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"The region covered extends from the provincial boundary line between the districts of Thunder Bay and Rainy River westward about 65 miles, and from the United States boundary northward about 40 miles, covering an area of about 2,600 square miles. This with previous reliable surveys completes the topography of the country included in the Hunter's Island sheet, and about one-fourth of that of the Seine River sheet to the north.

"This region like all the Archæan countries of central Canada, appears rugged and hummocky, but few hills were observed over 200 feet in height above the lakes which they enclose, and soundings of the latter barely exceeded 80 feet. The numerous lakes form the most important hydrographic feature of the country, the connecting rivers being short and broken by frequent falls or rapids.

"A very large proportion of the country has been swept by fire and few valuable timber areas are seen from the lake shores. Good farming land is of exceptional occurrence, the occasional and limited areas of drift being usually of a sandy and gravelly character.

"Nearly the whole of Hunter's Island is occupied by Laurentian gneiss and granites, with the exception of a narrow band of mica schists along the north side.

"There is also a broad band of schistose or slaty and trappean rocks containing beds of iron ore, crossing the south-eastern extremity of the island in a north-easterly direction. Dr. Lawson has not yet closely examined this band. Many mining locations have been taken up here within the last eighteen months, but no work has been done further than cutting out portages to facilitate the transport of exploratory machinery.

"To the north of Hunter's Island the gneisses are associated with mica schists, probably an eastward extension of the Coutchiching series of rocks so largely developed on Rainy Lake.

"Many of the pegmatite veins cutting the gneiss contain large crystals of beautiful white mica, which in some places may possibly be developed, of sufficient size to be of economic value."

Cost of season's work of Messrs. Lawson and Smith $1,065.48.

Dr. R. Bell, assisted by Mr. A. E. Barlow, continued the investigation and survey commenced the previous summer (1886) between the Montreal River and the northern shores of Lake Huron, with a view to further elucidate the geological structure of the Huronian system as developed in that region, especially in connection with the copper, nickel, argentiferous galena, iron ores, gold-bearing quartz veins and other economic minerals which characterize this system, and which apparently occur at intervals in all parts of its distribution.

Dr. Bell furnishes the following summary of the work accomplished:—"I left Ottawa for the field on the 17th of July and made Sudbury, at the junction of the main line of the Canadian Pacific Railway and the Sault Ste. Marie branch, my headquarters for the summer. Mr. Barlow and party consisting of one assistant and three canoe-men were employed most of the season in making topographical and geological surveys of a number of the lakes around Temagami Lake (which had been carefully surveyed the year before) including Cross Lake on the Temagami River. In the autumn Mr. Barlow made some geological examinations in the Township of Broder and around Lake Panache, principally with a view to the more exact determination of the boundary between the Huronian and Laurentian systems in that direction.

"The country immediately around Sudbury, which is important on account of the gold, nickel and copper deposits now being developed there, was first examined. Then the main line of the railway was followed on foot from Mark Stay to Straight Lake; and the Sault Ste. Marie branch from Sudbury to Mississagi River, with side explorations in the township of Denison and around Algoma Mills. Onaping Lake and River and Vermilion Lake and a part of the river of the same name were also examined

"In 1854-56, the late Mr. Alexander Murray surveyed Wahnapitæping Lake and the Wahnapitæ River below it, as well as a chain of lakes between the former and

Sturgeon River. The shores of these waters were further examined geologically by myself during the past summer. Two traverses were also made between the above lake and Vermilion River, and a track survey of about twenty miles of Wahnapitæ River, above the lake. The section of the Sturgeon River, above the part surveyed by Mr. Murray, and below the point at which I struck it in 1875, was likewise examined geologically, so that the rocks of the whole of this stream, from its source to its mouth, are now known. I next made an exploration of the southern half of Obabika Lake and part of the surrounding country, Mr. Barlow having surveyed the northern part of this sheet of water during the present season.

"A number of points requiring further investigation in connection with the geology of Temagami Lake were next attended to, and I then proceeded to Lady Evelyn Lake, which stretches the greater part of the distance between Temagami Lake and Montreal River. The track survey which I had made of this sheet of water the previous year was improved in detail and additional facts were ascertained in regard to its geology. About seven miles west of Wendabin's house, on this lake, a mountain rises to a height of upwards of 1,100 feet above its level, and afforded some good points of view for making a rough triangulation of the region to the west of it, which has hitherto been a blank on all maps. A track survey was also made of a river from the south-west, which enters Wendabin's Bay, and of two routes between it and Nonwakaming Lake, which lies between the northern outlet of Lake Temagami and Lady Evelyn Lake.

