boundaries. The present paper is based largely on observations made during the reconnaissance.

The geology of the camp is somewhat complicated. The oldest recognized rocks are sedimentary, often greatly metamorphosed. Among these the most conspicuous, when not too highly altered, is limestone. It is metamorphosed to crystalline limestone and lime silicate hornfelds. The latter is sometimes a green and sometimes a compact, broken-up, light-colored, porcelain-like material, resembling a baked argillite. When alteration to silicates has been uneven and incomplete, a breccia-like or conglomerate-like rock results, with the green silicates sometimes as the matrix, with limestone rests and sometimes as the nodules, with an unaltered limestone matrix. The limestone and its alteration products occupy a larger area than represented by the limestone coloring on the map. Some argillites occur in this series, and closely associated are some greenstones. Large masses of gray Nelson granodiorite is intrusive in these basal rocks. Both these formations are intruded by small masses of a gabbro-like rock and a porphyritic syenite distinguished by its long reddish feldspar crystals. Towards the west, forming the West Branch divide, is a light acid granite (Valhalla Granite) intrusive in the above series, and to the east a pink, alkali-syenite, also later than and intrusive in the above formations. Numerous porphyry dykes from these intrusives traverse the older rocks.

At many points overlying the previous formations is a series of Tertiary rocks. These consist of quartzite-like, gritty tuffs with coarse conglomerate bands, conglomerates and ash beds, and overlying these again, lava flows with some inter-leaved ash rocks. The conglomerates hold pebbles and boulders of the older rocks, particularly of the granodiorite, limestone, greenstone and an older, finer-grained conglomerate These range in size from a half inch to two feet in diameter. The conglomerate appears to cover a greater area than represented on the map, reaching in places to the North Fork bottom. It is cut by dikes from the alkali syenite and from the volcanic rocks.

The lava beds, which occupy the higher levels, show in places basaltic jointing. Some beds are rich in gas pores, the latter often containing agate, calcite or zeolites. The intrusive rocks have profoundly altered the older formations over considerable areas, and incidentally ore deposits have been developed in the latter.

The deposits so far uncovered present several more or less distinct types.

1. Those in which the gangue consists of country rock altered to green lime-silicates, such as hornblende, epidote, garnet (generally reddish), with quartz and calcite. Such deposits, since they are especially apt to occur in the (altered) limestone may be, for convenience, called the limestone type.

Deposits of this class differ in the relative amounts of their metallic minerals, and, using this as a basis, may be sub-divided into—

(a) Pyritic Type—The metallic minerals consist predominantly of pyrite and chalcopyrite.

(b) Magnetitic Type—The metallic minerals consist predominantly of magnetite, with some copper and iron sulphides.

(c) Galena Type—The metallic minerals consist of galena, blende and chalcopyrite—this type occurs on the McKinley near type a and b; the silicate minerals are not prominent in the exposures on this lead, the crystalline limestone often abutting against the sulphides.

2. Chalcopyrite, or pyrite deposits with molybdenite, calcite and quartz in crushed zones, fractures, fissures or near contacts. Replacements or substitution of the minerals of the country rock by ore is usually conspicuous. Granodiorite or porphyritic syenite formed the country rock in all deposits of this type seen by the writer. For convenience, then, these may be referred to as the granite type.

3. Quartz veins, in which quartz is the dominant mineral accompanied by galena, blende, pyrite, chalcopyrite, molybdenite, arsenopyrite, etc.

The most extensively developed claim is the McKinley, on which approximately $30,000 has been expended in surface improvements, trenching, tunnelling and diamond drilling. On the north slope of McKinley Mountain in a band of crystalline limestone, running north across Franklin Creek to Franklin Mountain, four leads have been discovered. The strike of the leads has not been definitely determined, but they appear to be lying transversely to the direction of the limestone band—here about 300 feet wide. Along these leads the limestone is more or less changed to epidote, hornblende and garnet. The lowest lead, exposed by an open cut, shows a heavy development of magnetite, with some pyrite and chalcopyrite. The latter, while somewhat disseminated in small specks, show a tendency to accumulate in veinlets in the magnetite. Diamond drilling, which was in progress on this showing, was said to be demonstrating a fair sized body of ore.

The second ledge outcrops for a width of about 30 feet, but the dip is at a low angle southwest. It shows a heavy development of galena and blende as well as chalcopyrite. The lime silicates are only sparingly developed here, the crystalline limestone being often in direct contact with the galena. Only open cuts have been made in this lead. The grade of ore is stated to be high, particularly in silver. The third ledge, in which the chief work has been done, holds iron and copper pyrites, with a considerable amount of the gangue minerals. It is supposed to be about 40 feet wide, dips 45 degrees south, and has been traced for 300 feet.

The main working is a tunnel. About 100 feet in, a cross-cut has been run westward 104 feet, the last 80 feet of which is in ore. Two hundred and fourteen feet in the tunnel 15 feet of ore is encountered (No. 4 lead). This ore is like that of No. 3, except that it contains less pyrite and more chalcopyrite.

Average assays of the largest ledge are said to run about 2.5 per cent. copper and about $2.00 in gold and silver.

The McKinley Company are also testing the Banner claim on Franklin Mountain by diamond drilling. This claim has not been seen by the writer since 1900. At that time a strong, very wide lead of quartz, mineralized with galena blende and chalcopyrite were exposed.

On the Maple Leaf claim, on the northeast slope of Franklin Mountain, copper ore occurs in the reddish porphyrite syenite near and along its contact with the basal formation. The mineralization is confined almost exclusively to the intrusive rock. Fractures in this syenite are filled with seams of chalcopyrite and pyrite, or with green malachite resulting from the alteration of the copper ore by atmospheric weathering or surface water, and in addition there is marked selective replacement of the minerals of the syenite by the sulphides. The colored constituents are more readily replaced, so that where the action has not been excessive the prominent feldspar crystals may be found lying in a sulphide base. Where the replacement has been more extensive, the feldspars are attacked, and finally the whole mass of rock becomes sulphides. At several points along the contact, which is generally covered with wash, wide stretches of the more or less mineralized syenite have