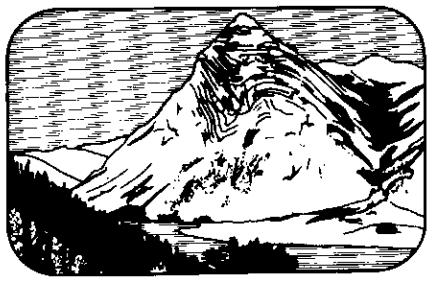
Features

History of Canadian Geology



The Bigsby Medal

R. F. Legget
531 Echo Drive
Ottawa, Ontario K1S 1N7

Peter Harker
Geological Survey of Canada
601 Booth Street
Ottawa, Ontario K1A 0E8

One of the most prestigious medal awards of the venerable Geological Society of London is the Bigsby Medal. If one has the privilege of handling one of these geologically famous gold medals, one sees – as might be expected – the head of a bearded gentleman, Dr. Bigsby. On the reverse side is a replica of an echinoderm beneath which appear the words *Found•1822•Canada*. The story behind those simple words is another footnote to the history of geology in Canada.

In the official records of the Society it is explained that "In 1877 Dr. Bigsby gave to the Society a sum of £200, the interest of which was to be devoted to providing a medal to be given biennially, preferentially to one who had studied American Geology, as an acknowledgement of eminent services in any department of Geology, irrespective of the receiver's country; but he must not be older than 45 years at his last birthday, thus probably not to old for further work and not too young to have done much" (Woodward, 1907). Two of the early recipients were G. M. Dawson (1891) and H. M. Ami (1903).

The Canadian fossil, and the restriction of the award to those who have worked in America, are explained when one comes to look into the life of Dr. Bigsby since he spent six significant years in Canada. John Jeremiah Bigsby was born in 1792 and started his career with the British Army Medical Corps in the Cape of Good Hope. He came to Canada in 1821 as the Medical Officer to a large detachment of a German Rifle Regiment, then in the service of Great Britan. Stationed in Quebec City, he was directed to go to the small settlement of Hawkesbury in August to look into an outbreak of typhoid fever.

He travelled by one of the new steamboats to Montreal. His interest in geology was already keen and so he went hunting for exposed rocks at every stop, at one of which he almost got left behind. One of his fellow passengers showed great interest in what Bigsby was doing and so was given some instruction in geology by Bigsby; only later did he find that this was Louis Joseph Papineau. He went up the Ottawa River from Montreal by canoe and stayed with the Hamilton family (at Hawkesbury, which they had founded) for a month, although the fever had subsided by the time of his arrival. He walked back to Montreal through the bush, doing 25 miles the first day.

His interest in geology must have attracted official attention since at the time he was appointed Secretary to the Boundary Commission that had been established under the Treaty of Ghent (1814), he was commissioned to make a general report on the geology of the "2,000 mile route" he had to travel in order to join the staff of the Commission on the Red River. He had to travel this route entirely by canoe, up the Ottawa Waterway and so into Georgian Bay; from the Great Lakes through Lake of the Woods and so to the West. His fee was £20.

Dr. Bigsby returned to England after his work with the Boundary Commission and was in General Practice at Newark-on-Trent from 1827 to 1846 when he settled in London where he seems to have been an unpaid and unofficial member of the staff of the Geological Society since he catalogued their collection of Paleozoic fossils, spending a great deal of time at the Society's offices where he endeared himself to the staff. He also found time to write a two-volume book, published by Chapman and Hall in 1850. It had this title: *The Shoe and Canoe or Pictures of Travel in The Canadas illustrative of Their Scenery and of Colonial Life; with Facts and Opinions on Emigration, State Policy, and other Points of Public Interest; with Numerous Plates and Maps*, the author being noted as an M.D. and as an Hon. Member of the American Geological Society. Copies are now rare. Its unusual initial title conceals the wealth of information it contains about life in Canada in the early nineteenth century. The record of Bigsby's canoe journey up the Ottawa is quite delightful but, although there are incidental references to the

geology of the route, there is not a word about his fossil find at the Chaudière, the great falls (as they then were) at the foot of which the settlement of Hull had been established, soon to be also the site of Bytown, predecessor of Ottawa.

