

older rocks all show the effects of profound regional and dynamic metamorphism, which has probably been mainly caused by the thermal and dynamic action of the intrusive Coast Range batholithic rocks.

The older metamorphic rocks now occur as patches and large inclusions surrounded by the batholithic rocks, and are deeply cut by dykes which are upphysical phases of the plutonic magmas. The contact-zone is an irregular area which is variable in width and gradually changes, going easterly, to where the older rocks predominate, with only a few dykes of the younger plutonic rocks cutting them. Still farther east these older rocks are capped by volcanic flows of Tertiary age, which are mainly of a basaltic nature.

DETAIL.

This deposit of hematite is of contact-metamorphic origin. The ore is developed in the argillite rock generally at points not far distant from where pegmatite granitic dykes cut the argillites. As is usual in this character of an ore-body, the occurrences of ore are irregular, but further development may prove that the different outcrops are more continuous than they now appear to be. As the surface is covered with slide-rock, the iron ore is only exposed here and there in trenches and cuts. As far as can be seen, it would appear as if the argillite occurred as small lenses engulfed in a granitic magma and cut by dykes of granitic rock. Towards the end of the granitic intrusion iron-bearing solutions followed along the dykes and attacked and dissolved out the argillite, metasomatically replacing it with iron oxide. In places this iron oxide—hematite—is solid, and in others it fades gradually away to straight argillite. The hematite is of the hard variety, the colour being a very dark red to almost black.

The granitic dyke-rock is characterized by being very completely altered from its original condition: it now consists of kaolin, chlorite, with some quartz and mica crystals. The large amount of kaolin present, formed from alteration of original feldspar, makes the rock quite soft.

DESCRIPTION OF THE WORKINGS.

The main showings of iron are situated on the *Britton* and *Monarch* claims. The surface work consists of eight open-cuts, with a depth of 4 or 5 feet and a length of from 10 to 50 feet. These openings are mainly in slide-rock, and, as most of them were made two years ago, the sides of the cuts in many places have fallen in, thus making it difficult to examine the bottom. The most westerly cut shows a width of 6 feet of nearly solid hematite. A sample cut across this 6 feet returned the following assay:—

Iron	47.5 per cent.
Sulphur	Nil.
Phosphorus	Trace.
Another sample taken to be an average of the dump from this cut assayed:—	
Iron	48.4 per cent.
Sulphur	Nil.
Phosphorus	Trace.

There are several cuts exposing ore which are stretched along the route of the tunnel. None of these cuts show any great width or length of ore, and in most of them it is doubtful if the bottom shows rock in-place. All the dumps from these cuts show hematite mixed with argillite and granitic rock. A sample of selected ore from one of these dumps assayed:—

Iron	57.0 per cent.
Sulphur	Trace.
Phosphorus	Trace.