

It is now pretty clearly demonstrated by those eminent Canadian geologists who have earnestly investigated the phenomena of occurrence of this peculiar mineral, that it is found, with rare exceptions, in detached masses or pockets sometimes resembling veins, in masses of pyroxene which, originally considered as interbedded portions of the structure of the Laurentian rocks, are now generally acknowledged to be intrusive dykes, probably connected with the basic eruptions of Archean date.

Very recent observations made in the actual mining of phosphate corroborate in a remarkable way these conclusions, and give at once a basis from which to start in searching for the mineral.

The question of irregularity and uncertainty of the phosphates is not disposed of, but the occurrence and form of the pyroxene are shown to be not irregular and it may be easily recognized.

It is well known that these pyroxene zones, belts or bands, or whatever name they are distinguished by, are readily found and their boundaries clearly defined.

Granting this, it will be seen that the field of operations for the diamond drill prospector is not unduly large, and that a comparatively few carefully selected bore-holes will show if the zone is rich in phosphate or not, the character of the deposit, rich or poor, generally prevailing throughout, and if it is desirable to make further and more conclusive tests, or proceed to another field without loss of time or money.

If a number of vertical borings, placed at fixed intervals with their situation carefully recorded on plan are made and a proper register kept, together with the drill cores brought to the surface, a number of accurate profiles may be constructed, showing a faithful section of the ground tested and whatever it contains. And if parallel lines of borings be made at a convenient distance it will be seen that the area of these respective profiles multiplied by the parallel distances apart will give approximately the quantity of material lying between, whether of unproductive ground or a deposit of mineral.

My own experience in diamond boring in phosphate deposits has been confined so far entirely to underground work, *i.e.* in testing the ground in search of deposits lost track of, or cut out, or new ones believed to exist, but I am able to testify to the success attending those borings made and profiles taken which proved the existence of several valuable deposits; in one case fully corroborated by the extension of a