PROCEEDINGS

OF THE

# Nova Scotian Institute of Natural Science.

## ART. I.—GEOLOGY OF AYLESFORD, KING'S COUNTY, N. S.—By the REV. D. HONEYMAN, D. C. L., F. R. S. C., F. S. Sc., London.

(Read November 8, 1886.)

I HAVE already read notes on the Geology of Wolfville and Kentville, in this same County, and also on Nictaux, in Annapolis County. In the last I encroached somewhat on Kings County. (*Vide* Papers in *Transactions* 1877-8.) These left the long distance of twenty-three miles unexamined. In August last I had an excellent opportunity of interrupting this distance by an examination of a considerable part of Aylesford. My headquarters were at Holmworth—the Rev. B. Musgrave's—through whose assistance I was enabled to make a very satisfactory examination of the district. It was observed that stones were of rather rare occurrence. Red sand is seen on all sides—the *debris* of the Triassic formation. The formation itself is rarely to be seen. On the banks of the rivers are *alluvium* and a *terrace*. Our attention is directed to one large stone. It is basaltic. Its original position was the basaltic rocks of North Mountain, about five or six miles north of its present position. Henceforth similar boulders appear often enough. With these are associated granite boulders, which have come from an opposite direction, from South Mountain, where the granites are to be seen also in position. We now cross the Annapolis River on our way to North Mountain. We proceed eastward until we

come to the Ormsby Road. Going along the road, before crossing the railroad, we have on each side sections of a great drift elevation—a "boar's back"—whose trend is in the direction of the valley N. E., S. W. This is chiefly sand; but numerous small-sized boulders are seen falling from the sides of the sections. Some of these are basaltic; others are amygdaloids. These also come from the North Mountain; others are granitic; still others are purplish quartzites. We will find the last come from the South Mountain, as well as the granite boulders. We cross the railroad to the east of the Aylesford Station and proceed towards the North Mountain. Boulders on the road and sides, large and small, are granites, basalts and amygdaloids, &c. Other peculiar ones appear and continue up the sides of the mountain. These are diorites and felsites, &c. In the meantime they are perplexing. They have the aspect of Cobequid Mountain Archaean Rocks. On the mountain side there is seemingly remnants of the Triassic sandstones. We proceed no farther in this direction.

Proceeding from our headquarters to the South Mountain, we cross the Annapolis River and reach the main road. In a small branch of the River, over which there is a bridge, we observe basaltic boulders. Farther on we observe a pile of stones at a barn. These consist largely of basalts. There are a few boulders of granite. Farther on, on the right (north) side of the road, we find embedded in the soil a sizeable boulder of basalt and another of granite. We come to the road that leads to the South Mountain. Going along this we come to the new bridge which has just been built across the Annapolis River, and cross it. On either side of this there is a new road. There is nothing observed but sand and bog. Beyond this we see and chip large boulders of basalt and amygdaloid. Many specimens of the latter, we bagged, on account of the beauty and variety of their zeolite amygdules. There are also abundance of immense granite boulders. We only look at and note these. Approaching South Mountain our attention is turned to boulders of purplish and red quartzites, with quartz veins and masses of gray slates. We ascend the mountain. A very large and

beautiful amygdaloid boulder is seen on the left. We examine and chip it. An outcrop of red arenaceous and argillaceous slate is observed crossing the road. We observe its strike. It is N. 80 E., S. 80 W. This is doubtless an extension of the silurian of the eastern and western parts of South Mountain, Wolfville, Kentville and Annapolis County, Nictaux and Moose River, outcrops of similar strata, but of gray colour, continue, as far as the Jackson Road. At the corner of the two roads, and on the latter, are beautiful exposures of glaciated surfaces. We take the courses of a number of these, and find that they are generally S. 30 E., corresponding with striation of Point Pleasant, Halifax. This is the *path* of North Mountain basaltic and amygdaloid boulders, which are still observable. We are now in quest of the Canaan Road. To reach it we proceed westward on the Jackson Road until we reach a cross-road leading south. We proceed along this, observing boulders of granite, basalt and amygdaloid, and reach the Canaan Road. This road was noticed in previous papers, *e. g.*, Nictaux. We are disappointed to find this road—surveyed, but only opened and used here and there. On our left (east) it is only a foot-path; to the right we walk along. There are houses and fields on the south and forest on the north. Among the boulders we observe and collect beautiful amygdaloids. Coming to the end of the forest on the right, in a clearing with stumps, we observe a towering outcrop of rocks. They are very ferruginous. Chipping them they are seen to be gneissoid, similar to the Halifax "ironstone," and probably of the same age—Cambrian. Returning to the road we observe low outcrops with S. 80 W., N. 80 E. strike. In a clearing on the south we proceed farther southwards. Observing white rock on the high ground we made for it direct. Here was a chief object of our search. Granites in *situ*; *roches moutonnées* running east and west—the sources of the granite boulders which we have met with so often. With Dana we regard these granites as of Archaean age and of Metamorphic origin. Others regard them as of Devonian age and Igneous origin. *(Vide* our papers *Trans.)* We return. On the north of the granites we have a depression with bog. We cross this by a bridge, reaching the

