PROCEEDINGS

AT THE

ANNUAL MEETING

OF THE

NATURAL HISTORY SOCIETY

OF

MONTREAL,

FOR THE YEAR ENDING MAY, 1864:

WITH

A List of the Officers, Life, Ordinary, Honorary, and Corresponding Members of the Society.

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PRINTED BY JOHN LOVELL, ST. NICHOLAS STREET.
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PROCEEDINGS.

The annual meeting of this Society was held in their rooms on the evening of May 18th, the President, Principal Dawson, in the chair. A large number of the members were present. Mr. J. F. Whiteaves, the Recording Secretary, read the minutes of the last annual meeting; after which the usual annual address of the President was read, as follows:—

THE PRESIDENT'S ADDRESS.

GENTLEMEN,—I labor on this occasion under the disadvantage of having had twice in succession to prepare the annual address of the President; a circumstance which should not ordinarily occur in a society of this character, in which, following the usage of our older sisters, we should endeavor to have a new mind brought to bear on this work in each successive year. I shall however take advantage of this circumstance to deviate somewhat from the course usual with us on such occasions, and, after merely glancing at the scientific work of the Society, to direct your attention to some speculations of my own on subjects now attracting the attention of naturalists.

The scientific papers laid before this Society in its session just concluded, if not quite so numerous as in some previous sessions, are not inferior in point of interest and importance. In geology, Sir William Logan has continued in our journal the discussion of the age and distribution of the Quebec Group of Rocks. Dr. Hunt has given further and important facts in chemical geology. Professor Bell has illustrated certain portions of the superficial deposits, and has described one of our most important quarries of roofing-slate. Mr. McFarlane has contributed an elaborate discussion of the interior condition of our planet and of the mode of formation of Metamorphic and Igneous Rocks. Professor Bailey has elucidated an obscure portion of the Geology of New Brunswick, indirectly of much interest to Canadian geologists. Mr. Billings has contributed a paper on a disputed genus of Bra-

chiopods. Professor How has given us Analyses of Mineral Waters in Nova Scotia. Mr. Jones has sent us an interesting paper on the geological importance of Ocean Currents. I have myself occupied some space in our proceedings with my researches on Reptiles and Plants of the Coal-Period; and in connection with these, I would desire to say here that I regard the conclusions of Dr. Hunt in his short but valuable paper on the Climate of the Palæozoic period as of great importance. Whatever views we may adopt as to the original heated condition of the earth, if we take into account the enormous length of time required by the calculations of physicists * for the reduction of the earth's temperature even one degree, it seems chimerical to suppose that any appreciable effect on climate could have been produced by internal heat in the coal-period. Yet the character and distribution of the flora of that period would appear to imply a comparatively high and equable temperature in the northern temperate and subarctic zones. Now if the experiments of Tyndall, cited by Dr. Hunt, can be taken to establish that a small percentage of carbonic acid and an additional amount of aqueous vapour diffused through the atmosphere would largely economise the solar heat by preventing radiation, and thus give conditions similar to those of a glass-roofed conservatory, we have in this consideration, in connection with the known distribution of land and water in the carboniferous era, a sufficient cause for any difference of climatal conditions required by the flora. To appreciate more fully the value of this suggestion, it would be necessary to make experiments as to the amount of carbonic acid which might be beneficially present in the air, in the case of plants like those of the coal-period, for instance Ferns, *Lycopodiaceæ* and *Cycadaceæ*, and also to calculate the effect of such proportion of carbonic acid in impeding radiation.

Before leaving the work of the Society in the past year, I must not omit to mention that we have not neglected zoölogy and botany; and among contributions of this kind I could have wished to notice at some length those of Mr. Packard on the Marine Invertebrates of Labrador, and of Professor Lawson on Canadian Botany.

* For example, those of Poisson and Hopkins, which would give 100,000,000,000 of years for a diminution of one to three degrees of temperature.

By far the most important publication of the past year, in the Natural History of Canada, has been the great Report of the Geological Survey, a work in which, as the achievement of members of this Society, we may very well take pride; and on which we may congratulate ourselves as facilitating the labors of those among us who pay attention to geology, either with a view to practical or scientific results, and as greatly raising the scientific reputation of this country.

The Report of the Survey has already been reviewed in the *Naturalist*, and I propose here not so much to say anything as to its general merits, as to refer to a few points in Canadian geology to which it directs our attention.

One of these is the discovery of fossils in the old Laurentian rocks, heretofore usually named *Azoic*, as being destitute of life, and much older than any rocks known to contain fossils. The oldest remains of living beings, until this discovery, had been found in rocks known as Cambrian, or Primordial, and equivalent in age to our oldest Silurian of Canada, or at the most to our Huronian. But the Huronian series in Canada rests on the upturned edges of the Laurentian, which had been hardened and altered before the Huronian series was deposited. Again, Sir William Logan has shown that the Laurentian system itself contains two distinct series of beds, the upper of which rests unconformably on the lower. There are thus in Canada at least two great series of rocks, of such thickness as to indicate two distinct periods each of vast length, below the lowest fossiliferous rocks of other countries. Yet in the lowest of these so-called Azoic groups fossils have now been found; Canada thus distancing all other parts of the world, so far as yet known, in the antiquity of its oldest fossils.

I have had the happiness to submit these remarkable specimens to microscopic examination, at the request of Sir W. E. Logan, and have arrived at the conclusion that they are of animal nature, and belong to the very humblest type of animal existence known, that of the *Rhizopods*, though they far outstrip in magnitude any known modern representatives of that group. The discovery of this remarkable fossil, to be known as the *Eozoön Canadense*, will be one of the brightest gems in the scientific crown of the Geological Survey of Canada.

In connection with this subject, it is to be observed that the

grand order of succession in the Laurentian system seems to be the same with that so often repeated in other parts of the geological scale,—coarse fragmentary beds represented by conglomerate and gneiss; calcareous and fossiliferous bands represented by the Eozoön limestones; and finer earthy deposits, represented by felspathic rocks. This brings the Laurentian into a cycle somewhat similar to that of the Potsdam sandstone, the Chazy and Trenton limestone, and the Utica slate and Hudson River in the Lower Silurian; or to that of the Medina sandstone, the Niagara limestone, and Lower Helderberg in the Upper Silurian; or to that of the Oriskany sandstone, Corniferous limestone, and Hamilton and Chemung groups in the Devonian; or to that of the Lower Carboniferous conglomerates and sandstones, the Carboniferous limestones, and the Coal-measures in the Carboniferous period. This recurrence of cycles of deposit cannot be accidental. It is more or less to be seen throughout the geological scale, and in all countries; and as I have elsewhere pointed out, it includes numerous subordinate cycles within the same formation, as in the coal-measures. Eaton, Hunt, and Dana have referred to it; but it deserves a more careful study as a means of settling the sequence of oscillations of land and water in connection with the succession of life. It will also be important in giving fixity to our geological classifications, and may eventually aid in establishing more precise views of the dynamics of geology and of the lapse of geological time. The progress of the earth has, like most other kinds of progress, been not by a continuous evolution, but by a series of cycles, of great summers and winters, or days and nights, of physical and vital changes, in each of which all things seem to revolve back to the place of beginning; only to begin a new cycle or new turn of a spiral, similar to the last in its general course, though altogether different in its details, accompaniments, and results.

There is another subject of great geological importance on which the publication of the Report enables strong ground to be taken. I refer to the conditions under which the *Boulder-Drift* of Canada was deposited. It has been customary to refer this to the action of ice-laden seas and currents, on a continent first subsiding and then re-elevated. But this opinion has recently been giving way before a re-assertion of the doctrine that land-glaciers have been the principal agents in the distribution of the boulder-drift, and in the erosions with which it was accompanied. I confess that I have stead-

ily rejected this last doctrine; being convinced that insuperable physical and meteorological objections might be urged against it, and that it was not in accordance with the facts which I had myself observed in Nova Scotia and in Canada. The additional facts contained in the present Report enable me to assert with confidence, though with all humility, that glaciers could scarcely have been the agents in the striation of Canadan rocks, the transport of Canadian boulders, or the excavation of Canadian lake-basins. In making this statement I know that I differ in some degree from many of my geological friends, but I know that they will be rejoiced that I should freely and frankly state the reasons of my belief.

The facts to be accounted for are the striation and polishing of rock-surfaces, the deposit of a sheet of unstratified clay and stones, the transport of boulders from distant sites lying to the northward, and the deposit on the boulder-clay of beds of stratified clay and sand, containing marine shells. The rival theories in discussion are—*first*, that which supposes a gradual subsidence and re-elevation, with the action of the sea and its currents, bearing ice at certain seasons of the year; and, *secondly*, that which supposes the American land to have been covered with a sheet of glacier several thousands of feet thick.

The last of these theories, without attempting to undervalue its application to such regions as those of the Alps or of Spitzbergen or Greenland, has appeared to me inapplicable to the drift-deposits of eastern America, for the following among other reasons:

1. It requires a series of suppositions unlikely in themselves and not warranted by facts. The most important of these is the coincidence of a wide-spread continent and a universal covering of ice in a temperate latitude. In the existing state of the world, it is well known that the ordinary conditions required by glaciers in temperate latitudes are elevated chains and peaks extending above the snow-line; and that cases in which, in such latitudes, glaciers extend nearly to the sea-level, occur only where the mean temperature is reduced by cold ocean-currents approaching to high land, as for instance in Terra del Fuego and the southern extremity of South America. But the temperate regions of North America could not be covered with a permanent mantle of ice under the existing conditions of solar radiation; for even if the whole were elevated into a table-land, its breadth would secure a suffi-

cient summer heat to melt away the ice, except from high mountain-peaks. Either then there must have been immense mountain-chains which have disappeared, or there must have been some unexampled astronomical cause of refrigeration, as, for example, the earth passing into a colder portion of space, or the amount of solar heat being diminished. But the former supposition has no warrant from geology, and astronomy affords no evidence for the latter views, which besides would imply a diminution of evaporation militating as much against the glacier-theory as would an excess of heat. An attempt has recently been made by Professor Frankland to account for such a state of things by the supposition of a higher temperature of the sea, along with a colder temperature of the land: but this inversion of the usual state of things is unwarranted by the doctrine of the secular cooling of the earth; it is contradicted by the fossils of the period, which show that the seas were colder than at present; and if it existed, it could not produce the effects required, unless a preternatural arrest were at the same time laid on the winds, which spread the temperature of the sea over the land. The alleged facts observed in Norway, and stated to support this view, are evidently nothing but the results ordinarily observed in ranges of hills, one side of which fronts cold sea-water, and the other land warmed in summer by the sun.

2. It seems physically impossible that a sheet of ice, such as that supposed, could move over an uneven surface, striating it in directions uniform over vast areas, and often different from the present inclinations of the surface. Glacier-ice may move on very slight slopes, but it must follow these; and the only result of the immense accumulation of ice supposed, would be to prevent motion altogether by the want of slope or the counteraction of opposing slopes, or to induce a slight and irregular motion toward the margins or outward from the more prominent protuberances.

It is to be observed, also, that, as Hopkins has shown, it is only the *sliding* motion of glaciers that can polish or erode surfaces, and that any internal changes resulting from the mere weight of a thick mass of ice resting on a level surface, could have little or no influence in this way.

