Mineral Composition.

In attempting to interpret the analyses in terms of mineral composition the writer was guided by the following considerations: (1) The sulphate radicle was combined with calcium as gypsum $CaSO_4+2H_2O$ or anhydrite $CaSO_4$, because the calcium sulphates are very much less soluble than the magnesium or ferrous sulphates, or sulphates of the alkalis. Gypsum[1] loses three-fourths of its water of crystallization when heated for some time at 100 degrees C., but retains the remainder to a much higher temperature. One-fourth of the water required to make gypsum must,

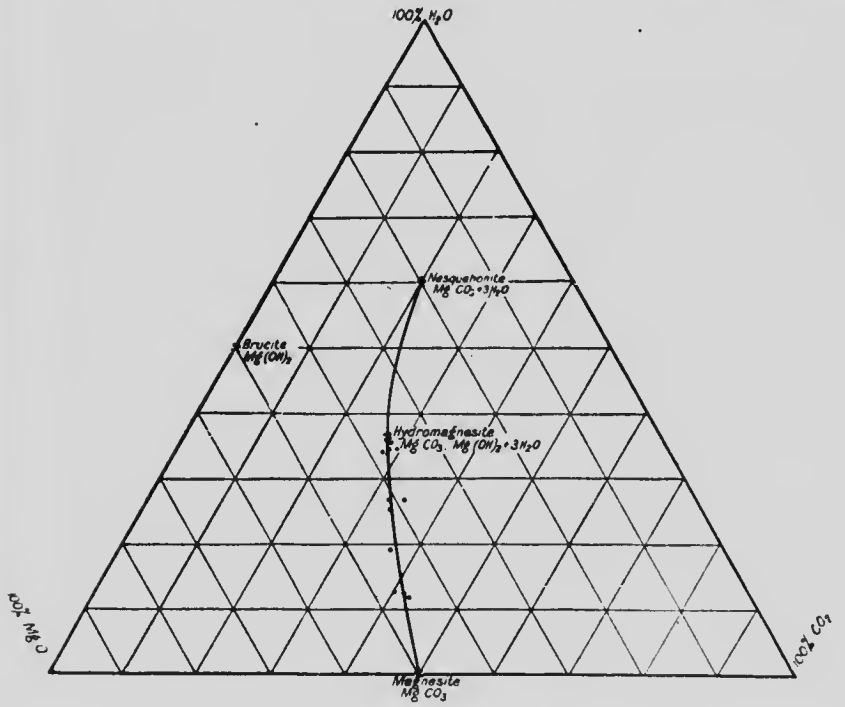

Figure 4. Chemical composition of hydrous magnesium carbonate compounds. (Plotted according to molecular proportions.)

therefore, come from the percentage given in the analysis as passing off above 105 degrees C. The maximum amount of gypsum present is, therefore, limited by the amount of water liberated above 105 degrees C. and for this reason it follows that anhydrite is present in both the earths high in gypsum represented by analyses 1 and 7, Table IV. The presence of gypsum crystals has been proved in these cases by microscopic work, but no satisfactory determinations were made of the very fine grains supposed to be anhydrite. (2) The calcium remaining after satisfying the available

[1]Thorpe, E. A., "Dictionary of applied chemistry," vol. 1, p. 611.