

ART. I.—PAPER BY WM. GOSSIP, ESQ.

(Read Nov. 10, 1884.)

*This is a Paper alluded to in the latter part of Mr. Gossip's Report as one of the Delegates of the Nova Scotia Institute, at Ottawa, May, 1883, and not read at that Meeting of the Royal Society.*

It will be a consoling reflection to many whose years, like my own, have fallen into the sear and yellow leaf, that they have lived to witness in this young and growing Dominion the formation of a Royal Society of Canada, wherein, as in a mirror, all the grand discoveries of past ages and of the present time, and dependent thereon, the progress of nations in population, wealth and prosperity may concentrate, as examples and incentives towards a diligent and industrious emulation in a further patriotic course of public improvement.

Much, however, will depend upon the direction that is given to the impulse thus communicated. If it serve only to inflate the mind with exaggerated ideas of personal importance, the Royal Society may become a distinguished ornament of the Dominion, but much good may not be expected to flow from it in a national point of view. In fact it might as well be dead. But if the impulse spread itself, and be made to permeate the community with the usefulness which is undoubtedly a part of its nature, it cannot fail to awaken the dormant or latent talent of the country, and infuse amongst its enquiring minds the energy of robust life and active research. The benefits derived will then be great and manifold, commensurate with the utmost hope and expectation entertained by the friends and well-wishers of the Institution.

Nor is there any reason, in all that has yet been done on behalf of the Royal Society, to anticipate aught else than a happy result of its labours. Certainly it has rarely been on this side of

the Atlantic that a learned association has been introduced to a community under more exalted or more favourable auspices. It will go down to posterity as a worthy conception of the Representative of Her Most Gracious Majesty, her son-in-law, a noble Governor-General, anxious for the advancement and prosperity of a country whose interests were committed to his charge—a country than which none other on the face of the earth possesses in a greater degree the elements of national greatness. With his name also, as its founder, must ever be identified, that of his royal consort, the Princess Louise, whose august presence among us is an evidence alike of the confidence of the Imperial Government in the unswerving loyalty of the Dominion, and of the parental reliance of the Sovereign *on our zealous affection towards her person and government*. Various, therefore, as may be the nationalities of which our country is composed, more emphatically than ever may we now claim Great Britain as the *Mother Country*, and under the ægis of her unrivalled constitution combine to work out to their fullest fruition all those political, commercial and national advantages, which have so freely and lavishly been bestowed upon us.

With a centralized Institution like the Royal Society, so well calculated to promote the advancement of science, it would be a remissness of the duty we owe to ourselves, if the Nova Scotian Institute of Natural Science failed cheerfully to respond to your invitation to unite with you and to lend its aid to facilitate and promote your high objects. When, therefore, with a true liberality which did you honour, and was perhaps expected, you held out the right hand of fellowship, and so deigned to endorse our humble labours, we hailed it as a formal recognition of the brotherhood of science, not limited by colonial or national boundaries, but expansive as civilization, and wide as the world. We felt glad of your desire to affiliate, and I am here to-day to show to you that we rejoice in your brotherhood. It may not, therefore, be out of place, being one of its oldest members, and with your permission, if I devote a few short sentences to inform you of our origin and history.

The Nova Scotian Institute is placed by you among the chief

scientific associations of British America, although but little more than twenty years in existence. Short, however, as its time has been, it may be said so far to have done good service.