3. The transport of boulders to great distances, and the lodgment of them on hill-tops, could not have been occasioned by glaciers. These carry downward the blocks that fall on them from wasting cliffs. But the universal glacier supposed could have no such

cliffs from which to collect; and it must have carried boulders for hundreds of miles, and left them on points as high as those they were taken from. On the Montreal Mountain, at a height of 600 feet above the sea, are huge boulders of feldspar from the Laurentide hills, which must have been carried 50 to 100 miles from points of scarcely greater elevation, and over a valley in which the striæ are in a direction nearly at right angles with that of the probable driftage of the boulders. Quite as striking examples occur in many parts of this country. It is also to be observed that boulders, often of large size, occur scattered through the marine stratified clays and sands containing sea-shells; and whatever views may be entertained as to other boulders, it cannot be denied that these have been borne by floating ice. Nor is it true, as has been often affirmed, that the boulder-clay is destitute of marine fossils. At Murray Bay and St. Nicholas, on the St. Lawrence, and also at Cape Elizabeth, near Portland, there are tough stony clays of the nature of true "till," and in the lower part of the drift, which contain numerous marine shells of the usual Post-pliocene species.

4. The Post-pliocene deposits of Canada, in their fossil remains and general character, indicate a gradual elevation from a state of depression, which on the evidence of fossils must have extended to at least 500 feet, and on that of far-travelled boulders to nearly ten times that amount. while there is nothing but the boulder-clay to represent the previous subsidence, and nothing whatever to represent the supposed previous ice-clad state of the land, except the scratches on the rock surfaces, which must have been caused by the same agency which deposited the boulder-clay.

5. The peat deposits with fir-roots, found below the boulder-clay in Cape Breton, the remains of plants and land-snails in the marine clays of the Ottawa, and the shells of the St. Lawrence clays and sands, show that the sea at the period in question had much the temperature of the present arctic currents of our coasts, and that the land was not covered with ice, but supported a vegetation similar to that of Labrador and the north shore of the St. Lawrence at present. This evidence refers not to the later period of the Mammoth and Mastodon, when the re-elevation was perhaps nearly complete, but to the earlier period contemporaneous with or immediately following the supposed glacier-period. In my former papers on the Post-pliocene of the St. Lawrence, I have

shown that the change of climate involved is not greater than that which may have been due to the subsidence of land, and to the change of course of the Arctic current, actually proved by the deposits themselves.

These objections might be pursued to much greater length; but enough has been said to show that there are in the case of northeastern America, strong reasons against the existence of any such period of extreme glaciation as supposed by many geologists; and that if we can otherwise explain the rock striation and polishing, and the formation of fiords and lake-basins, the strong points with these theorists, we can dispense altogether with the portentous changes in physical geography involved in their views, and which are not necessary to explain any of the other phenomena.

It is on these points more especially, that the Report of the Geological Survey throws new light; though Sir William, with his usual caution, has not committed himself to theoretical conclusions; and in one or two local cases he seems to favor the glacier theory. It has long been known to geologists, that in northeastern America, two main directions of striation of rock-surfaces occur, from northeast to southwest, and from northwest to southeast; and that locally the directions vary from these to north and south and east and west. Various attempts have been made, but without much success, to account for these directions of striation by the motion of glaciers; and while it is quite easy for any one prepossessed with this view to account in this way for the striation in a particular valley or part of a valley, yet so may exceptional facts occur as to throw doubt on the explanation, except in the case of a few of the smaller and steeper mountain-gorges.

In the Report of the Survey of Canada a valuable table of these striations is given, from which it appears that they are locally distributed in such a way as to throw a decided gleam of light on their origin.

It would seem that the dominant direction in the valley of the St. Lawrence, along the high lands to the north of it, and across western New York, is northeast and southwest; and that there is another series of scratches running nearly at right angles to the former, across the neck of land between Georgian Bay and Lake Ontario, down the valley of the Ottawa, and across parts of the Eastern Townships, connecting with the prevalent southeast

striation which occurs in the valleys of the Connecticut and Lake Champlain, and elsewhere in New England. What were the determining conditions of these two courses, and were they contemporaneous or distinct in time? The first point to be settled in answering these questions, is the direction of the force which caused the striæ. Now, I have no hesitation in asserting, from my own observations as well as from those of others, that for the southwest striation the direction was *from the ocean toward the interior, against the slope of the St. Lawrence valley.* The crag-and-tail forms of all our isolated hills, and the direction of transport of boulders carried from them, show that throughout Canada the movement was from northeast to southwest.* This at once disposes of the glacier-theory for the prevailing set of striæ; for we cannot suppose a glacier moving from the Atlantic up into the interior. On the other hand, it is eminently favorable to the idea of ocean drift. A subsidence of America, such as would at present convert all the plains of Canada and New York and New England into sea, would determine the course of the Arctic current over this submerged land from northeast to southwest; and as the current would move *up a slope*, the ice which it bore would tend to ground, and to grind the bottom as it passed into shallower water; for it must be observed that the character of slope which enables a glacier to grind the surface, may prevent ice borne by a current from doing so, and *vice versa*.

Now we know that in the Post-pliocene period eastern America was submerged, and consequently the striation at once comes into harmony with other geological facts. We have of course to suppose that the striation took place during submergence, and that the process was slow and gradual, beginning near the sea and at the lower levels, and carried upwards to the higher grounds in successive centuries, while the portions previously striated were covered with deposits swept down from the sinking land or dropped from melting ice. It would be easy to show that this view corresponds with many of the minor facts.

Farther, the facts thus ascertained account for the excavation of the deep and land-locked basins of our great American lakes. Ocean currents, if cold, and clinging to the bottom, must cut out pot-holes, just as rivers do, though geologists are too apt to limit their function to the throwing up of banks. The course

* The few exceptional cases appear to belong mostly to the later period of the stratified sands.

of the present arctic current along the American coast has its deep hollows as well as its sand-banks. Our American lake-basins are cut out deeply into the softer strata. Running water on the land would not have done this, for it could have no outlet; nor could this result be effected by breakers. Glaciers could not have effected it; for even if the climatal conditions for these were admitted, there is no height of land to give them momentum. But if we suppose the land submerged so that the Arctic current, flowing from the northeast, should pour over the Laurentian rocks on the north side of Lake Superior and Lake Huron, it would necessarily cut out of the softer Silurian strata just such basins, drifting their materials to the southwest. At the same time, the lower strata of the current would be powerfully determined through the strait between the Adirondac and Laurentide hills, and, flowing over the ridge of hard rock which connects them at the Thousand Islands, would cut out the long basin of Lake Ontario, heaping up at the same time in the lee of the Laurentian ridge, the great mass of boulder-clay which intervenes between Lake Ontario and Georgian Bay. Lake Erie may have been cut by the flow of the upper layers of water over the Middle Silurian escarpment; and Lake Michigan, though less closely connected with the direction of the current, is, like the others, due to the action of a continuous eroding force on rocks of unequal hardness.

The predominant southwest striation, and the cutting of the upper lakes, demand an outlet to the west for the Arctic current. But both during depression and elevation of the land, there must have been a time when this outlet was obstructed, and when the lower levels of New York, New England, and Canada were still under water. Then the valley of the Ottawa, that of the Mohawk, and the low country between Lakes Ontario and Huron, and the valleys of Lake Champlain and the Connecticut, would be straits or arms of the sea, and the current, obstructed in its direct flow, would set principally along these, and act on the rocks in north and south and northwest and southeast directions. To this portion of the process I would attribute the northwest and southeast striation. It is true that this view does not account for the southeast striæ observed on some high peaks in New England; but it must be observed that even at the time of greatest depression, the Arctic current would cling to the northern land, or be thrown so

rapidly to the west that its direct action might not reach such summits.

Nor would I exclude altogether the action of glaciers in eastern America, though I must dissent from any view which would assign to them the principal agency in our glacial phenomena. Under a condition of the continent in which only its higher peaks were above the water, the air would be so moist, and the temperature so low, that permanent ice may have clung about mountains in the temperate latitudes. The striation itself shows that there must have been extensive glaciers as now in the extreme Arctic regions. Yet I think that most of the alleged instances must be founded on error, and that old sea-beaches have been mistaken for moraines. I have failed to find even in the White Mountains any distinct sign of glacier action, though the action of the ocean-breakers is visible almost to their summits; and though I have observed in Canada and Nova Scotia many old sea-beaches, gravel-ridges, and lake-margins, I have seen nothing that could fairly be regarded as the work of glaciers. The so-called moraines, in so far as my observation extends, are more probably shingle beaches and bars, old coast-lines loaded with boulders, trains of boulders or "ozars." Most of them convey to my mind the impression of ice-action along a slowly subsiding coast, forming successive deposits of stones in the shallow water, and burying them in clay and smaller stones as the depth increased. These deposits were again modified during emergence, when the old ridges were sometimes bared by denudation, and new ones heaped up.

I shall close these remarks, perhaps already too tedious, by a mere reference to the alleged prevalence of lake-basins and fiords in high northern latitudes, as connected with glacial action. In reasoning on this, it seems to be overlooked that the prevalence of disturbed and metamorphic rocks over wide areas in the north is one element in the matter. Again, cold Arctic currents are the cutters of basins, not the warm surface-currents. Further, the fiords on coasts, like the deep lateral valleys of mountains, are evidences of the action of the waves rather than of that of ice. I am sure that this is the case with the numerous indentations of the coast of Nova Scotia, which are cut into the softer and more shattered bands of rock, and show, in raised beaches and gravel ridges like those of the present coast, the levels of the sea at the time of their formation.

In conclusion, allow me to express my regret that the pressure of other occupations has allowed me so little time to discharge my duties as your president, and to hope that the course of the Society in the coming year may be still more prosperous and successful than in the past.

The Chairman of the Council (Dr. Smallwood) then read the following:—

REPORT OF THE COUNCIL.

The Council of the Montreal Natural History Society, at their thirty-sixth annual meeting, and in conformity with their prescribed duty and the yearly custom, beg to lay before its members an account of their proceedings during their tenure of office, which this evening brings to a close: and in so doing have much pleasure in congratulating its members on the steady and onward progress which has characterized the proceedings of the past year.

The Museum.

The donations to the Museum have been numerous and valuable; and your Council would more especially acknowledge donations from the University of our sister city, the Laval University; of some 418 species of insects from Mr. Saunders of London, C.W.; also donations from our worthy president, Dr. Dawson, consisting of fishes and shells; several birds, and three cases of insects from Mr. Ferrier, our treasurer; and some valuable donations from Mr. Barnston; besides several small donations from other parties, which though not so numerous, are not the less valuable. A list of these will be found appended to this report.

Your Council would beg to make special mention of the Scientific Curator, Mr. Whiteaves, who continues to give the most entire satisfaction. His work has been onerous and difficult. An inspection of the Museum will at once convince any one of the labor and care he has bestowed on the classification and labelling of the specimens in each department of Natural History. And your Council would congratulate the Society on this judicious and efficient appointment.

The Library.

The donations to the Library have not been very numerous; the completion of Silliman's Journal (by purchase), and the usual exchanges from sister Societies form by far the greatest feature on the list of new books. The Council cannot but express its regret, that,

owing to the want of funds, few new purchases have been able to be made. Notwithstanding, valuable donations of some twenty-four volumes have been received from the Literary and Historical Society of Quebec; and your Council have again to record the generosity of Mr. Ferrier, our treasurer, who has also presented some eleven or twelve volumes.

Original Papers Read.

During the past season twenty-four original papers have been read and discussed on the various departments of Natural History, viz., Geology, Zoology, and Botany. Most of these papers have been published in The Canadian Naturalist; which besides being the record of our own transactions here, is the means of disseminating and spreading an account of our proceedings to other countries; and your Council cannot but regard this publication as an important feature in our future progress and usefulness.

