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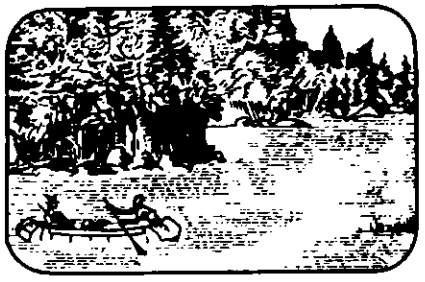

Early Explorers and Geology

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The early explorers of Canada were not only men of daring but were also unusually good observers. The fine records kept by the early employees of the Hudson's Bay Company are well known, if only through the enlightened publication policy of this great corporation, the archives of which are soon to be transferred from their long-used repository in London to the Manitoba Archives in Winnipeg. Similarly astute accounts of "natural history" (to use again the useful old name) will be found in many of the published accounts of individual explorers. A recent search through some of these interesting books, for another purpose, brought to light some geological observations that may not be well known. They appear to be significant enough for presentation in this brief note.

Alexander Henry the Elder was one of the first English-speaking fur-traders. He was a member of General Amherst's forces which captured Montreal in 1760. He quickly appreciated the potential of the fur trade so well developed by French traders. Returning to Albany he stocked up with trading goods, returned to Montreal, managed to get a "passport" from the town-mayor, and set off up the Ottawa River on August 3, 1761. In his later years he wrote a vivid account of his adventures which included witnessing the Pontiac massacre at Michilimackinec, the volume being published in New York in 1809 when Henry was resident in Montreal. From the several references to geology in this early record, the following has been selected, a note that he made on leaving Lake Nipissing for the descent of the French River:

> "Leaving the Indians, we proceeded to the mouth of the lake, at which is the carrying place of La Chaudiére Française, a name, part of which it has obtained from the holes, in the rock over which we passed; and which holes, being of the kind which is known to be formed by water, with the assistance of pebbles, demonstrate that it has not always been dry, as at present it is; but the phenomenon is not peculiar to this spot, the same being observable at almost every carrying-place on the Outaouais. At the height of a hundred feet above the river, I commonly found pebbles, worn into a round form, like those upon the beach below. Everywhere, the water appears to have subsided from its ancient levels; and imagination may anticipate an era, at which even the banks of Newfoundland will be left bare." (Henry, 1809).

John McLean was a very different kind of man. A Scot, born in Mull in 1799, he was recruited to the staff of the Honorable Company at his majority, serving the Company until 1845 when he resigned in displeasure. He settled then in Guelph but later moved to Victoria where he died in 1890, the later part of his life being somewhat tragic. He, too, wrote a book about his travels after he had left the Hudson's Bay employ. It was published in London in 1849 but was little known until included in the Champlain Society's series, admirably edited by W. S. Wallace. For twelve years McLean served the Company in the Ottawa Valley. He then spent some time in the West but returned to the eastern part of the country. While serving at Fort Chimo he was the first white man to cross Labrador, discovering the Great Falls (as he called them) on the Hamilton River in 1838. He went West again in 1843, this time accompanying Lieutenant Lefroy at the start of his scientific expedition to the Mackenzie Valley.

Even this brief summary of McLean's life will suggest something of the first fascination that his book has for all interested in early travel. Quotation, however, must be confined to this note on the geology of Ungava:

> "Along the sea-coast the formation is granitic syenite; then, proceeding about forty miles in the direction of South River, syenite occurs, which, about sixty miles higher up, runs into green stone: very fine slate succeeds. At the height of land dividing the waters that flow in different directions, into Esquimaux and Ungava Bays, the formation becomes syenitic schist, and continues so to within a short distance of the great fall on Hamilton River; when the syenite succeeds; then gneiss; and along the shores of Esquimaux Bay syenitic gneiss, and pure quartz; lumps of black and red hornblend are met with everywhere. The country is covered with boulders rounded off by the action of water, most of which are different from the rocks *in situ*, and must have been transported from a great distance, some being of granite – a rock not to be found in this quarter. The rugged and precipitous banks of George's River are occasionally surmounted by hills; at the base of all these elevations, deep horizontal indentures appear running in parallel lines opposite each other on either side of the river – a circumstance which indicates the action of tides and waves at a time when the other parts of the land were submerged, and the tops of these hills formed islands. Along certain parts of the coast of Labrador rows of boulders are perceived lying in horizontal lines; the lowest about two hundred yards distant from high-water mark, while the farthest extend to near the crest of the adjacent hills. Several deep cavities and embankments of sand are observed in the interior, bearing unequivocal marks of having been, at one time, subject to the influence of the sea. I shall conclude these few remarks by observing that, whatever

