both its sea outcrops is apparent. On the Glace Bay side the rocks above have been altered for a distance of 500 feet and from 15 to 25 feet in thickness above the seam, which being burnt away, the rocks have descended, distorted in all directions, the grey slates burnt to a bright red, so hard as to ring when struck, and the carbonaceous beds changed to a porous cinder and coke conglomerate, having numerous pieces of the bright red slates mixed up in the black matrix. Large boulders of this curious conglomerate are strewn about the shore and the cliff, themselves, are a fine sight from the brightness and variety of their color and irregularity of their form. This seam has been mined considerably since 1860, but not recently. It is nine feet 8 inches thick, of which the lower eight feet, two inches is coal of excellent quality and very easily mined. The outcrop of the seam was struck near the centre of the heaviest cutting on the new railway, and for three or four hundred feet about six feet in depth of the coal was taken out and used to form the embankment across a hollow.

The strata above the coal were chiefly a dark shale in places entirely wanting. One section was as follows, in descending order:—Fine layered sandstone, one foot; argillaceous shales, one foot; impure coal, six inches; grey and yellow fire clay with thin coal streaks and filled with a large leaved fern, nine inches; fine grained black shale, three feet; and below, coal cut down from four to six feet, without reaching the bottom of the seam. The black shales abounded in fish scales chiefly very small but a few of some large kind; also several teeth were found, one of them a three pronged grinder very like a kind that Sir William Dawson has described from the Pictou coal measures.

The next railway cutting exposes a bed of shales almost entirely made of the bivalve shells of a minute crustacean, and again deeper beds exposed in another cut consist of red and green material so soft as to be readily plouged but having large ironstone nodules, scattered through one layer, which contained small fossils, shells of serpulae.

A short distance below these beds is the harbour seam which is worked at the Little Glace Bay mine, and I will now describe this mine, taking it as an example of the rest; for I was about the Sterling Pit, as the present workings are called, more than any other mine; surveyed the tracks and buildings above ground and went through the underground works. At the pit's mouth is a roughly framed building—the "Bank Head" raised on timbers. Above the building are two large pulley wheels around which the wire rope passes that raises the coal. The pulleys run in opposite directions one hoisting while the other lowers and the work of the engine is thus assisted by the weight of the empty tub in the descending cage. The cage comes up at a rattling speed, stops suddenly, and falls noisily a couple of inches on a spring catch. The cage door is opened and the tub pulled out, an empty one inserted from the other side, and down it goes again. The loaded tub is pushed over scales, the second or two occupied in passing being sufficient for the expert weigmhan, who also takes the number of the miner who produced the coal, as it is called out. The tub passes to the shoots and is dumped into cars on the tracks below the building. If screened coal is wanted, it passes over the screens sliding down the shoots and the slack falls into other cars and is deposited in piles along some out of the way siding until needed.

In winter when the harbours are closed by ice the coal is dumped near the pit in a hugh pile called the "bank" which contains generally 20,000 or 30,000 tons. Next the "bank head" is the engine house, with hoisting engines and winding drums. Then there are the machine shop, carpenter shop and locomotive shed, the pumping engine occupies another building. The great slow-working pumps lift the water from the level to which it is raised by the force pump in the mine. There are sidings for empty tars and black pile, and a railway half a mile long leading to the harbour near which it divides, running out on three trestles to the wharf; along side of which vessels lie and are loaded from the cars by shoots.

The harbour has been formed by dredging a small mud flat where a stream enters the sea. Two piers guard the entrance which is only sixty feet wide, but inside the harbor is wider and a place has been dredged crosswise for turning so that large steamers can turn with care. The Caledonia coal is shipped on one side and Glace Bay on the other. The disadvantage of the shallow harbour and bay was seen after the storm last summer which blocked the entrance with kelp, so that while empty steamers could enter, loaded ones could not get out until a passage was dredged for them. The seam crops on both sides of the harbour, and near the crop is the fan-shaft and above, an engine house and large fan which forces fresh air into the mine.

Near the mine are rows of low buildings for the miners, all of a dirty red colour and very unattractive. The streets are the playgrounds for nunerous dirty children and lean pigs. One village is noted for the number of goats which here take the place of the dainty cow. The towns of Glace Bay and Cow Bay are quite distinct from the miners villages, they have grown up from the shipping and from trade with the miners. I went to see the mine with the underground manager and at the pits mouth we got into the cage with about eight miners and were lowered at a moderate rate, the 230 feet.