The Institute originated with a few gentlemen who believed that in a Province which contained vast mineral resources, and further was an untrodden field in other branches of natural science, there would be found men of culture and experience who would gladly lend their aid to develop them into successful activity. After several meetings in the office of Mr. Robert Haliburton (well known in this city, *i. e.*, Ottawa) the Institute was organized and the officers appointed. This was in January, 1863. Our first President was Mr. J. Matthew Jones, F. L. S., an English gentleman who had acquired some distinction as a naturalist. I became its first Secretary. The Provincial Government gave us the use in the Province Building of the only spare room at their disposal. The first or second meeting (I forget which) was attended by His Excellency the Earl of Mulgrave, Lt.-Governor of the Province, and since Governor of Queensland, and more recently has succeeded to the hereditary title of Lord Normandy. He made an excellent speech, commendatory and congratulatory of the enterprise, which I regret to state has not been recorded in our Transactions. The inaugural address was delivered by P. C. Hill, Esq., more recently the Premier of the Nova Scotian Assembly. In the first volume of our transactions, embracing a period of four years, will be found papers on the Provincial zoology, geology, mineralogy, ichthyology, gold fields, ethnology, conchology, lepidoptera, meteorology, and other branches of science, to which I need not more particularly allude. Coming from a country so little known as Nova Scotia then was, this volume seems to have commanded considerable attention, and applications from scientific societies abroad were frequent for exchanges with their own publications, and soliciting correspondence. These were responded to so far as we were able until now most of the earlier volumes of our Transactions have been expended. We thus early realized the anticipations in the inaugural address of Mr. Hill, who, after some preliminary remarks on the value of well organized over individual efforts,

modestly observed:—"Should our hopes not be disappointed, we look forward to the time when our 'Transactions' shall be exchanged with older and more important institutions, and any new or well authenticated fact having passed the ordeal of our own local organization, shall be submitted to the great centre of science, and become the property of the whole world."

But it was not so much the early accomplishment of the result thus anticipated, as a conviction of the Institute, that it was within the scope of the talent and ability of its members to command attention both at home and abroad, and to enter upon a high career of usefulness whenever they choose to bestir themselves. They lost no time in doing so. The inaugural being disposed of, the first scientific paper, appropriately devoted to practical zoology, was read by Dr. Bernard Gilpin, a naturalist, well known in British America and the United States as the Nova Scotia Zoologist. He furnishes an exhaustive description of the herring of our coasts, *clupea elongata*, and its peculiarities and species, which leaves nothing to be desired. In further numbers he enlarges upon the Zoology of Nova Scotia, and to all who are curious or desirous to be instructed in such matters, he has so identified himself with the natural history of every fish, bird, reptile and mammal of the country, and so accurately described and illustrated them, that future writers or readers will require no other guide on these branches of the subject. This first paper was read Feb. 2, 1863.

Other papers followed in rapid succession, to wit:—By Capt. (now General) Hardy, "On Nocturnal Life of Animals in the Forest;" further on, "On the Caplin, *Mallotus Villosus*," of which he gives a most interesting and animated description. By this paper the fact not hitherto settled was established, that the southern limit of this ancient fish, an inhabitant of the deep in the days of the tertiary period, and found fossil near Montreal, is the coast of Nova Scotia, which it frequently visits. By Thos. Belt, who was afterwards distinguished as "the naturalist of Nicaragua," "On Some recent Movements of the Earth's Surface." By Henry Poole, Superintendent of the Albion Mines

Pictou, a position now filled by his son, "On the characteristic Fossils of different Coal Seams in Nova Scotia." By J. Matthew Jones, F. L. S., "Ichthyological Contributions." By Abraham Gesner, M. D., a well known geologist, "On the Gold Fields of Nova Scotia." He was followed by Robert Haliburton, a gentleman almost as well known to science in Canada as in Nova Scotia, with an able scientific paper on ethnology, or perhaps, as more appropriately styled by himself—"ethology," in which he appears to have re-discovered a long hidden and crude system of astronomy, which was known before a knowledge of the solar system, or had derived its origin independent of it, and when the human mind could yet scarcely comprehend the principles by which it was governed. However that may be, Mr. Haliburton pointed out that the influence of the pleiades was coeval in the minds of many branches of the human family, and that religious observances among the most ancient of the tribes of mankind, depended upon their rising and culmination. Of these religious observances, relics still remain which seem to be inefaceable, for instance—the Festival of the Dead, All Souls, All Saints, Halloween, the Mormodellick of the Australian savages, and other far fetched heathen festivals, all occurring at or near the same time of the year. This paper of Mr. Haliburton's, which I commend to the careful perusal of every member of the Society interested in the subject, commanded much attention from learned men, and was I believe mainly instrumental in making our Institute better known abroad. I am not sure that it may not form one of the best arguments of a certain school of ethnologists, on behalf of the plurality of the human creation, on which a great deal has been already said, and a great deal more remains to be said and written. Or that it may not point to the original site of the human family so imperfectly described in the Hebrew Scriptures, which had been utterly destroyed by a flood, but which may have had colonies far from the scene of destruction of which there are only a few remnants at the present day to attest to a very early intellectual progress and civilization.

