

Davis, in closing, promised all possible assistance to the mining interests of the Province.

Professor Coleman read a paper prepared by A. B. Willmott, of Sault Ste. Marie, on "The Exploration of the Ontario Iron Ranges." Mr. Willmott referred to the geological similarity between certain belts in Ontario and those found south of Lake Superior. The lack of known ore bodies was owing to the fact that they had not been properly sought. He instanced the Josephine and Frances mines, where surface indications were slight, but where deep drilling had met with entire success. During the past two years systematic work had been done on the Steep Rock, Animikie, Michipicoten and Hutton ranges, and in most cases good ore bodies have been discovered. The work done in Ontario, however, was trifling compared with that going on on the American side of Lake Superior. The time had gone by when ore bodies were found by running through the woods with a canoe and a pick. Iron ranges had been found, and the question of their value could only be determined by careful and intelligent work.

F. T. Snyder read a paper on "Magnetic Separation." In the discussion which followed, it developed that Mr. Snyder was the inventor of a magnetic concentrator of a new type, with which very successful work had been done.

Friday morning was devoted to the reading of students' papers, which comprised "Mica," E. T. Corkill, Kingston; "Pioneer Iron Mine, Ely, Minnesota," E. J. Carlyle, McGill University; "Chlorination at North Brookfield, N.S.," H. Forbes, McGill University; "Notes on Mining in the Regent Group, Negaunee, Mich.," M. B. Atkinson, McGill University; "The Tyee Mine," Vancouver Island, B.C., D. C. Livingstone, McGill University.

In the afternoon a paper was read by W. G. Miller, Provincial Geologist, on "The Undeveloped Mineral Resources of Ontario." The presence of rare minerals had been determined in Laurentian formations, and with the advance of mining methods they would prove profitable fields for exploration. The wide area of gold-producing rocks discovered gave promise of vast undeveloped resources of this metal. A valuable silver mine was in operation at the head of Lake Superior, while silver had been discovered 500 miles east. The abundance of iron already in sight was an indication of the extent of undeveloped resources in this mineral. When facilities for transportation were provided, these would become paying properties. Good reasons existed for the belief that diamonds would be found in northern Ontario, the necessary geological conditions existing there. In discussing this paper Mr. Gibson referred to the success attained in briquetting Ontario peat.

A. C. Garde, of Sandon, B.C., called attention to the waste of zinc which had been going on, and reviewed some methods for overcoming it.

J. A. Dresser, Montreal, described an area of copper-bearing rocks in the Eastern Townships of Quebec, between Lake Megantic and the Arnold river, near the Maine boundary. These he believed to be a continuation of the New Hampshire copper ranges. The building of the Grand Trunk Pacific would open up this region and permit these deposits to be developed. A number of papers were read by title.

The concluding session was held on Friday evening. T. W. Gibson gave a statistical paper showing the progress of mining and the manufacture of its products during the past year in Ontario. The total output for 1903 was about 45 per cent. less than for 1902, but the special causes, such as the Sault situation, leading to this reduction, when carefully considered, showed that progress had been most satisfactory. He referred especially to the remarkable growth of the cement industry in Ontario, and to the possible over-passing of the demand by construction.

A discussion followed, in which reference was made to the uses of cement in buildings, in culverts and bridges, in foundations, in lining mine shafts, etc., including the use of reinforced concrete, or concrete and steel construction.

Professor L. T. Walker, of Toronto University, spoke briefly on "The Geological Survey of Canada as an Educational Influence," after which the Institute unanimously adopted a resolution presented by Mr. Craig: "That the president (Eugene Coste), Major Leckie, Treasurer Brown, Dr. F. Adams, Prof. R. W. Brock, Prof. T. L. Walker and B. A. C.

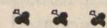
Craig be a committee to confer with the Minister of the Interior and the heads of the provincial mining bureaus on the necessity of giving preference to geological students when making up geological survey parties; that the committee also point out the necessity of the Minister of the Interior and the Provincial Government taking steps to maintain the efficiency and increase the size of the permanent geological staff."

Mr. Coste read a paper on "Some Suggested Improvements in the Mining Laws in Canada," in which he advocated the passage of a Dominion mining act, to take the place of the present clumsy system of regulation by order-in-council. He pointed out that in some sections owners of placer mines were compelled to perform assessment work to the amount of \$40 per acre each year, while quartz mine-owners only had to do work to the extent of \$2 per acre for five years. He favored the imposition of assessment work to the amount of \$5 per acre on all mining lands, with immediate forfeiture to the Crown in case of non-compliance. He pointed out that only about one-half of one per cent. of the mining lands granted in Ontario in the last six years were being worked. This meant that the chances of finding paying properties were reduced to one in several thousands. He characterized inactive claim owners as drones, who prevented others from taking advantage of the country's resources. He suggested a law to provide for some return to the people for a grant, either by doing work on their claims or by the payment of a yearly tax, if no work was done. The principle was that the grantee should make some return, either in development or money. With regard to the Dominion, he thought that the great interests of the Yukon and other territories—such as Alberta, Assiniboia and Saskatchewan—should be governed by a known and definite law, and ought not to be left to the discretionary regulation of orders-in-council, which are liable to be changed at any time.

Many members took part in the discussion, including Messrs. Thompson, Hardman, Gibson, Leckie, Blum, Miller, McCharles, Coste, Craig, Hobart and others. Unfortunately, some of the speakers seemed to have missed Mr. Coste's main point, that the law should prevent the locking up of mineral lands by parties who only wished to hold them for a possible rise in value, or, perhaps, to prevent others from working them.

This closed a successful meeting, notwithstanding the depression caused by the regrettable and untimely death of Secretary Bell.

The following officers were elected for the ensuing term: President, Eugene Coste, Toronto; vice-president, E. B. Kirby, Rossland; treasurer, J. Stevenson Brown, Montreal. Council—J. McEvoy, Fernie; W. F. Robertson, Victoria; A. W. B. Hodges, Granby; W. G. Miller, Toronto; Major R. G. Leckie, Sudbury; John Blue, Eustis; Frank D. Adams, Montreal; Graham Fraser, North Sydney. As the by-laws require nominations to be made three weeks before the convention, no nomination could be substituted for that of the late B. T. A. Bell as secretary. The council will name an acting secretary, who will fulfil the duties of the office until the next convention.



PORTABLE VOLTAGE AND SERIES TRANSFORMERS.

The ordinary equipment for making electrical measurements affords chances for error which care cannot always overcome. It is frequently impossible to have at command instruments of all the capacities required to give the best results. Readings should be taken well within the range of the instruments, upon the portion of the scale where the divisions are large and open and errors in observation not likely to occur, but when, owing to lack of instruments of the proper capacities, readings are taken at the ends of the scale where the divisions are narrow, the greatest care cannot always prevent errors, or uncertainty as to the correctness of the readings taken. Even when instruments of all the desired ranges are at hand, it is still often difficult to obtain absolute accuracy and uniformity of results, owing to the variations in the different instruments, which make it impossible to check up the results obtained. In checking and testing electrical instruments with the use of the ordinary ap-