

## PETROGRAPHY.

## PRELIMINARY STATEMENT.

The following description of the petrography of the Canadian volcanics comprises: a summary of the results of the work done by C. W. Knight in describing these rocks; descriptions of the primary rock types found in the breccias by the present writer, with one analysis; descriptions of the present types of pyroclastic rocks not described by Knight; a discussion, summary, and conclusions in regard to the petrology of the volcanics.

## SUMMARY OF KNIGHT'S RESULTS.

The specimens studied by Mr. Knight were collected in 1902 by Mr. W. W. Leach, and belong to the collection of the Geological Survey of Canada. He notes the following types:<sup>1</sup> augite trachyte, tinguaitite, andesite, and analcite trachyte. The last type is represented by an analcite-orthoclase which he names *blairmorite*-tuff, after the town of Blairmore, Alberta, near where some outcrops of the rocks occur. He suggests the name *blairmorite* for a rock, the probable fine-grained nature of which he predicts, and which will contain icositetrahedral phenocrysts of analcite. He also describes a rock fragment of this type consisting of (loc. cit. p. 275) ".....phenocrysts of orthoclase and analcite less than 1 mm. in diameter set in a groundmass of feldspar and quartz (a few of which have twinning lamellae of the plagioclases) and a few smaller analcites. Some titanite is also present.....".

The following minerals were noted by Knight in the specimens loc. cit. p. 207:—

"Orthoclase, sanidine, analcite, augite, ægirite-augite, ægirite, acmite, diopside, titanite, microcline, anorthoclase, andesine, nephelite, hornblende, apatite, biotite, garnet, magnetite, and various secondary minerals, such as chlorite, limonite, calcite, etc. Sodalite is probably present in small quantities."

<sup>1</sup>Knight, C. W. Can. Rec. Sci., Montreal, vol. 9, 1905, pp. 265-278.