"The work above described will enable us to complete for publication the sheet which was compiled last winter, on a scale of two miles to one inch, measuring 30 by 34 inches, and embracing Lakes Temiscaming and Temagami and a part of the Montreal River; and also one of the regular sheets, 18 by 12 inches, on the scale of four miles to one inch, belonging to the range of sheets next north of that which includes Grand Manitoulin Island. This sheet embraces the country around Sudbury. Most of it has been surveyed into townships, and the greater number of these are now sub-divided into lots and concessions. The area which it represents is continuous with that shown on the Temagami and Temiscaming sheet.

"Geologically, these areas are occupied mostly by Huronian rocks. Whenever the boundary between the Huronian and the general Laurentian region traverses these sheets, it has been defined with sufficient accuracy. Within the outside boundaries of the Huronian, there are several detached areas of gneiss, apparently Laurentian, the limits of which were ascertained. One of these is in the townships of Denison and Creighton, and another in Snider and McKim. A gneiss area on the western side of Lake Wahnapitæping appears to be isolated, as does also one on the south-west side of Lake Anima-nipissing, to the north-east of the main body of Lake Temagami. The two belts of gneiss which cross the Montreal River below the Great Bend, may be connected with those to the north east, discovered by the late Mr. McOuat, on the Blanche, but to the southward they are surrounded by Huronian strata.

"In addition to the large amount of data which was secured regarding the structure and distribution of the Huronian rocks, it is believed that the labors of the past season will throw considerable additional light on the nature and origin of these strata and the alterations which they have undergone. A large number of specimens was collected for study in the office, which, it is hoped, will develop many points of lithological interest.

"The modes of occurrence and the geological relations of the economic minerals of the districts examined were carefully studied. The metals which give most promise at present are the copper and nickel deposits which have been worked for the last three years near Sudbury.

"Early last spring the Government of Ontario having resolved to appoint a Royal Commission 'to enquire into the mineral resources of the province and the best means for their development,' did me the honor to request that I should act upon the commission, and with the approval of the Acting Minister of the Interior and the Director of the Survey I accepted.

"Much of the data required by the Commission had already been ascertained by the Geological Survey, and my appointment resulted in greatly facilitating the enquiries of this commission, by enabling it readily to utilize whatever might be required of the vast amount of knowledge respecting the geology and the mineral resources of Ontario, acquired by the Survey during the past forty-five years, and embodied in the Geological S rvey reports and maps, which have been published during that period, and with which I was thoroughly acquainted.

"I accompanied the other commissioners only when they were in the vicinity of the district in which my work lay, except about 13 days at the close of the season. Altogether about 50 days were occupied at intervals between July and November, in the work of the Commission."

Cost of season's exploration, $1,485.00.

Mr. A. S. Cochrane's work during the summer was in continuation of that of preceding seasons, the object being to obtain the data necessary for showing the geography of the western peninsula of Ontario as accurately as possible on the maps which are being prepared on the scale of four miles to one inch to illustrate the geology of that part of the country. Respecting this work, Mr. Cochrane reports as follows:—

"I went over the ground carefully and marked in the hill features, rock exposures, positions of streams, and the natural features generally. The distances between side lines and concessions, the crossings of roads and railways, &c., were all checked by odometer measurements. The railway plans on large scales (200 and 400 feet to the inch) had all been reduced in the office during the winter, and with these on hand on the ground I was enabled to locate all other features along them with accuracy on the map. The levels of all points which could be easily identified on the ground and fixed on the map, such as intersections of concessions and side lines or of these with railway lines, &c., were determined by the aneroid barometer. I had with me copies of the official plans of the original Government surveys of all the townships, and it was interesting to note the changes which have been brought about by the clearing away of the primæval forests; for example, the old plans show a large amount of swamp lands in every township. Nearly the whole of these have now disappeared, and the lands which they occupied are the most fertile in the country.

"The work of the present season was confined to the area covered by the remainder of sheet 115 (of the general scheme) which had not been finished last year, and embraced part of the township of Osprey, the whole of the townships of Artemesia, Glenelg, Euphrasia and Holland and half of that of Sullivan. This completes the field work for the above sheet and all the material is now on hand for compiling it for the engraver.

"The cost of the season's field work was $380."

Mr. A. P. Low left Ottawa in May to continue the surveys and exploration of the eastern coasts, islands and rivers of Hudson Bay, on which work he has now been occupied for several seasons, and though no important facts relating to the geology of this vast unexplored region have yet been elicited, considerable additions have been made to our previous knowledge of its geography and general physical character. There still remain, however, areas as large as the provinces of Ontario and Quebec, of which nothing is yet known, though there is reason to believe that in some of these further exploration would probably result in the discovery of valuable mineral resources and much interesting geological and geographical information.

On the work of the past summer Mr. Low reports as follows:—

"I left Ottawa on the 29th of May and proceeded by the Missinabie River to Moose Factory.

"Here the boat used the previous year was stored; in it the party sailed across the foot of James Bay, and along the east coast to Fort George at the mouth of the Big River, arriving there on the 28th of June.