opposite side. We observe an outcrop of bedded rock similar to that noticed on the other side of Canaan Road, near the gneissoid strata. We miss the Diorite dykes, which are of frequent occurrence in Annapolis and Digby. We had been led to expect them by the occurrence of the diorite boulders already noticed on Ormsby Road. Our investigations, however, have been so far satisfactory. Returning to the Jackson Road we take a longer road than that by which we came, and return to Aylesford by Mill Village.

We propose crossing North Mountain to Morden, on the Bay of Fundy. The Auburn Station, according to the railway measurement, is two miles west of the Aylesford Station. The former is on the Morden Road. On this road, about two miles north of the station, we come to the foot of North Mountain. On our way we observe granitic, basaltic and amygdaloid boulders. Of course the occurrence of the two last is as expected. The continuance of the granite boulders is puzzling. On the top of the mountain are abundance of outcrops of rocks. Amygdaloids, amygdaloids, amygdaloids, with gray and red bases. About two miles from Morden we notice the absence of granitic boulders, and we come to a rock with little or no amygdaloid. It is a trap, without the characters of the two former. Reaching Morden, we proceed to the shore to look for a shore section of the rocks of the Mountain. Here we find the amygdaloid, with the other trap rocks seemingly overlying. Near the junction we find the overlying rock, permeated with veins of Zeolites. Out of these we collect many fine specimens. At the point the amygdaloids disappear, and we find ledges of the overlying trap. In these we observe abundance of agates. None of these tempt us. They are destitute of lines, fortification or other. We have not met with basalt *in situ*. Our granite boulders have not advanced thus far. The arrangement of formations from Morden to the south of Canaan Road, in the South Mountain, in descending order, is the Igneous rocks, Triassic, Silurian, Cambrian (?), Archaean, with superficial post-pliocene. Distance thirteen miles.

We go along the line of railway from Auburn towards

Aylesford Station. On the north of the line the usual basaltic, amygdaloid and granite boulders are of frequent occurrence—sometimes singly, at other times in heaps. Large boulders have been utilized in the construction of fences, for supports of poles. The basalts are of the usual kind, occasionally they are olivinetic. The red amygdaloids occasionally have large amygdules of mesolites, beautifully radiating. We collect from these boulders. Our work is interrupted. We resume. Commencing at the Osborne Road, we make another inroad on the South Mountain. Proceeding along the Mill Village Road, we have our boulders, granites, basalts and amygdaloids. At the foot of the Mountain, before reaching the Methodist Church, we find amygdaloid boulders of great size, with equally large basalts and granites. Silurian strata, shales, are also seen outcropping. Outcrops of slates succeed, and boulders. We are now in search of the Canaan Road. Boulders continue, but rocks are obscured. Granite boulders predominate, but basalts and amygdaloids are still plentiful. We reach high ground and commence descent into a valley. Here we notice particularly large amygdaloid and basaltic boulders. The former are deeply embedded in the road. Descending, we observe several sections of metamorphic slates. These and all the strata we have already noticed seem to be destitute of fossils. We reach the Canaan Road and the site of a saw mill. We are informed that the part of the road which connects this with that of our previous examination is only a foot-path through the forest. Going along the road in an easterly direction we observe diorite boulders similar to those observed on the Ormsby Road and the sides of North Mountain. We are interested and search for others. We find the same variety as on North Mountain, and best of all we find the diorite *in situ*. We walk to some distance along the road, observing occasional outcrops of shales and amygdaloid boulders. Finding that we are going in the direction of the strike we return. Before coming to the saw mill we reach a farm, where the Mountain on the south seems to be accessible. Expecting to meet with granites as in our course of a preceding day, we make for the highest ground. Only