conclusions the geologist may arrive at as to the remote or recent elevation of this country, the tops of the higher hills appear to have been formerly islands in the sea; and I doubt not but the same may be said of higher lands on every part of the Arctic regions. Admitting this to have been the case, it contributes to confirm the theory of that distinguished philosopher, Sir Charles Lyell, as to the cause of the changes that have taken place in the climate of the northern regions." (Wallace, 1932).

References

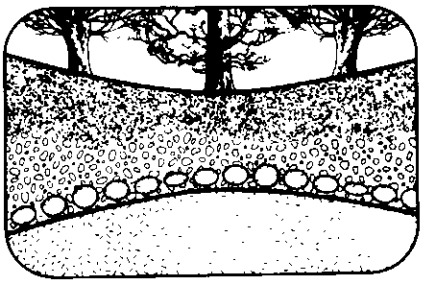
Henry, Alexander, 1809, Travels and Adventures in Canada and the Indian Territories between the years 1760 and 1776: I. Riley, New York, 2 volumes, vi + 188 and 330 (see p. 31).

Wallace, W. S., ed., 1932, John McLean's Notes of a Twenty-Five Years' Service in the Hudson's Bay Territory: Pubs. of the Champlain Society XIX, Toronto, xxxvi + 402 + xii (see p. 256-257).

MS received, June 12, 1974.

Note

The title of R. K. Steven's "History of Canadian Geology" feature was inadvertantly omitted from the last issue. The title was: Sir William Logan and the Taconic Problem.



The Soil Column

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It has ben said (Hunt, 1972) that geologists use the term "soil" in a broader sense than agriculturalists and in not as broad a sense as the engineer. To the engineer the term has about the same meaning that "surface deposit" has to a geologist and the agriculturalist uses the word "soil" to refer to the weathered uppermost layers of surface deposits. Obviously ambiguity develops when the terms "soil" and "surface deposit" are not clearly defined. Definition of terms is only a part of the difficulties faced by those who study the role of pedology in earth science. But it is not the object of this column to point out the differences of opinion between pedologists and geologists but rather to report on the activities of soil scientists so that a more acute awareness of the similarities between the disciplines may be realized. Indeed, we could point out that pedology is a part of earth science and should not be of only marginal interest to geologists in general or the GAC in particular. Perhaps the "Soil Column" will enliven and broaden that interest.

This column will appear in subsequent issues of *Geoscience Canada* and will be shared by soil science and soil mechanics. Its content will vary but likely will include reports of recent research projects, reports of workshops, meetings and conferences and so forth. Your comments, criticisms and suggestions are solicited.

Having disposed of the introductory statement with respect to this column let us now pursue the main topic for this issue. It concerns developments in the study of that most neglected surface deposit of all, the organic deposit.

Organic Deposits

Although well studied in European countries organic deposits have received little attention in Canada until recently. This is not to say that no research was done, 50 or more years ago. Indeed, the first information concerning the location and description of the organic soils of Canada appears in publications of the Geological Survey of Canada as early as 1885. Most of the peat investigations during the early part of the 20th Century were conducted by researchers with the Canada Department of Mines. By 1960, biologists, foresters and pedologists became much more involved than they had in the past and with this involvement came a change in the direction of the research. Interest in peat deposits in the early 1900s centered on its use as fuel. By 1926 this interest waned but was renewed in 1939 with the developing market for peat litter. Today classification, hydrology, vegetative cover, chemical and physical characteristics, and genesis of organic deposits are studied to determine their value for use for agriculture, forestry, wildlife production, water reservoirs as well as for the production of peat litter.

Of major concern to researchers in peatlands are the development of a national classification system, the recognition and definition of peat landforms and the development of a glossary of terms. Two of the groups most concerned with attaining these objectives are the Canada Soil Survey Committee and the Peatlands Study Committee of the National Forest Lands Committee. The Canada Soil Survey Committee is composed of soil scientists from the Canada Department of Agriculture. In 1968 this committee proposed and adopted for trial a system of classification for organic soils which is essentially that which is used today. Certain modifications have been made as