is the principal silver mineral. Oxidation has taken place and cerussite is an important mineral in one of the mines. Work has not been carried deep enough in any mine to determine whether the zinc content increases with depth, but it is notable that the properties situated at the higher elevations are on the whole essentially silver-lead bearing and practically free from zinc, whereas the properties located at lower altitude carry zinc.

Magnesium and Sodium Salts.—Investigations by L. H. Cole[2] have shown that in western Canada there are deposits of hydrous salts, mainly sodium sulphate, amounting to 115,000,000 tons. Deposits of all degrees of concentration occur, from the lake the waters of which are only slightly alkaline and in which no crystal bed is present, to the heavily bedded deposit which is either completely dry or has a covering of brine that is at or near the saturation point. They occur in depressions in the moranic drift of the Prairie Provinces, having no apparent outlet. It seems probable that the salts have their source in the unconsolidated drift material. It is suggested that calcium salts in solution in meteoric waters exchange bases with alkaline silicate in the bentonite of the drift, setting free soluble sulphates that are concentrated in undrained lake basins.

Deposits of magnesium sulphate and sodium sulphate in southern British Columbia, from which epsomite is recovered for the market, are described by M. F. Goudge[2]. The sodium carbonate lakes found north of Clinton are also described.

Nickel.—The most exhaustive work of recent years on the igneous rocks and ore deposits of the Sudbury mining district is one by Dr. T. C. Phemister[3]. From eleven sections made at different points across the elliptical ring of norite and micropegmatite Dr. Phemister finds that the norite typical of the southern part of the ring has its most basic facies from half to three-quarters of the total width of its outcrop from the basal contact, that the micropegmatite in general becomes more acid towards its contact with the norite, that although no sharp contact between the norite and micropegmatite was observed the transition zone never exceeds 80 yards where dynamic metamorphism has not obscured the relationship, and that the norite near the micropegmatite has suffered alteration. For these and other reasons he concludes that the norite and micropegmatite are separate and distinct intrusions.

With regard to the sulphide deposits he is of the opinion that the sulphide-bearing solutions were emanations from the same general source as furnished the rest of the material for the Keweenawan volcanic period.

"The ore-forming agency was not a magma, for it contained sufficient aqueous material to effect extensive hydrothermal replacement and hence cannot be regarded as molten. Again, the distribution of the ore bodies does not support the view that they gained their position by intrusion alone. At the same time, when the inclusions in the ores are studied, their abundance and their frequently roughly angular character indicates that replacement, though important, has not been the only process operative in the isolation of these fragments of the country rock. Some intrusive power must be allowed to the original ore-forming solution. This is by no means an unreasonable assumption, since it is already known that the sulphides have been formed under conditions of high temperature and pressure. The intrusive power of the hydrothermal solution may have been due partly to gaseous tension and partly to forces exerted on it from below."

Dr. Phemister's report calls forth criticism by Dr. A. P. Coleman[4], who is a strong exponent of the magmatic segregation hypothesis of the origin of the nickel