Owing to the liberality of the publishers, Messrs. Dawson Brothers, The Canadian Naturalist has become second to no other publication of a like nature, containing, as it does, a great amount of useful and scientific knowledge. The Editing Committee deserve from your Council special mention for their successful labors in this important department.

Public Lectures.

The annual course of Sommerville Lectures was delivered in the Lecture Hall of the Society, to very large and respectable audiences. The following form the subjects of the course:—

First Lecture—18th February 1864, by W. Hingston, M.D., F.R.C.S.E., "On the Harmonies observed in Nature."

Second Lecture—25th February, by Charles Smallwood, M.D., LL.D., "On Terrestrial Magnetism."

Third Lecture—3d March, by H. B. Small (Lin. Coll. Ox.), "Lunar Researches, or a Trip to our Satellite."

Fourth Lecture—10th March, by James Pech (Mus. Doc.), "On Music and the People."

Fifth Lecture—17th March, by T. Sterry Hunt, M.A., F.R.S., "On the Correlation of Forces."

Sixth and concluding Lecture on the 24th March, by Dr. Dawson, F.R.S., F.G.S., &c., (the President,) "On Man's Place in Nature."

Conversazione.

The second annual conversazione was held in the Society's rooms on the evening of the 2nd of February, and was, as on a former occasion, very well attended. Some works of art were exhibited, also several microscopes and other philosophical instruments. A variety of very successful chemical experiments was shown by Prof. Robbins; and dissolving views were also kindly exhibited by Mr. C. Hearn, optician. Addresses were delivered by the President, Dr. Dawson, Hon. Mr. Sheppard, and Professor Miles. Efforts on the part of your Council were made to secure several scientific and literary friends from a distance, but who, from various causes, could not be present. The Hon. Mr. Sheppard of Drummondville, and Professor Miles of Lennoxville College, were the only two gentlemen who kindly assisted on the occasion.

Your Council would also beg to mention, that, owing to the kindness of Col. Dunlop, the Band of the Royal Artillery performed some choice pieces of music during the evening.

The success of these re-unions has been very decided; and your Council fondly hope, that they have proved a source of great intellectual enjoyment to those persons present, and which they trust will tend to prove the increasing desire on the part of the citizens of Montreal generally for the attainment of a knowledge of Natural History and its kindred sciences.

In connection with this subject your Council would state, that a Course of twelve Lectures on Geology, and twelve on Botany, were delivered by Mr. Whiteaves in the rooms of the Society and under its auspices during the past winter, at a reduced charge to members of the Society. The results were satisfactory, and some additional members were thus obtained, and some few donations to the museum and library.

Miscellaneous.

Your Council, in accordance with the desire of the Society, have caused their silver medal to be transmitted to Dr. Daniel Wilson of Toronto, bearing an appropriate inscription, to which Dr. Wilson has returned a very suitable and feeling reply.

And your Council, in furtherance of the objects of the Society, and in accordance with its constitution, would recommend that the Society's silver medal for this year be presented to Sir W. E. Logan, one of the earliest and most active members of the Society, one too who has so long and so well labored in developing the vast

geological and mineral resources of Canada; and your Council would suggest that the present time seems a very appropriate one, on the occasion of the publication of his general work on Canadian Geology.

Some defects in the chimneys (caused by the method of warming the rooms of the Society) gave rise to some necessary repairs; and it was deemed advisable to consult with Messrs. Prowse & McFarlane as to the cheapest and best way of keeping the rooms warm during the winter months. It was thought desirable to erect a hot-air furnace; but action in this matter was not taken until somewhat late in the season, which consequently incurred a somewhat large expenditure for coal, which will be obviated in future, by purchasing it at an earlier period. A contract was entered into with Messrs. Prowse & McFarlane, who, in a most generous and liberal spirit, offered to give a long credit if required, for the cost of its erection. Your Council fully believe that in the end it will effect a considerable saving. Double windows are also required, at a cost of about $100. Your Council would respectfully urge this on the attention of their successors.

New cases have been made for the reception of the mammals, and also a cabinet for the collection of insects. Some new cases have been set up for the reception of specimens of Canadian fishes, also four or five additional cases for birds. Much remains to be done in this department, and a still greater want of proper cases and cabinets for the reception of the numerous specimens already classified.

Your Council would beg to tender to Mr. Ferrier, the treasurer, the thanks of the Society for the liberality with which he has at all time made advances for the purposes of liquidating the more urgent demands of the current expenses of the Society. Your Council would also bear a willing testimony to the efficiency of Mr. Hunter, who has discharged his duties with satisfaction: and it is pleasing to be able to testify to his obliging and kind manner on all occasions, and also to make mention of many specimens of fishes and birds furnished by him to the Museum.

The Council would also report that they have received a grant of money (though of smaller amount than in any previous year) from the Government for the past year; and would also further state with regret, that no action has at present been taken to discharge the debt still due by the Society.

During the past winter your Council have permitted the Numis-

matic Society and the Montreal Literary Club to hold their meeting in their rooms on evenings not specially devoted to our own Society, and at a reasonable rate for fuel and light.

Your Council would further suggest, and in accordance with the amended act of Parliament, that the number of Vice-Presidents should not exceed nine, and that the Council should also consist of nine members.

Your Council would beg leave further to state, that they have received a communication from Mr. Leeming, calling attention to the fact that the remains of the late Rev. Mr. Sommerville are at present in the old Protestant burying-ground in Dorchester street, and calling on the Society to assist, conjointly with the Corporation of the Montreal General Hospital, the Trustees of St. Gabriel Church, and a clergyman now resident in Quebec, for the removal of the body to the Mount Royal Cemetery, and also the Monument at present erected over his remains. Your Council would therefore suggest that some action be taken in this matter at as early a period as possible.

They have also received a communication from the Board of Arts and Manufactures, in which it sets forth that it has "in its hands a considerable property, subject to a ground-rent, and burthened with hypotheques so large as to consume all its annual grant, and render the Board unable to carry on its proper operations, viz., to increase and maintain its free Library, to establish and keep up a Museum of Industrial Products, and to promote the education of mechanics and artizans.

"The property thus held has been set apart for the use of scientific and literary bodies who might wish to erect buildings for their accommodation, having been acquired with a view to such uses. In fact the Board has considered itself, in some sort, a trustee for these other public bodies, either existing or projected. But the members of the Board, hitherto disappointed of relief from the Provincial Government, feel that they cannot continue to hold this property for a much longer period, at a cost so great as the abdication of their own functions under the statute, and are therefore desirous, as speedily as possible, to come to an arrangement—if it be possible—with your own and other societies, by which a building-site may be transferred to you on easy terms, and co-operation secured between the Society and this Board in promoting objects which we may have in common.

"Either by transferring a portion of the land around the Exhibi-

tion building, by assisting your Society to erect upon it a building adapted for its uses, or by securing your co-operation in the extension of the present building upon a plan adapted to your wants, we hope that this Board may be of assistance to you, and receive co-operation and support in return.."

Your Council would recommend the consideration of this matter to the Society, in furtherance of the said object.

Your Council cannot but express its regret, that the report of the treasurer shows a balance against the Society; and would urge, that efforts be made by each individual member, to endeavor by all means to increase the funds so necessary for the support and furtherance of the objects for which it was founded.

Your Council must now resign their charge into the hands of others, wishing them a prosperous and increasing year of usefulness. One thing your Council would place on record, is the kindness and unanimity that has actuated the whole of the members, a sure prestige of increasing strength and usefulness; and they close their report with a fervent hope, that the Montreal Natural History Society may grow and prosper.

After this Mr. Whiteaves read his first Annual Report, as follows:

REPORT OF THE SCIENTIFIC CURATOR.

In this account of the work done since the last annual meeting I propose to adopt a natural history order. A large case, divided into five compartments, has been erected (at a cost of $120) for the reception of the Society's collection of mammals. A few species, viz., the moose, the white whale of the St. Lawrence, (delphinapterus) and two seals, are too bulky to be admitted into this case without much disturbing the general classification: these have accordingly been omitted. With these exceptions the rest of the collection has been arranged as far as practicable in accordance with Prof. Baird's elaborate monograph on North American mammals. Large printed labels have been attached to each species, the nomenclature adopted being that of the author just quoted. Several new specimens have been put up, and the collection now contains eighty-nine specimens illustrating forty-nine North American species.

The miscellaneous mammalia have been grouped in one compartment by themselves, and have been named according to the most recent authors. It would be very desirable if a small sum of money could be voted annually for the purchase of specimens of such of the wild animals of Canada as are wanting to complete our local collection. I propose in the annual report of this year to publish a list of all the Canadian species of mammals, birds, reptiles and fishes, contained in the museum, so that our friends may see what species we want. The collection of birds has been regrouped, and a number of additional cases full of specimens have been prepared The series of names printed by the Society some years ago is out of date, and it is proposed to substitute for them the labels issued by the Smithsonian Institute. The present arrangement of the species in small cases, and these not of uniform size, causes a great waste of room. Were each specimen mounted on a proper separate stand, as is usually done in large museums, the collection might be arranged in a much more accurate scientific order. We have now about 210 species of Canadian birds, but several species are wanting to complete our local series. A collection of the eggs of our local birds has been made; the series has been named and arranged in a glass case, with a covering of green baize, to prevent the injurious effects of light on the specimens. We have now the eggs of some fifty Canadian species carefully identified; and friends at Quebec have kindly promised to add largely to this branch of our collection during the summer. The reptiles have been arranged and named as far as our cases would admit, with the exception of several exotic snakes. Three cases of Canadian fishes have been prepared by Mr. Hunter, containing some thirty-one species: these I have named and labelled. Two cases of miscellaneous fishes have also been prepared, and have been named so far as the limited access to proper books of reference in Canada will admit. Our collection of Canadian fishes is still very imperfect, particularly as regards the marine fishes of the gulf, which are almost unrepresented in the museum.

In the invertebrate section of the animal kingdom progress has been made as far as our material would admit. We have now 25 cases of shells, all carefully arranged and named. Of species purely Canadian we have nearly 200. Five cases are devoted to the illustration of the land and fresh water shells of the U. S., and to the marine shells of the east and west coasts of the same country. The general series occupies thirteen large cases. This

portion of our collection has been considerably more than doubled during the past fourteen months. The crustaceans, barnacles, sea urchins, corals and sponges have been named as far as possible, and arranged in one large case at the end of the gallery. Large donations of insects have been made to the Society, by Mr. Saunders and Mr. J. Ferrier; and a cabinet to hold all our specimens has been made at a cost of some $37. I am waiting for the arrival of some proper cork from England for the lining of the drawers, to work at this important branch of our collection.

I would call special attention to the large series of rocks and minerals belonging to the Society, many of which are still unpacked. Four table cases to hold our fossils and minerals, would cost us from 100 to 120 dollars, and this is an improvement which I think should be our first object when the state of our funds will permit. I think it is no exaggeration to say that we have some 3000 or 4000 specimens of rocks, minerals, and fossils that we have no means of exhibiting. The only proper case we have contains some 1800 specimens. Of these I have carefully classified and labelled a little over 1200. Our collection of fossils I have partially arranged and named, and have placed them temporarily in the drawers under the mineral cabinet. In acknowledgment of the liberality of the Geol. Survey, the Council of the N. H. S., have authorized me to pack up and distribute five series of the duplicate shells, sea urchins, &c., belonging to the Survey, to the following Societies: Laval University, and the Museum of the Literary and Historical Society, Quebec; McGill College, Montreal; Queen's College, Kingston; and University College, Toronto. I have accordingly selected, named, and forwarded these sets to the afore-mentioned institutions, and among the results proceeding from this, may be mentioned a valuable donation of books from the Literary and Historical Society of Quebec and the acquisition of several interesting additions to the Museum from McGill College, in this city, and from the Laval University of Quebec. Since the date of my first connection with the Society, some 2000 specimens have been added to the Museum, and it is hoped that satisfactory progress has been made during the past year in the work of arrangement and classification. Dr. Smallwood having adverted to the course of lectures I had the pleasure of giving during the past winter, further allusion to them is unnecessary.