There is no necessity, however, that we should indulge in such

speculations, and it may create some astonishment that a young Institution should challenge public attention by so bold a flight and in a spirit of deprecation I may say that it has not been frequently repeated, and that only in a few instances have we gone beyond our own Province for material to form the subjects of our Papers.

As a member of the Ethnographic Section of the Nova Scotia Institute, however unworthy, I could not refrain from a particular notice of Mr. Haliburton's excellent Paper, of which we have so good reason to be proud. The Ethnology of our own Province is, however, a very attractive subject, and is of considerable importance in connection with the history of mankind. I will shortly refer to it in connection with the aborigines of Nova Scotia. It may not be quite satisfactory to some who incline to the belief that varieties of mankind were created on this continent, that it can be shewn that the Micmacs are not autochthones although I believe they are lineal descendants of the earliest forms of mankind, and amongst the first emigrants from the site of their creation, as they are probably the latest, though almost completely separated, Algonkin emigration from the oldest settlements of their tribe, with whom they afterwards maintained a desultory acquaintance. With the restless spirit of their earliest wanderings they were in search of a better country, or they may have been driven off by war or intestine commotions. They undoubtedly came to Nova Scotia by way of the river and Gulf of St. Lawrence, and reached first Prince Edward Island, and settled themselves. They then spread to Cape Breton, where they still continue a wandering race, and must have crossed early to Newfoundland, where they came into contact with the Boethicks, with whom they were continually at war. They thus at length found the better country they were in quest of, and the peaceable land they sought, to which they gave the name of Acadia, which means in their language, "the land of abundance." They may have inhabited and prospered in it and multiplied, at least one thousand years before the arrival of the Europeans in America.

I have never been able to discover whence the tribal name of

Micmacs was derived, and have reason to believe it is not a proper designation. If there are Irishmen and Scotchmen in this assemblage, they may by putting their heads together be able to guess at a solution of the problem. I once asked an intelligent Squaw the question. She did not know. "They were becoming so mixed that no one knew." A more ancient and euphonious name for them is that of Souroquois, which has a French sound, and certainly divides the honours with that of *Micmac*. I believe that neither is correct. Neither can it be "Mignog, which some suppose it to be." I have never been able to discover it from the Indians themselves, who inherit little or no traditions except some legendary ones. In conversation once with an intelligent Micmac I asked him how they came to be called by that name. The question seemed rather to puzzle him for a moment, and he replied by asking another, "How you come to be called *Blue Nose*? Micmacs, I suppose, come in same way." Then, said I, you are not Micmacs? "Not very much." said he. The Rev. Mr. Rand, of Nova Scotia, a Baptist Minister, than whom no one alive is better acquainted with our Indians, who has lived amongst them, preached to them, and done all he could to improve their morality, and make them adopt more civilized habits, replied as follows to a question I submitted to him on the subject.\*

Perhaps one cause of his failure to influence them may be that they are staunch Romanists and will not be otherwise persuaded.

There is no direct evidence from which to prove the extreme antiquity of the Algonkin race; but the man himself and his works are before us from which to deduce the fact. His natural colour is that of *the* Adam, and remains unchanged, except through intermixture with other races. He lived in a rude camp or wigwam made expressly for removal from place to place, and never intended for permanent settlement. He is a hunter and fisher, and a wanderer from the beginning, and may have com-

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NOTE.—I regret that the letter of Rev. Mr. Rand, replying to my question, has gone astray since the copy of this paper was prepared and furnished for the press. So far as I can recollect, it implied that the tribe were very *strong men*—*head crushers*—*could beat all creation*. and gave the true tribal name as *Buc-towege*—which has much the same signification, and may be translated as "strong drink," the strength of which, unfortunately, the Micmacs are too fond of proving.—W. G.