In a discussion of the fossil shown on the medal, published in 1908 by F. A. Bather, its discovery in 1822 is described and it is there related that it was brought to England (or sent?) by Bigsby in 1825 in which year it was described by G. B. Sowerby. He did not, however, name the fossil which was presented to the Museum of Practical Geology on Jermyn Street, London by Dr. Bigsby in 1848.

The specimen was seen and discussed by Professor E. Forbes in England, an authority on echinoderms, who was writing his memoir "On the Cystidae of the Silurian Rocks of the British Islands". In the meantime, Billings had collected further specimens from the 'Trenton' Limestone at Ottawa that he assumed to be the same as the Bigsby specimen, but when he compared them with the original in London he found that they differed considerably. By this time Billings had named his own specimens after Bigsby and in 1858 he writes of *Edrioaster bigsbyi:*

> "I regret, that, in consequence of mistaking the meaning of Prof. E. Forbes' remarks on the genus *Agelacrinites* in his memoir on the British Cystidae, I supposed this to be the specimen discovered by Dr. Bigsby, and accordingly gave it his name. Since then I have seen Dr. Bigsby's specimen, and find it to be *A. Dicksoni.* It is too late now to change the names."

Bigsby's historic specimen came out second best and was named *Agelacrinites dicksoni* by Billings, after Andrew Dickson of Kingston, "one of the best workers in the field of Canadian geology" and one of the founders of the Ottawa valley town of Pakenham. From a zoological standpoint Bigsby was the real winner because when it was realized that these elegant, starfish-like fossils were a distinct group of organisms, *Edrioaster bigsbyi* became the species typifying the class and the generic name *Edrioaster* proposed by Billings in 1858 became enshrined in the hierarchy of biological classification as the Edrioasteroidea, an extinct class, known only from the fossil record.

Thus a sequence of events in the Province of Canada many years before Confederation resulted in a medal to honour men of science and a permanent contribution to the classification of the animal kingdom.

References

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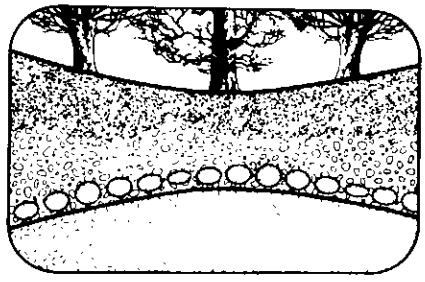
The Soil Column



Interpreting Soil Survey Information

D. W. Hoffman
Department of Land Resource Science
University of Guelph
Guelph, Ontario

Various studies have been undertaken by soil scientists, economists and others to determine the present capacity for production as well as to estimate potential production of Canada's land. The Canada Soil Survey program has attempted to interpret information provided in soil maps and reports in such a way as to provide production estimates.

Some early soil reports grouped the soils into Adaptability Classes or Ratings for agriculture. Soils were grouped into good, good to fair, fair to poor and poor classes based on their ability to produce the crops commonly grown in the region. These ratings simply indicate that one soil is better, worse, or the same as another soil for the production of a particular crop. In a few cases the ratings are made more meaningful by defining good, fair, etc., in terms of reported yields. It was not until the beginning of the Canada Land Inventory (CLI) studies that concerted efforts were made to group soils into production units for uses in addition to agriculture.

The CLI developed a system that grouped soils into seven classes with class 1 being best and class 7 being worst for a defined use. The classes are subdivided into subclasses the number of which varies according to the use. The subclasses indicate the kind of limitation, such as wetness, slope, stoniness, depth to bedrock, etc., and the classes indicate the