As Recording Secretary to the Society, it has been my duty to

issue notices of council meetings, and to prepare and direct circulars calling the usual monthly meetings, to keep the minutes of all ordinary and special meetings, to prepare proper accounts of our monthly proceedings for the press, and for the Naturalist, to return thanks for donations, to issue Diplomas and notices of Election, and to transact many little items of general business for the Society. Finally as an ex-officio member of the editing committee of the Naturalist, I have endeavored to do what I could for the Journal, whether directly or indirectly.

J. F. WHITEAVES, F.G.S., &c.
Rec. Secretary and Scientific Curator, N.H.S.

Mr. Jas. Ferrier, jun., then presented his Report as Treasurer of the Society, which will be found on the other side?

Mortgage on Society's Building held by Scottish Provincial Insurance Co..... $2000 00
" in favor of Wm. Watson Esq..... 400 00
—— $2400 00

THE NATURAL HISTORY SOCIETY OF MONTREAL IN ACCOUNT WITH JAMES FERRIER, JUN., TREASURER.

DR. CR.

1864. May 1.	RECAPITULATION.		1864. May 1.	RECAPITULATION.	
To Cash paid, Salary to J. F. Whiteaves		$350 00	By Cash received Government grant		$750 00
" " " " W. Hunter (and vote $25)		225 00	" Members yearly subscriptions		864 00
" " Interest		208 00	" Proceeds Conversazione		66 75
" " For "Naturalist" sent free		195 24	" " Museum Entrance fees		33 00
" " Furniture, cases, &c		191 51	" For Gas used by Literary Society		20 60
Printing		151 69	" Balance in Treasurers hands		353 10
Furnace		133 14	" Received from, and due the Treasurer May 1, 1864		15 43
Wood and Coals		144 63			
Books and Binding		131 57			
Sundry petty charges, repairs &c		121 65			
Gas Accounts		61 08			
Water "		40 62			
Commission to Mr. McCormick		57 85			
City taxes		45 10			
Insurance		40 00			
P. O. acct		5 80			
		$2102 88			$2102 88

Examined and Vouchers compared and found correct
Montreal, 1st May, 1864.

J. H. JOSEPH.
W. H. A. DAVIES. } Auditors.

STATEMENT OF LIABILITIES OF THE NATURAL HISTORY SOCIETY, MAY 1ST 1864.

Mortgage on Society's Building held by Scottish Provincial Insurance Co. $2000 00
" in favor of Wm. Watson Esq. 400 00 —— $2400 00

It was moved by the Right Rev. the Lord Bishop, seconded by Stanley C. Bagg, and unanimously resolved: "That the reports just read be adopted, and printed for distribution among the members."

A vote of thanks to the officers of the past year was moved by Dr. David, seconded by L. A. H. Latour.

The following gentlemen were elected as office bearers during the coming year, as follows:

OFFICERS FOR 1864-65.

President.—Principal Dawson, LL.D., F.R.S., &c.

Vice-Presidents.—Rev. A. De Sola, LL.D.; Sir W. E. Logan, LL.D., F.R.S., &c.; E. Billings, F.G.S.; Dr. T. Sterry Hunt, M.A., F.R,S., &c; W. H. A. Davies; The Right Rev. the Lord Bishop; C. Smallwood, M.D., LL.D.; Rev. A. F. Kemp, M.A.; John Leeming.

Treasurer.—Jas. Ferrier, jun.

Cor. Secretary.—Prof. P. J. Darey, M.A.

Rec. Secretary and Scientific Curator.—J. F. Whiteaves, F.G.S., &c.

Librarian.—Stanley C. Bagg.

Council.—A. Rimmer; G. Barnston; E. Murphy; Dr. Hingston; L. A. H. Latour: D. A. P. Watt; C. Robb; J. H. Joseph, and Dr. David.

Library Committee.—Messrs. J. C. Becket; Prof. Cornish; Dr. Fenwick; Dr. David, and Dr. Mackay.

Editing Committee of the "Canadian Naturalist."—D. A. Poe Watt, Acting Editor; Dr. Dawson; Dr. Hunt; E. Billings,; Rev. A. F. Kemp, M.A.; Prof. Robins, B.A.; Dr. Smallwood, and the Corresponding and Recording Secretaries.

List of Donations to the Museum.

N.B.—The dates refer to the meetings of the Society, at which the specimens were presented.

Donors' Names.	Donations.
	July 1st, 1863.
G. Barnston, Esq.....	Stuffed specimen of the smaller, or "pulling down" Otter. (*Lutra destructor, Barnston.*)
	Eggs of thirteen species of birds from New Brunswick.
John Leeming, Esq.....	Egg capsule of Pyrula. (*A marine univalve shell.*)
	12 Species of marine shells from Jamaica.
J. F. Whiteaves, Esq....	9 Species of foreign shells.
Jas. Thompson, Esq....	The mud or beaver fish. Amia ocellicauda, Richardson; (*Amia calva, Linnæus?*) from Sorel.
H. Taylor, Esq.....	Red Snake.
Mrs. H. Bailey.....	Specimen of the Granulated (?) Salamander. (*Salamandra granulata? Holbrook*).
Jas. Ferrier, jun., Esq,..	Abnormal growth of spruce from the White Mountains, with specimens of quartzite in which it was imbedded.
Mr. W. Hunter.....	Dendroica coronata? Gray, male. (*Yellow crowned wood warbler.*
	Troglodytes hyemalis, Viellot, male. (*Winter wren.*)
	Certhia Americana, Bonaparte. (*American creeper.*)
	Chrysomitris pinus, Bonaparte. (*Pine finch.*)
	Cyanospiza cyanea, Baird. (*Indigo bird.*)
Prof. P. J. Darey.....	Tree Frog, *Hyla versicolor, Leconte.*
	September 28th, 1863.
Jas. Ferrier, jun., Esq...	3 Cases of miscellaneous insects.
	1 Chameleon : (*Chamæleo vulgaris?*)
	Large block of crystals of Calc Spar.
W. Saunders, Esq., London, C. W.....	Collection of Canadian insects (*in five cases,*) which took the first prize at the Provincial Exhibition of 1863, and of which the following is an estimate :
	Lepidoptera. (*Butterflies and Moths,*) 78 species.
	Coleoptera. (*Beetles,*) 294 "
	Hymenoptera. (*Bees, wasps, &c.*) 15 "
	Diptera. (*Flies,*) 3 "
	Neuroptera. (*Dragon flies, &c.,*) 6 "
	Hemiptera. 4 "
	Orthoptera. (*Crickets, locusts, &c.*) 5 "
	(In all nearly 400 species of Canadian in-

List of Donations to the Museum.

Donors' Names.	Donations.
	September 28th, 1863. (*Continued.*)
	sects, beautifully prepared and carefully named.)
Dr. Wolff, Quebec.....	5 Species of corals.
Mr. J. F. Wolff, Quebec..	Egg of Eider duck (*Somateria mollissima, Leach, from Hare Island.*)
Dr. Douglas, Quebec....	Sea urchin. (*Palæasterina—?*) from the Eocene
Mr. Jos. Hartley, (Park Farm, near Brantford, C. W.)	limestone at the base of the great pyramid at Ghizeh.
	5 Species of Devonian fossils, from Canada West.
R. J. Fowler, Esq.....	4 Echinocyamus pusillus. (*A small echinoderm,*) and 4 Trochus Magus, (*A marine shell,*) both from Britain.
	1 Specimen of the violet Salamander. (*Salamandra subviolacea*, Barton.)
	Sponge. (Halichondra ?) from Portland, Me.
John Leeming, Esq.....	Specimen of the violet Salamander, (*Salamandra subviolacea,*) and do. of another species of Salamandra.
Jas. Sherar, Esq..... ..	Two species of fossils (*Turritella carinata ? and an Ostræa*) from the Potomac.
Jno. Swanston, Esq.....	Dress worn by one of the Loucheau or "squint eyed" Indians, from the McKenzie River.
G. Barnston, Esq.....	The Red Throated diver. (*Colymbus Septentrionalis*, Linnæus.)
Principal Dawson.....	2 Species of marine shells. (*Myadora ovata Reeve, N. S. Wales; and Donax anatinus Britain.*)
J. F. Whiteaves, Esq....	4 Eggs of the chipping sparrow. (*Spizella socialis*, Bonaparte.)
	6 Species of fresh water shells from the Southern States.
W. L. Doutney, Esq....	Specimen of the Chipmunk. (*Tamias striatus Linnæus.*
Captain Jno. McMurtchie	3 Scorpions from the W. Indies.
Mr. W. Hunter.....	The Red Bat. (*Vespertilio Noveboracensis Linn.*)
	The Swamp Sparrow. (*Melospiza palustris Baird*)
	The Philadelphian Flycatcher. (*Vireo Philadelphicus, Cassin.*)
David Moss, Esq	Facsimile of *London Times* of October 3rd, 1798, containing despatches announcing the victory of the Nile.
Mrs. Edwin Atwater....	A home made wedding apron, spun, woven, and embroidered by Mrs. Almy, about the year 1650.
———	Capelin (*Mallotus villosus*) in a drift nodule from the Ottawa district.

List of Donations to the Museum.

Donors' Names.	Donations.
	October 26th, 1863.
Principal Dawson.....	The banded pipe Fish, (*Syngnathus fasciatus, DeKay*) from Nova Scotia, also an exotic species of Syngnathus.
	Two corallines from Florida. (*Leptogorgia virgata, and Ziphigorgia anceps, both of Edwards and Haime.*)
G. Barnston, Esq.....	Star Fish. (*Ophiura Egertoni,*) from the Lias of Lyme Regis, England.
Mr. W. Hunter.....	8 Specimens of Native copper, from the Lake Superior district.
	1 Example of Iron pyrites, in conglomerate from Massachusetts.
	Meadow mouse. (*Arvicola riparia, Ord.*)
John Gilmour, Esq., Quebec.....	Head of the Common or Woodland Caribou, (*Rangifer Caribou, Audubon and Bachman.*)
Jas. Ferrier, jun., Esq...	2 Sea Gulls, in immature plumage, species undetermined.
	November 30th, 1863.
Jas. Ferrier, jun., Esq...	1 Specimen of the Hooded Merganser. (*Lophodytes cucullatus, Reich.*)
Rev. O. Brunet, Laval University, Quebec...	2 Species of Exotic starfishes.
	8 " of Foreign shells.
J. F. Whiteaves, Esq ...	2 Species of Foreign shells.
	21 Fossils (named) from the Trenton limestone, near Quebec.
Mr. W. Hunter.....	Specimen of the Chipmonk or striped ground Squirrel; (*Tamias striatus Linnæus.*)
Principal Dawson.....	7 "Cone in Cone" concretions from the Coal fields of Glace Bay, Cape Breton.
	December 28th, 1863.
C. Robb, Esq., C. E.....	Star-nosed Mole. (*Condylura cristata Linnaeus.*)
A. Rimmer, Esq.....	The Mole Shrew. (*Blarina talpoides, Gray.*)
Captain Noble	Snowy Owl. (*Nyctea nivea, Gray.*)
Jno. Brown, Esq., Hamilton, C. W.....	The double crested Cormorant. (*Graculus dilophus, Gray.*)
M. Cochrane, Esq.....	Specimen of the spotted Menobranchus, (*Menobranchus lateralis, Say*) in spirits.
W. Learmont, Esq.....	Cairngorm Stone, cut and polished.
	Jan. 25th, 1864.
Rev. M. De Villeneuve..	8 Species of Chinese marine shells.
Rev. M .Billion.....	1 Example of Andonta implicata, Say. (*A rather scarce Lower Canadian fresh water bivalve shell.*)

List of Donations to the Museum.

