

In the section above, horizons 2 and 3 at least, and possibly 4, are Tertiary age, 5 is the white silt mentioned above, 6 and 7 are recent river deposits.

The terraces along the Fraser and its tributaries owe their level surface to deposition of sheets of river sand and gravel during flood times.

CHAPTER III.

HYDROMAGNESITE.

Deposits of hydromagnesite were examined and mapped at Clinton Meadow lake, Watson lake, and Riske creek. The material is a cream coloured, partly consolidated earth lying on the bottoms of valley floors. Although parts of the deposits contain much lime and other impurities the composition of the better grades approaches that of the mineral hydromagnesite, which is magnesium carbonate with contained water, $3\text{MgCO}_3 \cdot \text{Mg}(\text{OH})_2 + 3\text{H}_2\text{O}$, and for convenience the deposits in general are referred to as being hydromagnesite.

OCCURRENCES OF HYDROMAGNESITE AND MAGNESITE IN CANADA AND ELSEWHERE.

Hydromagnesite is of common occurrence as an alteration product of serpentine, but generally was developed in quantities too small to permit of exploitation. Large deposits, however, occur in unconsolidated material near the town of Atlin, B.C., and also in and near the area dealt with in this report. Outside of a trial shipment of about 600 tons of the Atlin hydromagnesite to Vancouver in 1915, the deposits have remained practically unexploited.

Hydromagnesite is so closely related in composition to the mineral magnesite that it may reasonably be expected to yield nearly all the products obtained from the anhydrous mineral. This being so, the distribution of magnesite and the uses to which it has been put are summarized here¹.

Before the war the principal supplies of magnesite were obtained from Austria-Hungary and Greece. The production of the United States in 1913 was 9,632 tons, valued at \$77,056, and of Canada 515 tons, valued at \$3,335. The cutting off by the war of the Austrian supply and a great part of the Grecian supply, together with an increased use of magnesite products, stimulated North American production, so that in 1917 the United States² produced 316,838 tons, valued at \$2,899,818, and Canada³ 58,909 (crude and calcined) tons, valued at \$728,275. The production of both countries fell off considerably in 1918 as indicated in the annexed table. Similarly, before 1915, the metal magnesium, which may be obtained from magnesite or its products, and for the production of which magnesite ore will no doubt be more extensively used in future, was not produced on a commercial scale in Canada or the United States. In 1915, however, 87,500 pounds having an average value of \$5 per pound, were produced in the United States, and in 1917 the amount had risen to 115,813 pounds but with an average value of only \$2 per pound.

¹For a summary of the commercial products obtained from magnesite, together with an account of the world sources of magnesite, that had been developed in 1916, the reader is referred to Geol. Surv. Can., Mem. 98, by M. E. Wilson.

²Mineral resources of the U.S., pt. II, "Magnesite in 1917," by Chas. W. Yale and Ralph W. Stone, p. 64.

³McLeish, John, Ann. Rept., Mineral production of Canada for 1918, p. 57.