CHAPTER V

EDUCATIONAL WORK IN NOVA SCOTIA

About the year 1849, an effort was made to infuse new life into Dalhousie College, an institution which had received a small provincial endowment, and possessed a building in the city of Halifax. Dr. McCulloch had been transferred some years before, from his position in Pictou, to be its principal; but on his death it threatened to lapse into a decaying state. In these circumstances it was suggested that, for one year, a series of extra-academical lectures on scientific and other subjects should be delivered, to which the public might be admitted — a sort of anticipation of the "university extension" movement of our time. An invitation was given to me to take one of these courses,— on natural history subjects. I had already delivered a short course in the Pictou Academy, besides lecturing before our local scientific society, so that the work was not altogether new, and the opportunity was one

that might be of service as a preparation for other scientific pursuits. I therefore accepted the offer, and repaired at the beginning of winter to Halifax, where my wife joined me a little later. I lectured to a large class, partly composed of citizens and partly of pupils of the higher schools, as well as of students of Dalhousie. Finding that some interest was aroused, I organised a practical class for special subjects, particularly mineralogy and the study of fossils, and made excursions with the members of this special class, to collect objects of interest. The course was thus, on the whole, useful from an educational point of view; and at its close, I was presented with an address by the members of the class, and my wife with a tea-service, in token of gratitude. At the same time, I obtained some confidence in my power to interest students. It was not intended that the engagement in Dalhousie should be for more than one session, but it led to other employments, as will appear in the sequel.

In Halifax, my wife and I were necessarily brought into association with many of the leading people of our provincial capital, and especially with those interested in science and

education. My old friends, Young and Howe, were then members of the Government, as well as of the Board of Dalhousie College. They were engaged with an education law, in which provision was made, for the first time, for a Superintendent of Education; for periodical visits on his part to the different counties; for the holding of educational meetings, especially for the purpose of preparing the public mind for the establishment of a Normal School, in which teachers might be trained; for assessment for the support of schools, and for other amendments in the school system. They spoke freely to me of their plans, and of the best means of introducing improvements in education throughout the country, without interfering with any good work already in operation; and I was, of course, glad to give any information in my power. There was, however, no anticipation on my part that I would have anything further to do with the administration of the law, as I had no thought of being a candidate for the new office which it was intended to create. I was therefore surprised, and I must say somewhat distressed, when, in the following spring, I received a letter from Mr. Howe offering me the office of Superintendent of Education. My first impulse

was to decline. I had not been a professional teacher, and, in my pursuit of science, had naturally allowed much of my elementary education to fall into desuetude, at least in so far as technical education was concerned. I was also busy in working up the local geology, and in preparing papers thereon, for the Geological Society of London; and I was beginning, by work at Arisaig and in the southern part of Pictou county, to extend my observations to the formations older than the carboniferous. The office also was likely to be very laborious, and might meet with many of the difficulties incident to the introduction of new and untried methods.

Howe, however, would take no refusal, and among other things suggested that, as the office was in the first instance to be one of visitation and inquiry, it would give unusual opportunities for becoming acquainted with all parts of the province, as well as with local collectors and students. It was proposed by the new law to introduce the teaching of agriculture into the higher schools, and it would therefore be proper for the superintendent to interest himself in all questions relating to soils and other matters of importance in scientific agricul-

ture. At length, though not without hesitation, I consented, stipulating, however, that I should have a few months to visit educational institutions, and to collect information, in the United States and Canada, so that I might be able to speak with more authority on questions of school improvement.

Thus I was launched for three years on an entirely new career, of a most active and exacting nature. In summer I travelled from county to county, convening meetings of the commissioners of schools and of persons interested in education; examining schools and collecting statistics concerning them; lecturing on education, and explaining the means of introducing agriculture into the schools; occasionally convening teachers' institutes in central places; introducing uniform text-books and new apparatus; devising plans for better schoolhouses; and with all this carrying on a geological reconnaissance and collecting specimens. In winter, in addition to much correspondence and issuing an educational journal, I worked up my statistics and reports, and spent much time in Halifax, explaining to members of the Legislature my new educational projects. I also, chiefly in

the evenings, wrote out my geological observations for the Geological Society, and made extensive notes in preparation for a separate work on the physical geography and geology of the province. In all this, my energies and strength were taxed to the utmost, and at the end of the second year, after some weeks of travelling in inclement weather and the fatigue of a large teachers' institute at Truro, I was barely able to reach home, in the first stages of a fever, which I had contracted somewhere on my route, and which confined me to my bed for many weeks. It brought me near to death, and but for the assiduous attention and skill of our physician, Dr. W. J. Anderson, and the careful nursing of my wife, might have finished my earthly career. As it was, it left me neither time nor strength, to get passed through the Legislature certain amendments and additions to the school law, which seemed essential to further progress. The results, however, up to this time were encouraging: intelligible statistics as to the schools had for the first time been collected; some unity had been introduced into the work of the local commissioners of schools; improvements had been made in books,

apparatus, buildings, and methods of teaching; and a large proportion of the people had become convinced of the necessity of systematic means for training teachers, and of more uniform and effectual provision for their support. Toward these last objects I found that the convening of numbers of teachers, and of the more advanced educationalists, in institutes, the establishment of local associations of teachers, and the delivery of public educational addresses, were most important means.