The light of day lingered more feebly about the damp walls as we descended and at length we were left in total darkness. Arriving gently at the bottom, the manager guided me through the blackness to a bench near by, where I sat down and waited for 15 minutes to accustom my eyes to the feeble light. At first nothing was visible lamps and dusky faces moving here and there, bringing up tubs from different passages and taking the empties from the cage, the lights occasionally showing some part of the black wall or bringing into view the form of a horse or tub in some further passage.

Gradually I became less afraid of knocking my head against the air in front of me and the form of the room and direction of the passages grew clearer. The manager explained the working of the mine during the time he made me sit still. Then, each carrying a lamp, we started. First, taking the passage to the left and opening an air-tight door in the face of the coal wall we enter the stables: in which is a long row of stalls with a walk on either side. The posts to which the framework of the stalls is nailed support what would be otherwise a dangerously wide roof—and so it is all through the mine, rows of wooden posts support the rock wherever passages are more than a few feet wide. On one side are rooms for the storage of feed, etc. The air of the stables was surprisingly fresh and cool, and the horses seemed to fare very well though in that occupation they cannot hold their heads very high. They get fat and well conditioned while living in the dark, and often stay underground for years or in fact till worn out.

Leaving the stables we are again in the first passage, which is here rather low and forces us to stoop for some distance. It is what is called a level, from being cut horizontally through the coal, and since the seam slopes down towards the sea, the levels here all run parallel to the sea shore, while slopes, so-called, run from the bottom of the shaft up towards the crop of the coal, and deeps follow the vein downwards towards and under the sea. Horses are used to take coal out of the working rooms, along the levels of the main slopes and deeps along which the tubs are let down to the shaft by gravity or are hauled up by an underground engine and wire rope.

But to proceed with our journey. Turning from the level we walk along the slope, which is of comfortable height and studded with posts. Growing accustomed to the feeble light from our lamps we can now see about quite well, and for some little distance. On each side are passages in the wall which lead to old workings, but which are now shut up to keep the air supply in proper channels. Within an inch or two of our heads is the sandstone roof that caps the seam, but in one place the roof ascends, forming a regular dome 15 or 20 feet high, from which a mass of rock had once fallen, blocking the passage. Another such hole in the rock of this slope, though insignificant in size, was of sadder interest, for the mass fell on a young driver sitting on the front of the tub, and crushed him, though sparing the horse but a foot or two ahead. On this slope there is a line of rails laid, and loaded tubs descending draw up the empties by a rope running around a pulley. The track is a quarter of a mile in length, and the present workings half a mile further on.

Returning we pass the hoisting shaft again, and descend by the engine deep, by which cars are drawn up to the pit. Men, horses and fresh air descend by a passage parallel to this one and the air here is thick with coal dust and smoke from the lamps. We pass the wall of a dam that keeps water out of the lower works and from which it is pumped to the surface. Soon we hear the sound of a blast and shortly after, a thick volume of smoke reaches us through which we pass fearful of our heads and careful of the sleepers and rails below. It passes as suddenly as it came and we are near the workings and hear the sound of picking and voices of the men.

Through an opening in the passage wall we enter a room where two men are at work. They always work in pairs and with their light picks, squatting down in the queerest positions, undermine the coal for two or three feet. Then channelling it out at the sides, and drilling two holes near the roof for the blasts, they take out large masses at each operation. They are paid so much per ton, the union regulating the amount for a day's work; so that, going into the mine at 7 in the morning, they mine nearly two days' amount, and leave about 4 p. m. Next day they break up the large lumps, and load into the tubs finishing at the same early hour, and this allows them very good wages.

Back to the passage again, we leave it through an air door and by some roundabout way arrive at the dam, from which a large pipe extends to the pumping engine, which we reach through tumble-down passages and air doors. Here we are in used up air, being close to the pump shaft by which it rises to the surface, and in addition to dust and oily smoke, steam from the engine is discharged into it so that one can scarcely see even the wall on each side. With lowered head and careful steps I follow in faith the light ahead, dim through the mist, and coming to a small door step, out into the clear air near the bottom of the main shaft.

Then, thanking my conductor, I am raised to the surface and dazzled by the bright sunlight.

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