

ORIGIN OF THE DEPOSITS.—The mineralized area at the Hidden Creek mine occurs in a large predominantly argillaceous area surrounded and doubtless underlaid, although at a considerable depth, by granitoid rocks, and cut by dykes and stocks belonging to the same period of igneous intrusion. The strata were irregularly compressed and folded at the time of the invasion and the deposit probably occupies an area more than ordinarily crushed and fractured, although this has been masked by subsequent alteration and deposition and is not apparent. A wide broken zone, rather than a single fissure, is conceived to have afforded the means by which heated siliceous waters carrying iron and copper sulphides in solution ascended from the underlying batholith, altering the country rock in their upward passage and replacing them with silica and sulphides as the pressure and temperature conditions became less severe.

An origin of this kind would ally the deposit genetically with the loosely defined contact metamorphic group, although the ordinary contact metamorphic minerals, including the iron oxides, were not observed, and are either absent altogether or present only in very small quantities.

Deposits of the contact metamorphic group, that is, deposits situated on or near the contact of igneous masses with sedimentaries and formed by ore-bearing solutions, either aqueous or gaseous, emanating from the cooling intrusive, vary widely in character. Ordinarily they are described as bunchy, irregular masses, made up mostly of iron oxides, and iron, copper, lead, and zinc sulphides, in a gangue of secondary silicates, mostly garnet, epidote, augite, and tremolite. An examination of numerous occurrences at various points along the west coast indicates, however, that neither shape nor the presence of any or the majority of the compounds mentioned are essential features. The shape is dependent on the channel followed, and in a broken region perfect vein forms produced by the complete replacement of the country between parallel fissures are not uncommon. The constituents are also dependent on the character of the parent intrusive, on conditions of deposits, and possibly on the aqueous or gaseous character of the emanations, and gradations occur from masses of pure or nearly pure magnetite to others made up largely of tremolite and iron and copper sulphides, and in some instances of quartz and sulphides. The present classification, based only on a broad genetic relationship, is far from satisfactory. The name of the group is also misleading, as it included deposits far removed from actual contacts.

EQUIPMENT.—Work on the Hidden Creek mine up to the present has been altogether of an exploratory character, but plans for working and equipping it on a scale commensurate with