The two weakest points of our educational system were, the want of a Normal School for training teachers, and of a compulsory assessment for the support of schools. These two deficiencies were insisted on in public meetings, and in interviews with members of the Government and Legislature, as well as in my reports. Finally a Normal School was established. It soon proved to be of the greatest utility, and has become an essential factor in the educational system of Nova Scotia. It was not until some time after I had resigned my office, that assessment for the support of schools was introduced, greatly to the advantage of education. For this measure Nova Scotia has to thank Sir Charles Tupper, who was a

leader of the political party opposed to that which appointed me. He was, however, always friendly, and made no opposition to the new School Law and the changes under it; and when, in turn, he and his party came into power, he had the courage to perfect this measure, at no small risk to his own popularity.

In the execution of my work as Superintendent of Education, it had to be borne in mind that the commissioners of schools in the several counties were men of age, standing, and experience, who, to their own satisfaction, and without any remuneration, had managed the local educational affairs, and who might be jealous of a new educational authority tending to unsettle their old ways. Thus, I determined to commence my mission modestly, as became a comparatively young man, and to proceed on the principle that what was well might be left as it was. In convening educational meetings, therefore, ground was usually broken by requesting the commissioners of schools in each of the counties to make arrangements for such a meeting, at which it was my function to preside. Before the day fixed, I was in the locality, conferring with the commissioners, teachers, and leading men, and

securing the attendance of as many as possible. The meeting was opened with a brief explanation of its objects, and the intention of the law, and discussion was invited as to the special needs of the district. This, almost invariably, brought out statements respecting the defects of education in the locality, much stronger than any I could have ventured to make, and gave opportunity, in summing up the proceedings, to urge improvement, and to explain the facilities offered for it. At the close of one of the earlier meetings, in a county town where some opposition might have been expected, the local member of the legislature, a prominent man in the party opposed to the Government, came to me and said laughingly:—"I had expected to oppose all your new educational notions, but we had to admit so many defects, that it was useless to make the attempt." On the whole I found no factious opposition, and in every district some intelligent and progressive men of all parties and creeds, ready to sustain any reasonable proposals for educational improvement. The much vexed question of separate schools has, I am glad to say, never arisen in any grave form in Nova Scotia. The plan of having mixed boards of commissioners, and

for conciliatory arrangements in districts where there is a Protestant or Roman Catholic minority, have, except in some of the larger towns, allowed the school system to be a common one, without prejudice to the religious interests of any creed.

I had never intended to remain permanently as an educational officer, and the illness above referred to, with the requirements of my own affairs, obliged me to make preparations for resigning, in my third year of office, in favour of my friend the Rev. Dr. Forrester of Halifax, a man, in my judgment, much better fitted to carry out the details of educational reform, especially in connection with the new Normal School, of which he was to be the principal, and which was to be established in Truro, a place very central and convenient, and very likely, when railways were introduced, to become even more important and accessible. I remained in office for a time, as one of the commissioners for the foundation of the Normal School, and this was my last official association with the schools of Nova Scotia. My work in relation to them was that of the pioneer. Since that time these schools, and those of the other maritime provinces, have advanced greatly in all respects,

and have attained to a degree of perfection scarcely to have been anticipated in the early fifties. To some extent this has been on the lines which I sketched out; and when, in 1888, I attended a great interprovincial convention of teachers in St. John, New Brunswick, which included some of the men and women who were teachers when I was superintendent, I could honestly congratulate them on the high position that they had attained in their educational work.

In connection with the proposal to introduce education in agriculture, I prepared and published, "Contributions toward the Improvement of Agriculture," and at the request of Sir Gaspard Le Marchand, then Lieutenant-Governor of Nova Scotia, and an enthusiast in agricultural matters, in a second edition, I added a treatise on live stock. This little work, though intended only for local use, had an important influence in stimulating and guiding agricultural improvement throughout the maritime provinces, and even beyond their limits. The "Contributions," at a later date, formed the basis of a text-book prepared for the use of the McGill Normal School in Montreal. I also wrote and published a handbook of the "Geography and Natural

History of Nova Scotia," and compiled a school map. These supplied at the time well recognised needs, but are now superseded by later works. A continuous thread of geological observation and discovery extended through my educational work, and as a sequel to a number of papers in the *Journal of the Geological Society*, my "Acadian Geology" was issued in London and Edinburgh in 1855. All these literary ventures were made at my own cost, and had no direct public aid.

