perhaps deserving of record at this time, though the formation would repay a more detailed and careful study.

In the preparation of this paper the writer was helped by advice and criticism from the late W. W. Leach, and from Dr. C. H. Warren and Dr. H. W. Shimer. The work in connexion with this paper was prepared in the geological laboratories of the Massachusetts Institute of Technology.

HISTORICAL.

In 1886 G. M. Dawson published some brief descriptions of these volcanics, and listed some localities where he had observed them.[1] He states (p. 69 B) that they were first observed in 1881 (by himself?) in the Crowsnest pass. In 1902 W. W. Leach of the Geological Survey of Canada mapped and made a report on the Blairmore-Frank coal fields.[2] He makes note of the usefulness of the volcanics as a horizon marker. Specimens of the tuffs and agglomerates collected by Mr. Leach have been examined petrographically by C. W. Knight[3] and further reference will be made to his work. Leach, in his detailed examination, in 1912, of the Blairmore map-area, gives measurements of the volcanics.[4]

So far as is known to the present writer, the references noted above form the only literature in regard to these rocks published to date.

LOCATION.

The district underlain by the Crowsnest volcanics comprises a portion of the eastern Rocky mountains and their foothills, in southwest Alberta. The southernmost outcrops are in about latitude 49°25′ north, and they extend nearly due north some forty-eight miles to about latitude 50°05′ north. The southern boundary of the formation is not far south of the South Branch

[1]Dawson, G. M., Geol. and Nat. Hist. Survey of Canad. Part B, Ann. Rept., 1885, pp. 57B, 69B, 88B.

[2]Leach, W. W., Ann. Rept., Geol. Survey, Canada, vol. XV, p. 171 A.

[3]Knight, C. W., Canadian Record of Science, Montreal, vol. [illegible] 5, 1905 pp. 265–278.

[4]Leach, W. W., Summary Rept. Geol. Survey, Canada, 1911, p. 197.