

APPENDIX.

FIELD EXCURSION,
June 21st, 1871.

ABOUT twenty members, with their friends, met at the Steamboat wharf and proceeded to Dartmouth in the 2 P.M. boat. They were then conveyed to the Montague Gold Mines, about seven miles distant from Dartmouth.

The day was beautiful and pleasant, and the Company enjoyed themselves exceedingly. The road going from Dartmouth, passing along the chain of lakes exhilarated the spirits and gladdened the hearts by the ever changing and quiet scenery. The road from the highway to the mines was found to be rather rough, but by no means unpleasant.

Arrived at Montague we had ample material for geological speculation. Dr. Honeyman defined the position, &c. of the strata, which at first seemed somewhat perplexing. Walter Lawson, Esq. C. E. the proprietor of one part of the mines and a successful worker of them, very kindly conducted the party through the mines. Mr. Brown kindly explained the processes of crushing, amalgamating, and retorting, which was quite a novelty to many of those present.

The company were afterwards entertained by Mr. Lawson with refreshments, and then returned to the city highly delighted and instructed by the excursion.

W. G.

NOTES ON THE MONTAGUE GOLD MINES.

HAVING been honored by the Institute with the post of guide in the Montague Gold Field, before having made an examination of the locality I proceeded to make some little preparation for the work assigned to me. I tried to ascertain the position of the Montague Mines by examining the only geological map of the Gold Mines in my possession, and there found that the mines in question were situated east of the Richmond station of the Nova Scotia Railway. I therefore came to the conclusion that it was probable that the gold-containing rocks were a continuation of the argillites and quartzites of the section at the station, *i. e.*, the north side of one of synclinals or south of one of the anticlinal folds of the lower silurian strata of the Halifax peninsula. I also asked W. A. Hendry, Esq., Deputy Commissioner of Crown Lands to locate the Montague district on one of the office maps. The position which he assigned to it tended to confirm the conclusion at which I had arrived.

I was therefore somewhat astonished, when we found ourselves advancing so much to the north of the narrows of Halifax harbor; still I expected that by changing the direction of our road we might come so far south as to arrive at the expected position. I was, however, disappointed and my foregone conclusion became valueless. We found ourselves transported to Montague, in a locality some miles to the north of its supposed position.

The metamorphic lower silurian strata of Montague are quartzites with interstratified argillites having auriferous quartz veins conformable with the bedding and also intersecting it. The lode or lead conformable with the stratification called the Belt lead, is the seat of the principal works. This is found to be the richest gold-producing vein in the locality. There are also works on a cross lead, from which a very beautiful and rich mass was exhibited at the time of our visit. The strata containing these have a southerly dip, being on the south side of a synclinal, which, if continued westerly would intersect the section of rocks at the railway on the west side of Bedford Basin, about two miles north of Halifax.

Mr. Lawson pointed out to me the position of an anticlinal axis to the south of the mines.

Our visit was too cursory to enable us to ascertain details of structure. I looked for fossils but found none. I observed in the argillites, concretions such as are frequently found in argillite strata, and which have often an organic nucleus. I expect to return to the locality, for the purpose of making a better investigation.

This Gold Field is at present one of the most productive of the Gold Fields in the Province. The persevering operations of Mr. Lawson have been rewarded with distinguished success. He explained to me his system of mining; there is no groping in the dark; the product of every shaft is kept distinct; the exact amount of gold produced by each is known so that the comparative productiveness of each is manifest; the whole working is carefully measured and planned. The works are superintended by Mr. Lawson himself.

There is much mispickled or arsenical pyrites associated with the gold in the quartz vein: the result of this is that a great part of the gold escapes in the process of crushing and amalgamating, by the sickening of the mercury. Among all the methods proposed for remedying this evil, there have been none found adequate to meet the case. The cost of all exceed the profit; the tailings when exposed to atmospheric action become partially oxidised and cemented together by the oxide of iron. It is to be hoped that some means will now be discovered by the energetic proprietor of the mine by which the evil may be remedied, and the precious metal recovered.

D. H.