Donors' Names.	Donations.
	Jan. 25th, 1864. (*Continued.*)
Andrew Allan, Esq.....	Star Fish, (*Astrophyton——?*) from the Gulf of the St. Lawrence.
H. G. Vennor, Esq.....	Two specimens of the "drinker" Moth, (*Gonoptera libatrix,*) from a cave at the Cote St. Michel, near Montreal.
	February 29th, 1864.
Prof. Miles, Lennoxville.	2 Specimens of Gutta Percha in its crude state, of qualities No. 1 and 2.
	Fibres from the bark of the Spanish Aloe, (*Agave,*) as extracted by machinery.
	Another example of Aloe fibre.
	Specimen of Cingalese Aloe fibre, with piece of cord made from the same and reddened by vegetable juices.
	2 Examples of raw Mohair, as it comes from the animal,—of two intermediate qualities.
	Another sample of Mohair.
	Specimen of pure Mohair "Top," combed in preparation for manufacture.
	Example of yarn spun from pure Mohair "Top."
	2 Specimens of down of the Silk Cotton Tree. (*Eriodendron anfractuosum.*)
	Prepared Sarracenia purpurea (*The pitcher plant,*) the Indian remedy for small pox, as used by the Mic Macs; from Nova Scotia.
	Samples of Mr. Harben's proposed substitute for Cotton, the fibrous Alva.
	Specimen of a Javan vegetable fibre proposed as a substitute for cotton, but as prepared for manufacture by Messrs. Marshall & Dalmer of London, (England,) found to answer better in admixture with silk.
Principal Dawson.....	10 Specimens of Fossil plants (named) from the Coal measures of Nova Scotia.
Mr. W. Hunter.....	Small Brown Weasel. (*Putorius cigognanii Bonaparte.*
	Hairy Woodpecker, variety. (*Picus villosus, Linnæus.*)
	Bohemian Chatterer. (*Ampelis garrulus, Linnæus.*)
	March 28th, 1864.
Jas. Ferrier, jun., Esq...	1 Stuffed specimen of the Goshawk, female, (*Astur atricapillus, Bonaparte.*)

List of Donations to the Museum.

Donors' Names.	Donations.
	April 25th, 1864.
Mr. W. Hunter.....	Fine example of the Woodchuck or ground Hog. (*Arctomys monax, Gmelin*) from Brockville, C. W.
	The Downy Woodpecker. (*Picus pubescens, Linnæus.*)
Mrs. H. Parkinson.....	A small collection of Marine shells, bryozoa, annelida, and sea weeds, from Little Metis bay, Gaspé.
	May 30th, 1864.
A. Ramsay, Fsq.....	The Snow Goose. (*Anser hyperboreus, Pallas,*) Shot at Nún's Island.
Jas. Ferrier, jun., Esq...	The Turnstone. (*Strepsilas interpres, Illiger.*)
	Curious Japanese mirror and case.
Mr. W. Hunter.....	The yellow-bellied Woodpecker. (*Centurus flaviventris Swainson.*)
	The golden-winged Woodpecker. (*Colaptes auratus, Swainson.*)
	Two Robins, male and female. (*Turdus migratorius, Linnæus.*)
	The blue yellow-backed Warbler. (*Parula Americana, Bonaparte.*)
Mrs. McCulloch.....	138 Skins of Canadian birds.
	5 " Foreign "
	20 Mammals, (mostly however duplicate specimens).
E. E. Shelton, Esq.....	4 Indian Pipes from an excavation in Hospital street.
Jas. Claxton, Esq.....	8 Specimens of minerals, viz. Quartz, and quartz with pyrites, Calc. spar and sulphate of barytes;—from Devon and Cornwall, England.

J. F. Whiteaves, F. G. S., &c.

Scientific Curator & Rec. Secretary N. H. S.

List of Donations to the Library.

Donors' Names.	Donations.
Prof. J. Hall.....	On some new species of fossils from a locality in the Niagara group in Indiana; by Prof. J. Hall.
C. Robb, Esq.....	The new sugar canes. An inquiry into the nature, uses, and economic value of the Chinese and African sugar plants, with special reference to Western Canada; by C. Robb, C. E.
	Mineral resources of British North America; by C. Robb, C. E.
McGill College.....	McGill College Calendar. Faculty of medicine, 1863-4.
The University	Bulletin of the Museum of practical Zoology, Cambridge, Mass.
S. Scudder, Esq.....	List of the butterflies of New England; by S. Scudder. (*From the proceedings of the Essex Institute.*)
W. Couper, Esq.....	On insect architecture; by W. Couper. (*From proceedings of the Entomological Society of Philadelphia.*)
Prof. Marcou.....	Studi stratigrafici e palœontologici sull infralias nelle montague del Golfs della Spezia; del Prof. Giovanni Capellini, with map, Bologna.
Jas. Ferrier, Jun., Esq..	A manual of recent and fossil shells; by S. P. Woodward, F.G.S., &c.
	Report on the mollusca of the west coast of North America; by P. P. Carpenter. (*From report of British Association for* 1856.)
	British museum catalogue of Mazatlan shells; by P. P. Carpenter.
Linnæan Society (?)....	Address read before the Linnæan Society, May 24, 1862; by G. Busk.
Principal Dawson.....	The air-breathers of the coal period in Nova Scotia; by Dr. Dawson.
The Society.....	Proceedings of the Natural History Society of British Guiana at the International Exhibition, August 1st, 1863.
Thomas Galbraith, Esq. (Port Hope, C.W.)....	New monetary theory; by T. Galbraith.
Rob. Swinhoe, F.Z.S.,&c.	Catalogue of the birds of China; by R. Swinhoe.
	The ornithology of Formosa, or Taiwan, by R. Swinhoe.
	List of plants of do.; by the same author.
	Notes on the island of Formosa, or Taiwan; by R. Swinhoe.

List of Donations to the Library.

Donors' Names.	Donations.
Queen's College, Kingston.....	University Calendar, Queen's College, Kingston.
	Catalogue of the library of Queen's College, Kingston, and supplement to do.
	Defence of the plan of University reform.
	A statement drawn up at the request of the Board of Trustees of Queen's College, Kingston.
W. Saunders, Esq., (London, C.W.).....	List of plants of London, C.W., by W. Saunders.
	Synopsis of Canadian Arctiadæ ; by W. Saunders.
	Description of two new Arctiadæ ; by do.
	On some new Lepidopterous larvæ ; by do.
Literary and Historical Society, Quebec.....	Message and documents, 1856 and 1857, parts 1 and 2, 2 vols.
	Message and documents, 1857 and 1858, parts 1, 2 and 3, 3 vols.
	Message and documents, 1858 and 1859, part 1, 1 vol.
	Message and documents, abridged.
	Maps to vol. for 1856-1857.
	Explorations and surveys from the Mississippi River to the Pacific, vols. 2, 3, 4, 5, 7, and 8, 4to.
	Congressional Globe, 1859 and '60, parts 1-4 4to, 4 vols.
	Congressional Globe, 1860-61, parts 1-2, 2 vols. 4to.
	Commercial relations, vols. 2, 3, 4 and the vol. for 1860.
Harvard College	Catalogue of officers and students of Harvard University, 1863-4.
	Report of Harvard College committee.
S. H. Scudder, Esq.....	Remarks on the insect fauna of the White Mountains; by S. H. Scudder.
Principal Dawson.....	Further observations on the Devonian plants of Maine, Gaspé, and New York ; by Principal Dawson.
L'Abbé Ovide Brunet, Quebec.....	Notice sur les plantes de Labrador, &c.; par M. O. Brunet.
The Author	Annales historiques de College de L'Assomption ; par Arthur Dansereau.
W. Couper, Esq.....	List of coleoptera and diptera taken in Quebec and other parts of Lower Canada ; by W. Couper.

List of Donations to the Library.

Donors' Names.	Donations.
Major General Sabine, F.R.S., &c.	Major General Sabine's address as president of the Royal Society, 1863.
Prof. Miles (Lennoxville, C.E.)	Official catalogue of the International Exhibition. Industrial and fine art departments.
Prof. L. W. Bailey (New Brunswick.)	Report on the mines and minerals of New Brunswick; by L. W. Bailey, M.A.
	Report of the chief gold commissioner for the Province of Nova Scotia, for 1863.
	Report of Natural History Society of New Brunswick, for 1863.
Prof. Winchell.....	Prof. Winchell on fossils from the Potsdam sandstone of Wisconsin and Lake Superior.
Stanley C. Bagg, Esq..	A chronological numismatical compendium; by Stanley C. Bagg.
Indian Government	Bombay magnetical and meteorological observations, 1861.
	Bombay magnetical and meteorological observations, 1862.
L'Abbé Ovide Brunet, Quebec	Notice sur les plantes de Michaux, et sur son voyage au Canada; par L'Abbé Ovide Brunet.
The University	16th Annual report of Regents of the University of the State of New York, on the State Cabinet of Natural History, appendix D., 1863.
The Government.....	Census of Canada, 1860-'61, vol. 2.
Dr. J. E. Moffatt.....	On the Geology of Southern Africa; by A. G. Bain.
Buffalo Society of Natural History	Preliminary list of plants of Buffalo (N.Y.) and its vicinity; by G. W. Clinton.
Jas. Ferrier, Jun., Esq..	Arboretum et fruticetum Britannicum; by J. C. Loudon, F.L.S., 8 vols. 8vo., illustrated.
The Geological Survey..	The Geology of Canada.
From the Publishers, in exchange for the Naturalist	Canadian Journal, Toronto.
	Transactions of the Literary and Historical Society, Quebec.
	Journal of the Board of Arts and Manufactures of Upper Canada.
	The Canadian Patriot.
	La Revue Canadienne.
	Transactions of the Nova Scotian Institute.
	British American Journal.
	Silliman's American Journal.

List of Donations to the Library.

Donors' Names.	Donations.
	Proceedings of the Academy of Sciences of Philadelphia.
	Annals of the Lyceum of Natural History of New York.
	Boston Journal of Natural History.
	Proceedings of the Essex Institute.
	Do. do. Franklin do.
	Do. do. Entomological Society of Philadelphia.
	Transactions of the Academy of Sciences of St. Louis.
	Proceedings of the American Antiquarian Society.
	Historical Magazine.
	The Technologist, London.
	Proceedings of the Linnæan Society.
	Proceedings of the Dublin University Zoological and Botanical Association
	Proceedings of the Tyneside Naturalist's Field Club.
	Journal of the Society of Arts, London.
	Proceedings of the Natural History Society of Dublin.
	Edinburgh New Philosophical Journal.
	Zeitschrift der Deutschen Geologischen Gesellschaft, 1861 and 1862, (From the Geological Society of Berlin.)
Government of Canada.	Canada Gazette.
Education Office, L.C..	Journal of Education.
	Statutes of Canada.
The Publishers	The Canadian Naturalist and Geologist.
McGill University.....	Calendar for 1862-3.
Toronto School of Medicine	Annual Announcement.
From the Regents of the N. York State Library	Supplement to the Catalogue of the New York State Library.
From the U. S. Patent Office.....	Annual Reports of the Trustees of do. 1863.
	Patent Office Report, vols. 1 and 2.