menced his journey northward for aught we shall ever know, in the second generation of the human family. He made his utensils and his weapons out of wood and stone after the most simple process when he had attained to it. The hammer, the knife and the tomahawk must have been to him masterpieces of adaptation and human ingenuity. The spear, the sling, and bow and arrow followed, and were his weapons of offence and defence, upon which he mainly relied to procure sustenance. In these he gained some mechanical proficiency, but never was much of an inventive animal. The stars guided him to his destination and the chase supplied his wants. He learned to fashion a canoe, rude enough it must have been in those early days, by which, however, he crossed lakes and rivers, and frail as it was, and is, became an adept in its management, and at last adventured on a sea voyage, but he never understood the principle of the keel or the rudder. With the canoe however, he was equal to any fate that might befall him, and it were doubtful if he could have reached this continent without it. I believe that he was the first human being that arrived on the northern part of this western land, and having no enemies to contend with, and plentiful sustenance, he increased and multiplied, and became at length what the Algonkins are at the present day, the most numerous of its aboriginal families. He, that is his ancestry, left the site of man's creation evidently before cattle were used by man, or beasts were subdued to his training.

One of the best evidences of the vast antiquity of the Algonkin race is the comparative purity of their religious belief, which must have been also that of *the* Adam, of Enoch, of Noah. They worshipped the Great Spirit, the Author and Controller of all things, and added to their creed the doctrine of the immortality of man's nature. True, in the course of the many thousand years of his development, his simple nature has been imposed upon by crafty and designing contrivances of his fellows, who have perverted his imagination by attributing to themselves supernatural powers, and complicated his belief, by grotesque and hideous ceremonies; but he has never lost sight of the pure theism, which had impressed the minds of his remotest ancestry, and his depen-



dence upon one God, the Supreme Being, the great Father, is still paramount, the foundation of his reliance in life, his chief consolation in death.

Such is our Algonkin, and with this very imperfect sketch I leave him with the ethnologists of the Royal Society as an interesting study, which, if carefully followed out, may throw some light on the conformation of the western continent; and the history of the aborigines which inhabit its northern portion

Nova Scotia cannot produce exclusively, original types in any department of Natural Science. It is only within a comparatively recent period that gold has been added to its mineral resources, but this is found in similiar strata and under the same conditions as in other lands. Fortunately for us, its workings are of vast area and fairly remunerative. The coal and gypsum of the country, which are so well known and appreciated, are of carboniferous age and practically inexhaustible. Indications of other metals are frequent, but they do not appear in such quantities, as yet, that we would like to pin our faith on their extent and value. The iron ore of Nova Scotia, which is no recent discovery, but not unlimited, is of great extent and of the most valuable description. After all it is upon our iron and coal that the chief reliance can be placed for our mineral contributions to commerce. Much depends upon a careful geological and mineralogical examination of the country, and the one ought to accompany or immediately follow the other, and cannot be too exact. It might have been expected that long ere this the question would have been settled. I would recommend the writings of your President, Dr. Dawson, and those of our Provincial Geologist, Rev. Dr. Honeyman, as the best authorities upon the subject.

Nova Scotia is a country of no vast extent, but sufficiently large to afford the best examples of the geology and mineralogy, the zoology and botany of the Dominion, and is replete with the rare but as yet inert resources that contribute to the study of natural science and art. It is fairly entitled both to the consideration of the government and people of the Dominion, with a view to encourage and call them into useful activity. We ought therefore, to expect great things from an alliance with a Royal

Society which is so patronized and upheld, that it may almost be deemed a Government Institution. at the same time while it is so distinct. as to prove that its chief support must depend upon an appreciation of its merits by the people. Hitherto whatever has been done in this respect has been with little or no extraneous aid and assistance. Take our Institute as an example. After very creditable progress, and increasing popularity for several years, the pressure upon its funds for necessary maintenance had become so severe, that an application had to be made to the local legislature, which granted a small annual sum, then, and still, very acceptable, which enables us to look the Province in the face with a creditable annual Book of Transactions, and in this way to repay the obligation by making the country better known both at home and abroad. But we are still indebted to the generosity of individuals for a place wherein to hold our meetings. and a place to keep our library, which is becoming valuable in many original publications. We are not able to build a hall of science as was sanguinely contemplated, nor are we able to procure out of the funds at our disposal, such publications connected with our object, as we would like to call our own. I do not affirm that the interest has abated which was inspired at the birth of our Institute, certainly it has not beyond the confines of Nova Scotia, but with the strain upon the knowledge and the active intellect of our members, it is rather wonderful that their energies have proved equal to the demand upon them, or that its meetings are regularly held. It may be within the bounds of probability that the Royal Society, as a head or central Institution, with a position so well secured and acknowledged, may be able to supply by its influence just the momentum that is so much required to remedy some of those defects. Most likely our case is that of all Provincial or Canadian societies affiliated with it. They will without doubt desire to preserve their independence in their separate Provinces, and all alike deserve consideration. It may not be right therefore that the aid of the Government should be bestowed on one Institution exclusively, but a discriminating assistance to all might be afforded through one well recognized channel, to be