At the time of which I am now speaking there were, of course, no railways in the province, and the means of communication were in some districts of the most primitive kind. My educational and geological journeys were therefore not only attended with much labour, but occasionally with some risk. A few incidents connected with such journeys occur to me.

One afternoon, early in April, I drove over the north mountain of Cornwallis in a light snowstorm in company with the Rev. Mr. Summerville, to Black Rock, on the Bay Shore, to address an educational meeting called in that somewhat isolated locality. It was held in a large kitchen, the most commodious room in the place, the company being

seated in chairs and on forms, in front of a blazing wood fire. By chance I learned from some of those present that a large fall of the trap cliff had occurred a few miles along the coast, and at once decided to visit the spot, although I had an engagement to lecture next evening at Aylesford, twenty-five miles distant,—the roads not being of the best at that season of the year. So I arranged with some fishermen to have a boat ready at daybreak, reached the fallen cliff after some difficulty, caused by a heavy sea, examined the section exposed by the fall, and found among the débris an amazing quantity of fine zeolites, with which we loaded our boat, and returned to Black Rock in time to pack the specimens before breakfast. After visiting some schools by the way, I made good my engagement at Aylesford, and others farther west.

In continuation of the same expedition to the west, I left Digby for Briar Island, the extreme western point of Nova Scotia, and passed the night at Sandy Cove, on Digby Neck, one of the most picturesque spots on this coast. It is a nearly circular notch in the hills, which rise around it in the form of an amphitheatre, giving it the appearance of a volcanic crater, broken down at one side.

My lodging was at a new house, lathed but not yet plastered, so that when lighted at night it resembled a series of bird-cages. The owner was absent on a fishing expedition, and his son, a boy of scarcely ten years of age, had gone across the bay alone to join him. Crossing the ferry to Long Island, on which no conveyance was to be had, I walked throughout its length of ten miles, examining its rocks by the way, and in the evening was ferried over to the pretty village of Westport on Briar Island, a typical fishing village, presenting many points of interest. Briar Island is the outlying extremity of the long trappean ridge of the North Mountain, extending west from Cape Blomidon, and separated from Long Island by the Grand Passage which has been cut out by the sea along a line of fracture, or of softer rock. It has space for the town of Westport, and for a single farm, stocked with a few cattle and sheep, the latter living partly on seaweed, which they get on the beach at low water, and which is said to give a very good flavour to the mutton. With the exception of the produce of this farm, the whole subsistence of the people is derived from the rich fisheries on the banks and ledges, which extend along the Bay of

Fundy. These fishing advantages, the nearness to good markets, with the energy and industry of the people, make it a thriving place. I found, too, that besides having every external appearance of prosperity, it possessed two or more neat church buildings, and a good school; and its people boasted that there were no paupers on the island.

At this place, after finishing my educational work and examining some of the bold sea-cliffs, I was detained by a severe storm which prevented me from crossing the Bay to Clare, a settlement of Acadian French, where my next meeting was to be held. Instead, I had the advantage of witnessing the finest exhibition of great ocean waves breaking on a rocky coast that I have ever seen. After the storm came a calm, in which the sloop I had embarked on drifted idly with the tide. The result was, that, after landing some distance from the village, securing a conveyance and driving with all speed to the place of meeting, I found the assembly, after having waited nearly an hour, was beginning to disperse; but they willingly remained, and politely accepted my explanations. I visited here, with some interest, the old church erected by the Abbé Segogne, a Roman Catholic missionary

of the old Gallican type, who took an active part in circulating the Bible among his people. I had also, in a remote part of this district, the rare experience of finding a small school presided over by a female teacher, who knew no other language than French.

On the same educational tour, I had to extend my journey to the other side of the bay—to Advocate Bay, near Cape Chignecto, another outlying corner of our province. I left Parsborough with the postman, who proved by no means a cheerful companion. He loved to point out places on the road where serious or tragical accidents had occurred, and seemed to anticipate some disaster on our journey, perhaps in consequence of his little faith in the value of my educational mission. His fears were so far justified, in that, towards evening, a very violent storm set in, so that, as we were driving through the woods, trees were blown down over the road, threatening our lives, and we had great difficulty in passing some that had already fallen. One of the latter seemed at first to defy our attempts, but on examination, I found that it was so nearly separated from the stump that it could be disengaged by a few vigorous strokes with the sharp edge of

my geological hammer, and then rolled aside. My companion, who had begun to despair of our arriving at our destination, exclaimed: "That shows that there is some good in education after all." We arrived at length, wet and tired and somewhat late for my engagement; but the people were too seriously employed in saving their property from the ravages of the storm, which had been reinforced by an unusually high tide, to attend to educational matters. Our meeting had therefore to be postponed to the next day.

