

deposits, it having been decided to withdraw from sale the promising areas found by us and thus prevent them getting into the hands of speculators, who might tie up the district for years by asking exorbitant prices. By thus withdrawing these areas from sale it was also made feasible to secure better terms, as to working the deposits, from parties securing them. I feel that under this arrangement our work was of as much direct value to the Province at large as it would have been to any private company had we been engaged by such a concern. Our work has increased the value of these Crown lands by enough to pay many times over the amount expended on the examination. My conscience is, therefore, easy on the financial side of the subject, as the lands could be sold by the Province to-day for much more than they could have been sold for at the time we began the work on them. This ought to satisfy those people who are always asking for direct returns from geological work, and who are often unable to see that practically all geological work has at least an indirect bearing on economic questions.

In our work in 1897 we outlined a belt of country about 30 miles in length and two or three miles in breadth over which outcrops of corundum occur. In our last season's work, 1898, we have succeeded in increasing considerably the length of our belt of corundum rocks, and we have not yet come to the end of it. The rather contorted belt, as we now have traced it out, is over 75 miles in length, and there are two isolated areas of the rock on which I have done some work, but which time has not permitted me to attempt to connect with the main outcrops. One of these lies a considerable distance to the southeast of the eastern end of the main belt and the other area lies to the south of the western end. It might be possible, if one had time, to connect these different areas.

As it now stands, the belt of these rocks holding its irregular and sometimes narrow course through the other members of the Archean crystalline series is one of the most interesting structures we have, I think I am safe in saying, in our oldest group of rocks. As yet we do not know exactly what this structure signifies. But I hope that when it is carefully worked out and studied in greater detail this group of rocks will aid in solving some of the problems which are now attracting the attention of petrographers.

In the highly metamorphic state in which many of the members of the Archean occur it is difficult to make certain that igneous rocks, such as granites, syenites and diorites, which are found in isolated outcrops miles apart, belong to one eruption, but in the case of the corundum-bearing rocks we have a mark in the mineral itself which assists us in connecting and proving relationship between masses which would not otherwise have attracted attention as being related.

The corundum, as Mr. Blue has said, occurs typically in what we have called syenite. The rock often contains nepheline, which is the primary reason for speaking of the series as syenite. I have found by microscopical and chemical examination, however, that while the greater part of the rock in which corundum occurs may be called in general syenite, there are large masses of rock, consisting in one case of several square miles, which are more properly called gabbros or anorthosites. On the other hand, the syenite appears in some cases to merge gradually into the quartziferous variety, or into granite, in which, however, no corundum has been found. We have thus as products of one magma a series of plutonic rocks, ranging in acidity from granites to gabbros. And if one likes to make hair-splitting distinctions, he might work out representatives of about all of the plutonic group. I might also add that if there is any man who wishes to gain the questionable distinction of introducing a new rock name, I think he could get material for the purpose among this corundum-bearing series.

The first person to report the occurrence of these rocks, which have since been found to so commonly carry corundum, in the district, was Dr. F. D. Adams. In the summer of 1893 Dr. Adams found nepheline syenite in place in the township