VIRTUE AREA

Geography:

The Virtue area embraces the drainage south of the lower Powder River and east of the Baker Valley divide, as far east as Five Mile Creek. The Virtue District proper, one of the oldest in Eastern Oregon, is situated about 7 miles directly east of Baker and is about 12 miles in length from north to south and varies in width from 3 to 6 miles. It occupies the southern part of T. 8 S., practically all of T. 9 S., and the northern part of T. 10 S., all in R. 41 E.

It covers a region of low arid hills rising in the great bend of Powder River. The elevation ranges from 3,400 to 5,000 feet. The hills rise rather abruptly from Baker valley and, east of the summit, slope gently eastward toward the lower Powder River valley. Most of the drainage is toward the latter. Within these hills is Virtue flat, a sage-covered depression extending 8 miles east and west and 2 miles north and south. The water supply is very scant, the only stream being Ruckle Creek in the extreme eastern part of the district. Good roads from Baker City reach various parts of the district.

Geology:

The geology is similar in the main essentials to that of the other mining sections of eastern Oregon (see Gilluly, 37), in that the ore deposits are the result of an intrusion into older flows and sediments. Obscured as it is by the covering of hillside wash, basalt, and lake beds laid down since the time of the intrusion and only partially removed, makes field investigation difficult.

The intrusion exposed over but a limited area in the northern part of the district is a greenish-gray diorite, grading into gabbro. This diorite is probably a local development of a granodiorite intrusion. By this we mean that the intrusion in stoping its way into the older greenstones and argillites has incorporated so much of these older rocks that its acidic nature has been so modified on this upper part as to become sufficiently basic to be called a diorite or gabbro. Erosion has exposed nothing but the diorite, but there are many things which evidence that underneath this modified exterior it will shade into granodiorite at depth.

The argillites and greenstones into which the intrusion came have been much mashed and altered by regional metamorphism, doubtless both before and during the time of the intrusion. Of the older rocks greenstones predominate in the northern part of the district, while argillites are the chief older rocks in the southern part. They doubtless continue underneath their basalt covering many miles to the south and west. Thin basalt flows are found on the tops of the elevations and on much of the hillsides. In Virtue Flat lake bed materials exist to considerable depths.

At different times during the intrusion the diorites were fractured as well as roof of sediments and flows. Into these fractures was injected the dikes which grade from basic to acidic, the latter from granodiorite-porphyry to aplite. After the dikes had been formed, later fractures were filled with gold-bearing quartz deposited in them by hot ascending waters coming from the intrusion itself. Since the intrusion apparently is roughly circular, it is to be expected that there would be no parallel vein system. The quartz veins strike in many directions and individual veins are not traceable for long distances. Most of the deposits are normal, simple, quartz veins containing very small amounts of sulphides. The free gold is coarse and contains but little silver. Very rich pockets were frequently found. The total production of the district is about two and one-half millions.

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