The Canadian Naturalist.

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Geological Society,.....Dublin.
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CONTINENT OF EUROPE.

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Deutsches Geolog. Gesellschafft,.....Berlin, Prussia.
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Konigl. Sachs. Gesellschaft der Wissenschaften,.....Leipzig, Saxony.
Société Impèriale des Naturalistes,.....Moscow, Russia.
Konigl. Bayerischen Akademie der Wissenschaften,.....Munich, Bavaria.
Stockholm Biksbiblioleket, ...Stockholm, Sweden.
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And to the following Periodicals:—

CANADA.

Journal of the Board of Arts,.....Toronto.

UNITED STATES.

Silliman's Journal,.....New Haven.

GREAT BRITAIN.

Zoologist, ...1 Paternoster Row.
Intellectual Observer, ...5 Paternoster Row.
Technologist, ...23 Paternoster Row.
Geological Magazine,.....39 Paternoster Row.
Popular Science Review,.....192 Piccadilly.
Seeman's Journal of Botany, ...192 Piccadilly.
Journal of Science, ...11 New Burlington St.
Natural History Review,.....14 Henrietta Street, Covent Garden.

CONTINENT OF EUROPE.

Annales des Sciences Naturelles,.....Paris, France.
Allgemeine Deutsches Naturh. Zeitung,Dresden, Saxony.
Archiv. fur Naturgeschichte by Weigman,.....Berlin, Prussia.
Leopoldoia,.....Jena, Saxe Weimar.
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Nov. 29, '52.	General J. Lefroy, F.R.S.	Royal Arsenal, Woolwich, Eng.
	Aimé Bouchard, M.D.,	Academie des Sciences, Paris.
	Milne Edwards, M.D.,	Academie des Sciences, Paris.
Feb. 28, '53.	Prof. Joseph Henry, Secretary of the Smithsonian Institute,	Washington.
March28, '53.	Dr. Rae.	
Jan. 5, '54.	O'Bryan Bellingham, M.D.,	Dublin.
Oct. 29, '55.	Sir Edmund W. Head, Bart.,	
May 19, '56.	C. Smallwood, M.D., LL.D.,	Montreal.
Sept. 29, '56.	Prof. James Hall,	Albany, N.Y.
	Prof. Dunglison,	Philadelphia.
May 19, '62.	William Skakel,	Montreal.
Oct. 26, '63.	Prof Agassiz	Cambridge, nr. Boston, U.S.
	Major General Sabine, LL.D., F.R.S., &c.	

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Aug. 26, '37.	Dr. Sabourin,	United States.
Sept. 29, '45.	Major Kendall,	
June 26, '46.	Dr. W. Newcomb,	Troy, N.Y.
June 25, '47.	J. W. Leaycraft,	Quebec.
Nov. 20, '47.	Henry Holmes Croft, Professor of Chemistry, University College,	Toronto.
April 24, '48.	Major Lachlan,	Cincinnati.
June 25, '49.	Dr. John Hillier Blount,	Birmingham, England.
July 30, '49.	William Notman	
	Jean Charles Taché,	Quebec.
	Charles Payn, M.D.,	United States.
May 20, '50.	T. McDonald,	Jamaica.

Jan. 27, '51.	Cecil Percival Stone,	.....
April 25, '52.	Samuel Kneeland, M.D.,	...Boston, Mass.
Aug. 30,	Dr. Robert M. Huston,	.....Philadelphia, Penn.
	William Rogerson,	.....Royal Observatory, Greenwich.
	William Andrews,	.....Quebec.
	J. Adolphus Thurberg,	....Louisiana.
Sept. 8, '52.	M. C. Brodie,	.....Beauharnois.
	E. A. H. Allen,	.....Troy, N.Y.
Oct. 25, '52.	Prof. Thos. McCulloch,	....Truro, N.S.
	Wm. Goodenough Wheeler, M.D.,	.....Chelsea, Mass.
	Rev. William Scott,	.....Sherbrooke, C.E.
Nov. 29, '52.	B. P. Johnson, Secy, Agric. Society	.....New York.
	Samuel Walker,	.....Roxbury, Mass.
	Hon. A. N. Morin,	.....Quebec.
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	John L. LeConte, M.D.,	...Philadelphia.
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	John Cassin,	.....Philadelphia.
	John Gundlach, M.D.,	.....Cardenas, Cuba.
	Professor W. Buckland,	....Toronto.
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	Dr. J. W. Salisbury,	.....Albany.
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	George Jephson Rumley,	..Dublin.
	Archibald Cameron,	..... Pointe du Chêne.
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	François Xavier Garneau,	..Quebec.
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	Dr. Théop. Huguet Latour,	.Boucherville.
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	Thomas Wakley, Jr.,	.....London.
	William Bell,	.....London.
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	Col. Campbell, C.B.,	St. Hilaire.
	Eben Wight, M.D.,	Boston, Mass.
	Alexander Murray,	Woodstock, C.W.
July 26, '53.	George G. Francis,	Swansea, England.
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	John Gilson,	Rome, Italy.
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	Hamilton D. Jessup, M.D.,	Prescott.
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	Rev. J. B. Ferland,	Quebec.
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April 24, '54.	Rev. Michael Ashton	Adelaide, Australia.
June 30, '54.	Rev. M. A. Trudeau,	Buffalo, N.Y.
	Edward Crisp, M.D.,	London.
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	Rev. John Jenkins,	London, England.
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June 25,	General Rowan,	
	Dr. Litchfield,	Kingston.
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March31, '56.	Hon. G. E. Cartier, M.P.P.	
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	Rev. W. Brethour, M.A.	Ormstown.
April 28, '56.	Hon. L. V. Sicotte,	St. Hyacinthe.
	Sir E. P. Taché,	St. Thomas, C.E.
May 19, '56.	Asst. Com. Gen. Ibbotson.	
Jan. 28, '56.	P. L. McDougall, Advocate,	Toronto.
	Rev. John Flanagan,	Lachine.
	J. C. Lee, M.D.,	London, C.W.
	Prof. J. P. Heyfelder	Finland.
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	Alexander Copland,	Hinchinbrooke.
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	Rev. A. J. Tellier, President St. John's College, N.Y.,	Fordham.
	R. L. Pell,	New York.
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July 27, '57.	Count Motschulsky,	St. Petersburg.

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May '60.	Rev. Louis Wurtele,	Actonvale.
July '60.	M. J. Mitcheson,	Philadelphia.
October '60.	Henry Poole,	Halifax, N.S.
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November '60.	Barnard R. Ross,	Fort Simpson, Rupert's Land.
January '62.	Thomas Macfarlane,	Actonvale.
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Sept. 29, '62.	Dr. Lowe, F.R.S., &c.	Brighton, England.
Nov. 24, '62.	S. H. Parkes,	Birmingham, England.
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Nov. 30, '63.	John Brown,	Hamilton, C.W.

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N. B.—In this list the mammals and birds are arranged according to Prof. Baird's classification. An asterisk (*) before a species is intended to denote either that the specimens are very bad, or that additional examples would be desirable.

MAMMALIA.

CHEIROPTERA.

Vespertilio noctivagans, Leconte.
Silver haired Bat.

*Vespertilis subulatus, Say.
Says bat.

Vespertilio pruinosus, Say.
Hoary bat.

*Vespertilio Noveboracensis, De Kay.
The Red, or N. York Bat.

INSECTIVORA.

*Sorex Cooperi? Bachman.
Cooper's Shrew.

Blarina talpoides, Gray.
Mole Shrew.

Condylura cristata, Illiger.
Star nosed Mole.

CARNIVORA.

Felis concolor, Linnœus.
The Catamount, or American Panther.

*Lynx Canadensis, Rafinesque.
Canadian Lynx.

Canis occidentalis, Linn.
American Wolf.

Vulpes fulvus, Desmarests:
Red Fox.

Mustela Pennantii, Erxleben.
Fisher or Black Cat.

Mustela Americana, Turton.
Pine Marten, or American Sable.

*Putorius pusillus, Aud. & Bach.
Least Weasel.

*Putorius cigognanii, Bon.
Small brown Weasel.

Putorius Noveboracensis, De Kay.
Ermine: White Weasel.

*Putorius vison, Richardson.
Brown Mink.

Lutra destructor, Barnston.
The smaller, or "pulling-down" Otter.

Mephitis mephitica, Shaw.
Common Skunk.

Taxidea Americana, Waterh.
American Badger.

Procyon lotor, Storr.
Raccoon.

Ursus Americanus, Pallas.
Black Bear.

RODENTIA.

Sciurus hudsonius, Pallas.
Red Squirrel.
Sciurus Carolinensis, Gmelin.
*Var. cinereus, Schreber.
(Gray Squirrel.)
*Var. niger, Godman.
(Black Squirrel.)
Pteromys volucella? Pallas.
Common flying Squirrel.
Tamias striatus, Linn.
Chipmunk or striped Ground Squirrel.
*Tamias quadrivittatus, Say.
Missouri striped Squirrel.
Arctomys monax, Gmelin.
Wood Chuck: Ground Hog.
Arctomys pruinosus, Gmelin.
Hoary Marmot or Whistler.
Castor Canadensis, Kuhl.
American Beaver.
Jaculus Hudsonius, Zimmerman.
Jumping Mouse.
Mus decumanus, Pallas.
Brown Rat.
*Mus rattus, Linn.
Black Rat.
Mus musculus, Linnœus.
Common Mouse.
*Hesperomys leucopus, Wagner.
White-footed Mouse.
Hesperomys myoides, Gapper.
Hamster Mouse.
Arvicola riparia, Ord.
Meadow Mouse.
Arvicola Zanthognathus.
Yellow-cheeked Meadow Mouse.
Fiber Zibethicus, Cuvier.
Musk Rat.
Erethizon dorsatus, F. Cuvier.
White-haired Porcupine.
*Lepus Americanus, Erxleben.
American Hare. (Black variety.)
Lepus sylvaticus, Bach.
Gray Rabbit.

EDENTATA.

*Dasypus novem cinctus, Linn.
Texas Armadillo.

RUMINANTIA.

*Alce Americanus, Jardine.
American Moose.
*Rangifer Caribou, Aud. & Bach.
Common or Woodland Caribou (Head and Antlers only.)
*Cervus Virginianus, Boddaert.
Virginian deer.
*Antilocapra Americana, Ord.
Prong-horned Antelope.
(Skull and Antlers only.)

CETACEA.

Delphinapterus leucas, Linn.
The Beluga, or White "Whale."

PINNIPEDIA.

Phoca vitulina, Linn.
The Common Seal.

NOTES ON THE MAMMALS.

One of the principal aims in a Museum like ours, unquestionably should be to procure as complete a series of Canadian Mammals as possible. Bearing this in mind it has appeared to me to be well to indicate first of all those species which are well known to inhabit Canada, of which we have no specimens in the Museum, and secondly those species which

from their known geographical range are likely to occur in this colony. As yet the North American Mammals are but imperfectly understood, and doubtless careful scrutiny would reveal many new species in Canada. Of the Cetacea and Pinnipedia of this country we seem to know almost nothing. The Seals and the Walrusses would probably well repay investigation. Amongst the more familiar orders, the Shrews, the Moles, the Weasel family, and the Mice (Hesperomys), and field mice, require careful study and comparison. Of the following species which are well known to inhabit Canada, we have not specimens in the Museum.

