

able relics of former organic life. Much interest has recently been excited by the discovery of the bones of an animal of large dimensions in the neighbourhood of Hamilton, called an 'Elephant,' (Mastodon?) We have seen no scientific description of the remains, although they possess singular interest and have acquired considerable notoriety.

Fossils and minerals of every description, when properly arranged and described in a public Museum, acquire a value which they can rarely or never attain in private hands. In this new and comparatively unexplored country, the scantily furnished Cabinet of an amateur, unless he be professionally interested in mineralogy or paleontology, or possessed of industry to describe the few treasures accident or search may have furnished him with,—he shorn of more than half their value, because they do not thus contribute to public knowledge, or advance the interests of Science.

Railway operations in Great Britain have given an extraordinary impetus to Geological science during the last twenty years. They have opened up the mineral treasures of the country in marvellous abundance, and every advantage has been taken of the opportunities so frequently offered. It would be a matter of lasting regret if the splendid facilities now within our reach, should be permitted to slide from our grasp without being improved to the uttermost.

The Council of the Canadian Institute in their circular of enquiry already referred to, have endeavored to give a practical and useful direction to the exertions of the members and friends of the Institute by soliciting information respecting the Limestones of Canada. It is unnecessary for us to enlarge upon the economic importance of the material, or enumerate the many useful purposes to which it is applied. It is not generally known however, that the Farmer, the Builder, the Smelter, the Soap-boiler, the Soda-maker, the Candle-maker, the Bleacher, &c., &c., all require it in processes to which special varieties are peculiarly applicable. It is with a view to their classification and analysis, that the Council have determined to institute the subjoined :—

#### ENQUIRIES REGARDING THE LIMESTONES OF CANADA.

Inasmuch as it does not appear that the Limestones of Canada have as yet been fully examined, by analysis or otherwise, in reference to their economical values, or classified for practical purposes, it has been determined by the Council of the CANADIAN INSTITUTE, to collect for its Museum, in aid of these objects, specimens of Limestones from the various localities within the Province; they accordingly request that all parties who, by residence or information, may be able to assist the Council in this matter, will be pleased to transmit to the Secretary of the Institute, replies to the accompanying questions, with specimens of the Limestones or Limes to which they refer; and to add to those specimens which are selected, as illustrating the economical uses more particularly in view, any which exhibit fossil remains of whatever kind.

The following is a list of the localities in which Limestones are known to exist,\* extracted from a paper prepared by W. E. Logan, Esq., F. R. S., the President of the Institute.

Malden—Manitoulin Islands, along the south side—St Joseph Island—coast of Lake Huron, from Cape Hurd to Rivière au Sable (north)—various parts from Cabot's Head to Sydenham, in Owen's Sound; and from Sydenham, by Euphrasia, to Nottawasaga; thence by Mono to Esquesing, and by Nelson to Ancaster—Thorold—Matchedash Bay—Oullia—Rama—Mara, and various parts of Marmora—

\* NOTE.—The quantities in the localities indicated are not in every case of a sufficient amount to be profitably available, but they are always of sufficient importance to draw attention to the localities as a possible guide to the discovery of others in the vicinity where quantities may be greater.

Madoc—Bellefleur—Kingston—MacNab—Bytown, and various parts of Plantagenet and Hawkesbury—Cornwall—Isle Bizard—Beauharnois Island—Caughnawaga—Montreal—Isle Jesus—Terrebonne—Phillipsburgh—St. Dominique—Granby—De Chambault—Beauport—Bay St. Paul, and Murray Bay—L'Ange—Acton—Wickham—Stanstead—Hatley—Dudswell—Temiscouma Lake—Gaspé—Port Daniel—Richmond—Anticosti Island.

Hydraulic Lime is found in the following places—Point Douglas, Lake Huron—Cayuga, 3½ miles below the village, on the Grand River—Thorold—Kingston—Nepean, near Bytown—Argentouil.

Magnesian—Exit of Lake Mazinaw—North Sherbrooke, C.W.—Drummond—St. Armand—Durham—Sutton—Ely—Durham—Melbourne—Kingsley—Supton—Chester—Halifax—Inverness—Leeds—St. Giles Seigniorie—St. Mary Seigniorie—St. Joseph Seigniorie.

Replies to the following questions or other information on the subject will be thankfully acknowledged :—

- 1st. The number of the specimen referred to (if any be forwarded.)
- 2nd. The name of the locality (No. of the lot, concession, and name of township and county) from which the same has been taken.
- 3d. The geological position of the bed, its thickness, dip, superior and inferior strata, the nature of the surface, soil, &c. &c. &c., if known.
- 4th. The analysis: if it has been ascertained.
- 5th. Whether it exists in quantity and position to warrant its economical use as an article of commerce, and the facilities for transportation.
- 6th. Whether it exhibits any hydraulic properties and to what extent.
- 7th. If Lime has already been manufactured from the stone referred to—transmit a sample—and state the manner of its manufacture—if peculiar—and in what works the same has been used.

We shall advert to other important subjects of enquiry in future numbers of the Journal; in the meantime, we call attention to the admirable paper by Capt. Lefroy, which has especial reference to the highly interesting subject of climate.

#### On the Atmospheric Phenomena of Light: by J. Bradford Cherriman, M. A., F. C. P. S.,

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(CONTINUED FROM PAGE 6.)

There is still remaining an extensive class of phenomena known under the generic name of *halo*, and comprehending a great diversity of appearances, about which much difference of opinion has prevailed among philosophers. It is now, however, generally conceded, that the theory proposed by Mariotti, and permitted for a long time to lie dormant, until re-discovered and worked out by Young, is sufficient to account for most, if not all, of the observed facts, its results agreeing with them not only in general character but even in the details of measurement. According to this theory, the phenomena arise from the various refractions and reflections of the rays of light by the crystals of snow or ice in the air; which crystals, as is well known, all exhibit more or less the angle of 60°, their general form being that of triangular or hexagonal equilateral prisms, terminated by plane bases at right angles to their sides.

The following is an account of a *halo* observed near Toronto by Mr. H. Y. Hind, on 8th March, 1847:—

"A ring of a dull orange colour towards its inner boundary, was visible about 24° from the Sun, together with a second ring of fainter colour, distant about 24° from the former. In the circumference of the inner ring, exactly opposite each other, and equally distant from the horizon, were two mock-suns, well defined towards the Sun itself, and of a dull orange colour, but shooting out into a vivid streak of light, some 10° on the opposite side, parallel to the horizon. Two other coloured arcs of more vivid colours than the former, and seemingly of nearly the same radii, touched them in their vertical points, with their convexities turned towards the Sun. At the points of contact,