I usually travelled in a vehicle of my own, wherever this was possible, but had elsewhere to use such conveyances as the country afforded, whether by land or water. In one remote district, I once found a log schoolhouse by the side of a road, passing through unbroken woods, which had literally no particle of glass or iron in its structure, and where the teacher was glad to supplement his few books by making use of old newspapers for lessons in reading. I was told that the schoolhouse was built in the "bush" for the convenience of getting fuel, and to suit the wants of two little settlements separated by this tract of forest. I have also met with a school closed, because, as I was informed, the

people's provisions having been exhausted, and the potatoes not yet being ready, the children were obliged to spend their time in gathering berries for food. Such cases were of course uncommon, but, with the many neglected and decaying schools in districts which were able to do better, they showed the need of the kind of missionary work I was carrying on, in which I endeavoured to collect information and to give aid and encouragement in the remotest, as well as in the more accessible, districts. The former were also, as might be expected, often rich in specimens, and facts of scientific interest.

While I was still Superintendent of Education, in 1853, my friend Sir Charles Lyell revisited Nova Scotia, and I had the pleasure of meeting him and Lady Lyell, by appointment, on their arrival at Halifax, and of making with him a visit to the Joggins, in which we were so fortunate as to discover the remains of the first reptilian animal recognised in the coal formation in North America, as well as the first known Palæozoic land shell, and of beginning the explorations of the contents of the erect trees of that remarkable section, which have since produced so many interesting results. I also visited

with him the curious deposit of the mineral *albertite*, at Hillsborough, New Brunswick, which was then a subject of no little interest. We settled its true geological age, as Lower Carboniferous, but were not quite so successful in determining the precise relation of this bituminous mineral to the containing beds. This required further explorations, which we had not time to undertake. It was intended that we should prepare a joint paper on our observations on this journey, but Sir Charles, too much occupied with other pursuits, eventually left the whole matter in my hands. He was at that time on his way to the United States, and took with him the precious reptilian and molluscan remains, which he submitted for preliminary examination to Professor Jeffries Wyman, and to Dr. Gould, who confirmed our determination of their nature. The former were subsequently described by Owen on Lyell's return to England. They proved to be types of a new genus, *Dendrerpeton*.

In the same steamer with Sir Charles and Lady Lyell, were Sir Edmund and Lady Head, to whom I was introduced. I found Sir Edmund much interested in educational affairs in Nova Scotia and New Brunswick,

of which latter province he was then the governor. Lady Lyell went on with Sir Edmund and Lady Head to Fredericton, leaving Sir Charles and myself to make our way to the Joggins. Out of this meeting with Sir Edmund Head grew another educational engagement, for, in the following year, he invited me to join with the Rev. Dr. Ryerson and some other leading men, in reporting on the reorganisation of the University of New Brunswick, then established at Fredericton, but in so unsatisfactory a condition that its legislative support was in danger of being withdrawn. This business gave me further opportunities of studying university matters, and enabled me to form an intimate acquaintance with Ryerson, then the leading school authority in Canada. Sir Edmund attended the meetings of the Commission, and occasionally, took part in the discussions. He impressed me very much with his earnestness and zeal in educational matters, his extensive information and his advanced views on the subject. He was also well versed in natural science, especially in geology and mineralogy.

The Fredericton matter had interrupted the work of preparing my "Acadian Geology." On the completion of this, my expectation was, that

I might be enabled to pursue a more detailed examination of the geology of the line of country to be traversed by the projected Intercolonial Railway. Many delays and political changes intervened, however, and in the meantime, without my knowledge, events were shaping themselves which led to my removal from Nova Scotia, and which gave me work of a different character.

CHAPTER VI

EDINBURGH AND McGILL

In 1854, Edward Forbes, one of the finest minds engaged in the study of natural science in Great Britain, and destined apparently to take the lead of all others in solving the difficult questions which lie on the confines of biology and geology,—the Gordian knot, afterwards attempted to be cut rather than untied by Darwin and Huxley,—was removed by death from the professorship of Natural History in Edinburgh, to which he had been appointed only the year before. The question of a successor was one of much interest to scientific men generally, and as the chair embraced both geology and zoology, it naturally became a question which of these would be dominant in the choice, especially as there were very few men so well versed in both as Forbes had been. Lyell wrote to me at once on the subject, advising me, as an old Edinburgh student and a representative of the geological side, as well as a student of zoology, to become