Scalops aquaticus, Cuvier. Common mole.

Occurs frequently in swampy districts throughout both provinces: I have taken living specimens from a swamp near Spencer Wood, Quebec, J. F. W.

Vulpes fulvus, *var. decussatus*. The "Cross" fox.

A variety of the common Canadian species, deriving its name from the occurrence of a black cross on the back of the animal "formed by a dark band along the back, crossed by another on the shoulder."

Putorius Richardsonii, Bonaparte. Least ermine.

Known from the common Ermine (P. Noveboracensis) by its smaller size, narrower hind feet, and shorter tail.

Gulo luscus, Sabine. The Wolverine.

The Glutton of Europe. The Canadian lynx is often called the Wolverine in country districts in Canada.

Lutra Canadensis, Sabine. The American otter.

Good examples of this species would be particularly desirable to compare with Mr. Barnston's new species, as would also be the Californian Otter, the Lutra Californica of Gray.

Didelphys Virginiana, Shaw. Common opossum.

A species of special interest as being the only marsupial mammal inhabiting the Northern part of North America.

Pteromys Hudsonius, Fischer. Northern flying Squirrel.

If this species be a good one, it may be that the Lower Canadian flying squirrels should be referred here. It is said to be a larger species than the common flying squirrel, "its tail is proportionately shorter," and the under hairs of the belly, instead of being white at the roots are lead-colored.

Hesperomys myoides, Gapper. Hamster mouse.

Hesperomys leucopus, Wagner. White-footed mouse.

Of these two common species we have no *Canadian* examples.

Arvicola Gapperi, Vigors. Red-backed mouse.

Of this well known Canadian species we have not a single specimen.

From their known geographical range the following mammals may be detected in Canada :

Sorex Forsteri, Richardson. Forsters shrew.
Sorex Richardsonii, Bachman. Richardson's shrew.
Sorex platyrhinus, Wagner. Eared shrew.
Sorex Thompsoni, Baird. Thompson's shrew.
Blarina angusticeps, Baird. The narrow-skulled Field mole.
Scalops argentatus, Aud & Bach. Silvery mole.
Scalops Breweri, Bachman. Hairy-tailed mole.
Lynx rufus, Rafinesque. Wild cat.
Vulpes Virginianus, Richardson. Gray fox.
Putorius nigrescens, Audubon & Bachman. Little black mink.
Sciurus cinereus, Linn. Cat squirrel.
Sciurus Ludovicianus, Custis. Western Fox squirrel.
Hesperomys Michiganensis, Wagner. Prairie mouse.
Arvicola Breweri, Baird. Brewer's field mouse.
Arvicola rufidorsum, Baird. Red-sided mouse.
Arvicola pinetorum, Leconte. Upland mouse.
Lepus glacialis, Leach. Polar hare.
Phoca leonina. Hooded Seal.
Phoca Greenlandica. Harp Seal.

AVES.

N.B.—Mexican and Californian species are included in this list as well as those of Canada and the United States, an asterisk (*) in this case indicates that we have the *eggs* of the species to which it is attached.

Cathartes aura, Illiger.
Turkey Buzzard.
Falco anatum? Bonaparte.
Duck Hawk.
(Immature; Falco Dawsonis? Hall.)
Hypotriorchis columbarius, Gmel.
Pigeon Hawk.
Tinnunculus sparverius, Viell.
Sparrow Hawk.
Astur atricapillus, Bonap.
Goshawk.
Accipiter fuscus, Bonap.
Sharp-shinned Hawk.
Buteo borealis, Viellot.
Red-tailed Hawk.
Buteo lineatus, Jardine.
Winter Falcon.
Buteo Pennsylvanicus, Bon.
Broad-winged Hawk.
Archibuteo lagopus, Gray.
Rough-legged Buzzard.
Circus Hudsonius, Viellot.
Marsh Harrier.
Aquila Canadensis, Cassin.
Golden Eagle.
Haliætus leucocephalus, Sav.
Bald Eagle.
Pandion Carolinensis, Bon.
Fish Hawk.
Bubo Virginianus, Bonap.
Great Horned Owl.
Scops Asio, Bonap.
Mottled Owl.
Otus Wilsonianus, Lesson.
Long-eared Owl.
Brachyotus Cassinii, Brewer.
Short-eared Owl.
Syrnium nebulosum, Gray.
Barred Owl.
Nyctale albifrons, Cassin.
Kirtland's Owl.
Nyctale Acadica, Bon.
Saw Whet Owl.
Nyctea nivea, Gray.
Snowy Owl.
Surnia ulula, Bon.
Hawk Owl.
Trogon Mexicanus, Swains.
Mexican Trogon,
Geococcyx Californianus, Baird.
Californian Ground Cuckoo.
Coccygus Americanus.
Yellow-billed Cuckoo.
Coccygus erythropthalmus, Bon.
Black-billed Cuckoo.
Picus villosus, Linn.
Hairy Woodpecker.
Picus pubescens, Linn.
Downy Woodpecker.
Picoides arcticus, Gray.
Three-toed Woodpecker.
Picoides hirsutus, Gray.
Banded 3-toed Woodpecker.
Sphyropicus varius, Baird.
Yellow-bellied Woodpecker.
Hylotomus pileatus, Baird.
Black Woodpecker.
*Melanerpes erythrocephalus, Sw.
Red-headed Woodpecker.
Melanerpes torquatus, Bon.
Lewis's Woodpecker.
Colaptes auratus, Swains.
Golden-winged Woodpecker.
Colaptes Mexicanus, Swainson.
Red-shafted Woodpecker.
Trochilus colubris, Linn.
Ruby-throated Humming Bird.
Chœtura pelasgia, Stephens.
Chimney Swallow.
Antrostomus vociferus, Bonap.
Whip poor Will.
Chordeiles popetue, Baird.
Night Hawk.
Chordeiles Henryi, Cassin.
Western night Hawk.
Ceryle Alcyon, Boie.
Belted King-Fisher.
Milvulus forficatus, Swainson.
Scissor Tail.
*Tyrannus Carolinensis, Baird.
Tyrant Flycatcher.
Tyrannus verticalis, Say.
Arkansas Flycatcher.
Myriarchus crinitus, Cab.
Great-crested Flycatcher.
Sayornis fuscus, Baird.
Pewee.
Sayornis Mexicanus.
The Mexican Pewee.
*Contopus Richardsonii, Baird.
Short-legged Pewee.
Empidonax Acadicus, Baird.
Green-crested Flycatcher.
*Turdus mustelinus, Gmelin.
Wood Thrush.
Turdus Pallasi, Cabot.
Hermit Thrush.

Turdus fuscescens, Stephens.
Wilson's Thrush.
*Turdus migratorius, Linn.
Robin.
*Sialia Sialis, Linn.
Blue Bird.
Regulus calendula, Licht.
Ruby-crowned Wren.
Regulus Satrapa, Licht.
Golden-crowned Wren.
Hydrobata Mexicana, Baird.
Water Ouzel.
Anthus Ludovicianus, Licht.
Tit-lark.
Mniotilta varia, Viellot.
Black and White Creeper.
Parula Americana, Bon.
Blue yellow-backed Warbler.
Geothlypis Trichas, Linn.
Maryland Yellow-thorat.
Geothylpis Philadelphia, Baird.
Mourning Warbler.
Icteria viridis, Bonap.
Yellow-breasted Chat.
Helminthophaga ruficapilla, Baird.
Nashville Warbler.
Helminthophaga peregrina, Cab.
Tennessee Warbler.
*Seiurus aurocapillus, Swains.
Golden-crowned Thrush.
Dendroica virens, Baird.
Black-throated Green Warbler.
Dendroica Canadensis, Baird.
Black-throated Blue Warbler.
Dendroica Blackburniœ, Baird.
Blackburnian Warbler.
Dendroica castanea, Baird.
Bay-breasted Warbler.
*Dendroica pinus, Baird.
Pine-creeping Warbler.
Dendroica Pennsylvanica, Baird.
Chesnut-sided Warbler.
Dendroica striata, Baird.
Black Pole Warbler.
Dendroica œstiva. Baird.
Yellow Warbler.
Dendroica maculosa, Baird.
Black and Yellow Warbler.
Myiodioctes Canadensis, Aud.
Canada Flycatcher.
*Setophaga ruticilla, Swains.
American Redstart.
Pyranga rubra, Viellot.
Scarlet Tanager.
Pyranga œstiva. Viell.
Summer Red Bird.
Pyranga Ludoviciana, Bon.
Louisiana Tanager.

Hirundo horreorum, Barton.
Barn Swallow.
Hirundo lunifrons, Say.
Cliff Swallow.
*Hirundo bicolor, Viell.
White-bellied Swallow.
Cotyle riparia, Boie.
Bank Swallow.
*Progne purpurea, Boie.
Purple Martin.
Ampelis garrulus, Linn.
Bohemian Waxwing.
*Ampelis Cedrorum, Baird.
Cedar Bird.
Collyrio borealis, Baird.
Great Northern Shrike.
Vireo olivaceus, Viell.
Red-eyed Flycatcher.
Vireo Philadelphicus, Cassin.
Philadelphia Vireo.
Vireo flavifrons, Viell.
Yellow-throated Flycatcher.
*Mimus Carolinensis, Gray.
Cat Bird.
*Harporhynchus rufus, Cab.
Brown Thrush.
Troglodytes Parkmanni, Aud.
Parkman's Wren.
Troglodytes hyemalis, Viell.
Winter Wren.
Certhia Americana, Bon.
American Creeper.
Sitta Carolinensis, Gmelin.
White-bellied Nuthatch.
Sitta Canadensis, Linn.
Red-bellied Nuthatch.
Parus atricapillus, Linn.
Black-capped Titmouse.
Parus Hudsonicus, Forster.
Hudsonian Titmouse.
Pinicola Canadensis, Cab.
Pine Grosbeak.
Carpodacus purpureus, Gray.
Purple Finch.
*Chrysomitris tristis, Bon.
Yellow Bird.
Chrysomitris pinus, Bon.
Pine Finch.
Curvirostra Americana, Wils.
Red Crossbill.
Curvirostra leucoptera, Wils.
White-winged Crossbill.
Ægiothus linaria, Cab.
Lesser Red poll.
Ægiothus canescens, Cab.
Mealy Red poll.
Plectrophanes nivalis, Meyer.
Snow Bunting.
Plectrophanes Lapponicus, Selby.
Lapland long-spur.