claimed as required, by proper application and well proved necessity. I throw out the suggestion for what it is worth. Something of the kind is required to secure the proper control and efficient working of the Royal Society, and I hope for it a fair degree of attention.

I might enlarge upon other matters favorable to ourselves and to similar efforts elsewhere, but neither time nor opportunity serve at present for more extended observations. I will remark, however, in conclusion, that the Dominion, with regard to every element of national progress, occupies a proud and enviable position amongst the nations of the earth. We reckon up our ancestry from the Norman conquest, without much thought of the wonderful Providence which has consolidated the nation, and guided it through the chaotic and brutal ignorance of that early period, to the contrast of its present proud rank and development, at the acme of civilization and refinement and progress in art and science of the nineteenth century. How unmeasurably superior is our position. To us the offspring of all the nationalities of our remote ancestry, whose blood is commingled with that of the Saxon, the Norman, and the Gael, the habitants of an hemisphere of which no knowledge then existed, is the fusion bequeathed which has made us all Englishmen and Britons, and developed the greatest nation the world ever saw. We are the heirs of all their progress, to mould the future of this vast Dominion,—not to rest here,—but to carry it onward to a far greater expansion. “*No pent up Utica contracts our powers.*” The vast extent of our country and its surprising fertility. Its settled constitutional government and perfect freedom. Its healthiness of climate everywhere. Its frontage on two oceans so favorable to commerce. Its mineral and finny wealth,—are all bases of advantage which point to a glorious destiny. It needs no spirit of prophesy to foretell the result if true to ourselves. We have already an earnest of progress towards that end, in the spread of our manufactures fostered by an enlightened government—in the liberal institutions which are conferring their blessings on the land and helping the consummation—in our Royal Society and cognate institutions, under the highest

auspices and brightest prospects. As we cherish these and apply to them our powers of body and mind, so shall we aid the accomplishment of our destiny and become at length what God and nature have manifestly designed us to be—the chief nation of the western hemisphere, perhaps the leading nation of the world.

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ART. II.—GEOLOGICAL NOTES OF EXCURSIONS WITH MEMBERS OF THE BRITISH ASSOCIATION, AND OTHERS. BY REV. D. HONEYMAN, D.C.L., F.R. S.C., F.S.A., &c. *Curator of the Provincial Museum.*

(Read December 8, 1884.)

WHEN accompanying our visitors of the British Association, I made several observations which seem worthy of record.

JOGGINS SECTION.

We first examined the South Joggins Section—the middle carboniferous division. This section is always interesting, as every season makes a renovation. We were, however, too late. Any fossil trees which had been exposed in the early part of the season, had been removed by Mr. Barnhill and others. A part that is always striking had thus disappeared. Interesting specimens of *stigmariæ*, with rootlets, *lepidodendra*, *sigillaria* and *calamites*, were observed among the *débris* of the cliffs and in the ledges. Seams of coal and shales with *anthracosia* and *entomostraca* were also examined and specimens collected. Want of time prevented us from visiting and examining the grindstone grits of Lower Cove.

Interesting sections of trees, *sigillaria* and *lepidodendra*, were also examined at the Superintendent's residence, with small collections of fossils, containing large scales of *rhizodus* and other ganoids, with ferns and other flora. These had been secured by Prof. Richards, of the Massachusetts Institute of Technology.

SPRING HILL AND PARRSBORO' RAILWAY.

Beginning at the Springhill Mines Station, we were in the