*Poocœtes gramineus, Baird. Grass Finch: Bay winged bunting.
Chondestes grammaca, Bon. Lark Finch.
Zonotrichia leucophrys, Sw. White-crowned Sparrow.
*Zonotrichia albicollis, Bon. White-throated Sparrow.
*Junco hyœmalis, Sclater. Black Snow Bird.
Spizella monticola, Baird. Tree Sparrow.
Spizella pusilla, Bon. Field Sparrow.
*Spizella socialis, Bon. Chipping Sparrow.
*Melospiza melodia, Baird. Song Sparrow.
Melospiza palustris, Baird. Swamp Sparrow.
Passerella iliaca, Sw. Fox-colored Sparrow.
Euspiza Americana, Bon. Black-throated Bunting.
Guiraca Ludoviciana, Sw. Rose-breasted Grosbeak.
Guiraca melanocephala, Sw. Black-headed Grosbeak.
*Cyanospiza cyanea, Baird. Indigo Bird.
Cardinalis Virginianus, Bon. Red Bird.
Pipilio arcticus? Sw. Arctic Towhee.
Dolichonyx oryzivorus, Sw. Boblink: Rice Bunting.
*Molothrus pecoris, Sw. Cow Bunting.
*Agelaius phœniceus, Viell. Red-winged Starling.
*Sturnella magna, Swains. Meadow Lark.
Icterus spurius, Bon. Orchard Oriole.
Icterus Baltimore, Daudin. Baltimore Oriole.
Icterus Bullockii, Bon. Bullock's Oriole.
Scolecophagus ferrugineus, Sw. Rusty Grakle.
Scolecophagus cyanocephalus. Brewer's Blackbird.
*Quiscalus versicolor, Viell. Crow Blackbird.
Corvus carnivorus, Bartram. American Raven.
*Corvus Americanus, Aud. American Crow.
Pica Hudsonica, Bon. Magp ie.
*Cyanura cristata, Sw. Blue Jay.
Cyanura Stelleri, Sw. Steller's Jay.
Perisoreus Canadensis, Bon. Canada Jay.
Ectopistes migratoria, Sw. Passenger Pigeon.
Zenaidura Carolinensis, Bon. Common Dove.
Meleagris Gallopavo, Linn. Wild Turkey.
Tetrao Canadensis, Linn. Spruce Partridge.
Pedioecetes phasianellus, Baird. Sharp-tailed Grouse.
Cupidonia cupido, Baird. Prairie Hen.
*Bonasa umbellus, Steph. Ruffed Grouse.
*Lagopus albus, Aud. White Ptarmigan.
Lagopus rupestris, Leach. Rock Ptarmigan.
*Ortyx Virginianus, Bon. Virginian Quail.
Herodias egretta, Gray. White Heron.
Ardea Herodias, Linn. Great Blue Heron.
Ardetta exilis, Gray. Least Bittern.
Botaurus lentiginosus, Steph American Bittern.
Butorides virescens, Bon. Green Heron.
Nyctiardea Gardeni, Baird. Night Heron.
Charadrius Virginicus, Borck. Golden Plover.
Œgialitis vociferus, Cassin. Kildeer Plover.
Œgialitis semipalmatus, Cabot. Semipalmated Plover.
Œgialitis melodus, Cab. Piping Plover.
Squatarola Helvetica, Cuv. Black-bellied Plover.
Strepsilas interpres, Ill. Turnstone.
Gallinago Wilsonii, Bon. Snipe.
Macrorhamphus griseus, Leach. Red-breasted Snipe.
Tringa maritima, Brun. Purple Sandpiper.
Tringa Alpina, var. Americana, Cassin. Red-backed Sandpiper.
Tringa Wilsonii, Nuttall. Least Sandpiper.

Calidris arenaria, Illiger.
Sanderling.
Ereunetes petrificatus, Ill.
Semipalmated Sandpiper.
Gambetta flavipes, Bon.
Yellow legs.
Rhyacophilus solitarius, Bon.
Solitary Sandpiper.
*Tringoides macularius, Gray.
Spotted Sandpiper.
Limosa Hudsonica, Sw.
Hudsonian Godwit.
Numenius longirostris, Wils.
Long-billed Curlew.
Numenius Hudsonicus, Lath.
Hudsonian Curlew.
Numenius borealis, Lath.
Esquimaux Curlew.
Rallus Virginianus, Linn.
Virginia Rail.
Porzana Carolina, Viell.
Common Rail.
Porzana Noveboracensis.
Yellow Rail.
Fulica Americana, Gmelin.
Coot.
Cygnus buccinator, Rich.
Common Swan.
Anser hyperboreus, Pallas.
Snow Goose.
Bernicla Canadensis, Boie.
Canada Goose.
Bernicla Hutchinsii, Bon.
Hutchin's Goose.
Bernicla brenta, Stephens.
Brant.
Anas boschas, Linn.
Mallard.
Anas obscura, Gmel.
Black Duck.
*Dafila acuta, Jenyns.
Pin-tail.
Nettion Carolinensis, Baird.
Green-winged Teal.
*Querquedula discors, Steph.
Blue-winged Teal.
Spatula Clypeata, Boie.
Shoveller.
Mareca Americana, Stephens.
Baldpate.
Aix sponsa, Linn.
Wood Duck.
Fulix marila, Baird.
Greater Black Head.
Fulix collaris, Baird.
Ring-necked Duck.
Aythya Americana, Bon.
Red Head.
Aythya Vallisneria, Bon.
Canvass back.

Bucephala Islandica, Baird.
Barrow's Golden Eye.
Bucephala albeola, Baird.
Buffel Head.
Histrionicus torquatus, Bon.
Harlequin Duck.
Camptolaemus Labradorius, Gray.
Labrador Duck.
Melanetta velvetina, Baird.
Velvet Duck.
Pelionetta perspicillata, Kaup.
Surf Duck.
Oidemia Americana, Swains.
Scoter.
*Somateria mollussima, Leach.
Eider Duck.
Erismatura rubida, Bon.
Ruddy Duck.
Mergus Americanus, Cass.
Sheldrake.
Mergus serrator, Linn.
Red-breasted Merganser.
Lophodytes cucullatus, Riech.
Hooded Merganser.
Pelecanus erythrorynchus, Gmel.
American Pelican.
Graculus dilophus, Gray.
Double-crested Cormorant.
Thalassidroma Leachii, Tem.
Leach's Petrel.
Stercorarius parasiticus, Tem.
Arctic Skua.
Larus Glaucus, Brunn.
Burgomaster.
Larus leucopterus, Faber.
White-winged Gull.
Larus marinus, Linn.
Great Black-backed Gull.
*Larus argentatus, Brünn.
Herring Gull.
Chroicocephalus Philadelphia.
Bonaparte's Gull.
Rissa tridactyla, Bon.
Kittiwake Gull.
Sterna fuliginosa, Gmelin.
Sooty tern.
*Sterna macroura, Naum.
Arctic Tern.
Sterna frenata, Gambel.
Least Tern.
Colymbus torquatus, Brünn.
Loon.
Podiceps griseigena, Gray.
Red-necked Grebe.
Podiceps cornutus, Latham.
Horned Grebe.
Podiceps auritus, Latham.
Eared Grebe.
*Uria grylle, Latham.
Black Guillemot.

*Uria lomvia, Brun.
Foolish Guillemot
Mergulus Alle, Viell.
Sea Dove.
Podilymbus podiceps, Lawr.
Carolina Grebe.

*Alca torda, Linn.
Razor-billed Awk.
Mormon arctica, Ill.
Common Puffin.

NOTES ON THE BIRDS.

Of many of the species enumerated in the above list (more especially of those not found in Lower Canada) we have only single and often very bad examples. Fine, fresh specimens of almost any N. American bird would be very acceptable, particularly of the scarcer kinds, and most especially those species of which we have no representative in the Museum.

REPTILIA.

Aspidonectes spinifer, Lesuer.
The Soft-shelled Turtle.
Chelydra serpentina, Schw.
The Snapping Turtle.
Chrysemys picta, Gray.
The Painted Turtle.

Nanemys guttata, Schneid.
The Spotted Turtle.
Glyptemys insculpta, Leconte.
The Wood Terrapin.

Alligator Mississipiensis.
The Common Alligator.

Crotalus durissus, Linn.
Northern Rattle Snake.
Eutainia sirtalis, Linn.
Garter Snake.
Ophibolus eximius, Harlan.
Milk Snake: Chicken Snake.

Chlorosoma vernalis, Harlan.
Green Snake.
Diadophis punctatus, Linn.
Ring-necked Snake.
Celuta amœna, Say.
Red Snake.
Storeria occipito-maculata, Storer.
Spotted-necked Snake.

Rana pipiens, Linn.
Bull Frog.
Rana halecina, Kalm.
Shad Frog.
Bufo Americanus, Leconte.
American Toad.

Hyla versicolor, Leconte.
Tree Frog.
Phrynosoma.
Horned Frog.
California.

Salamandra subviolacea, Barton.
The Violet-colored Salamander.
Salamandra erythronota, Green.
Red-backed Salamander.
Salamandra granulata? Green.
Granulated (?) Salamander.

Triton millepunctatus, Storer.
The Crimson-spotted Triton.
Menobranchus lateralis, Say.
The Banded Proteus.

PISCES.

Perca flavescens, Mitchill.
Yellow Perch.
Labrax lineatus, Bloch.
The Striped Bass.
Lucioperca Americana, Cuv.
The Yellow Pike Perch.
Lucioperca Canadensis, Cuv.
The Canadian Pike Perch.
Centrarchus œneus, Lesuer.
The Rock Bass.
Centrarchus fasciatus, Lesuer.
The Black Bass.
Pomotis vulgaris, Cuv. & Val.
Sun Fish.
Cottus Greenlandicus, Cuv. & Val.
The Greenland Bull-head.
Gasterosteus gymnetes, Dawson.
The 6 spined Stickleback.
(See *Canadian Naturalist*, vol. 4 pages 321 to 324.)
Pimelodus nigricans, DeKay.
The Great Lake Catfish.
Pimelodus catus, Linn.
Common Cat-fish.
Catastomus communis Lesuer.
Common Sucker?
Leuciscus cornutus, Mitchill.
The Red Fin or Rough Head.
Leuciscus nitidus? DeKay.
The Shining Dace.
Leuciscus atro-maculatus? Mitchill.
The Black-headed Dace?
Hydrargira fusca? Thompson.
The Black Minnow.
Esox estor, Cuvier.
The Maskinonge. (Only one very small example.)
Esox lucioides? Agass.
Great Northern Pickerel, or Canadian Pike.
Salmo fontinalis, Mitchill.
Brook Trout.
Salmo siscowet, Agass.
The "Siscowet" of the natives of Lake Superior.
Salmo namaycush, Pennant.
The Great Lake Trout: the "Namaycush" of the Crees, the "Namaygoose" of the Ojibway's.
Salmo ursinus, Barnston, M.S.S.
The "Macqua," or Bear Trout of the natives of Lake Superior.
Coregonus Artedi, Lesuer.
The Lake Herring, or Herring Salmon.
Coregonus sapidissimus? Ag.
(C. albus, Lesuer.)
Common White Fish.
Amia ocellicauda, Richardson.
(A. calva? Linn.)
The Mud or Beaver Fish.
Lepidosteus Huronensis? Richardson.
The Common Gar Pike.
Lota Maculosa, Lesuer.
The Spotted Burbot, or Ling.
Anguilla tenuirostris, DeKay.
Common Eel.
Syngnathus fasciatus, DeKay.
Striped Pipe Fish.
Accipenser brevirostris, Lesuer.
Short-nosed Sturgeon.
Accipenser oxyrynchus, Mitchill.
Sharp-nosed Sturgeon.
Petromyzon Americanus, Lesuer.
Common Lamprey.

Our collection of fishes has been but recently commenced and is consequently very imperfect. The marine fishes of the Gulf of the St. Lawrence are almost unrepresented in the Museum, and we are very deficient in the Cyprinidœ, the family which includes the chubs, dace, "suckers," minnows, &c. The Canadian snakes, lizards, &c., want to be carefully worked out, and a good supply of specimens, with localities affixed, would be a valuable help to the student engaged in investigating the geographical distributions of these creatures.

Finally, contributions of specimens illustrating any branch of Canadian Zoology will be gladly received and thankfully acknowledged.

J. F. WHITEAVES, F.G.S. &c.

August, 1864.