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THE PLACER GOLD DISCOVERY

in ✓

THE BUCKSKIN MINING DISTRICT, NEVADA.

On January 10, 1931, Fred Hughes, a keen-eyed prospector and miner, well versed and experienced in the vocation that has given the world so many blessings, was searching over a barren desert mountain slope north of the wide, semi-arid plain of Smith Valley, Nevada. With pick, gold-pan and water canteen, he gleaned and washed samples of sand and gravel from the gullies. Flecks of gold he observed and studied and the probable source of origin was inferred and followed up. Unexpectedly, in a shallow flat ravine, a panning disclosed gleaming yellow nuggets - an El Dorado was found at last.

Hughes kept his discovery a secret and prospected along until April 13th, when realizing his need for help and capital, he came to Reno and sought out two friends, R. Carpenter and D. A. Whitaker, well known business men of Nevada. Messrs. Carpenter and Whitaker returned with Hughes to Buckskin and two days later, the three formed a co-partnership, each owning a one-third interest in the gold discovery. Busy days of prospecting and staking out claims followed. A shaft was begun at the mouth of the ravine in which the rich strike had been made. The trio did not wish to disclose their good fortune until their location of claims could be completed, and the limits of the placer deposit approximately determined.

But there is magic in a discovery of gold, and in some manner the news leaked out. Judge Clark J. Guild, prominent jurist of Yerington, heard of it. Judge Guild was born and raised in famous old Dayton, Nevada, and in his infancy, the music that lulled him to sleep was the roar of ponderous stamp batteries grinding out the



Comstock's wealth of precious metal. A love of mining is a part of him, so he began a search for the alleged bonanza reported to have been discovered only a few miles from his home. He found it, only fourteen miles away, and told his public the good news. Since then, hundreds of cars have gone to the spot. Men, women and children have been allowed to dig and pan the precious clay and gravel, and they have been thrilled to see the heavy yellow metal appear as the dross was washed away. Several hundred dollars worth of gold has been panned out and borne away by visitors, due to the generosity of the owners.

The new "strike" is located about  $2\frac{1}{2}$  miles northeast of the old Buckskin Mine, and 14 miles northwest of Yerington. It is about 2 miles directly north of Smith Valley, in Twp. 14 N., Rge. 24 E., M.D.M. It is in the western foothills of the north end of the Singatse Range which separates Mason Valley from Smith Valley. Starting from Reno, it is easily reached over excellent highways and dirt roads via Carson City, Gardnerville, Wellington, and Hind's Hot Springs, a total distance of 96 miles.

The elevation of the township varies between 5000 and 5500 ft. above sea level. The surface is composed of hills traversed by shallow, flat ravines trending northwesterly to Spring Canyon, which in turn drains south into Smith Valley. The hills are utterly barren excepting for a slight growth of stunted sagebrush and desert shrubs.

There is not running water at the discovery. An old shaft about 15 ft. deep a few hundred feet north and somewhat higher, supplies a seepage in the bottom but said to be dry at times. The heaviest flowing springs are located four miles westerly across Spring Canon, and at an elevation equal to or higher than any part of the Hughes placer land. It would be possible to pipe water from these springs and ground-sluice the hillsides with gravity water if the springs will supply sufficient water. Artesian water is obtainable near



the margin of a playa lake in the north end of Smith Valley, and is used on some of the ranches for irrigation. Abundant water may be obtained in shallow wells northerly from the margin of the playa and nearer to the placer land. It is quite probable that water may be obtained by sinking a well in Spring Canyon within the limits of the placer land.

The gold discovery is located in a small, flat, dry ravine, about one-half mile long, which trends northerly and empties into a large, flat dry ravine named Spring Canyon. The exceedingly rich gravel is found about two-thirds of the distance up this little ravine, and in a shallow natural trap formed by a slightly higher rib of harder rhyolite turf across the ravine. This natural feature forms a simple concentrating device, similar to a large gold-pan. While much of the gold undoubtedly passed over it and on down into the ravines below, the coarse gold which was retained is proof of its efficiency. The rich spot is about fifty feet long and 10 feet wide, and it is a veritable treasure room. On top of a rough, light-colored rhyolite bedrock lies a thickness of four to six inches of very sticky, brown adobe clay, intermixed with sand and small angular gravel, and covered with a few inches of loose, unconsolidated sand and grit. The clayey pay-dirt is said to yield "a dollar to the pan". The owners put about 5 cubic feet of it through a small concrete mixer at Yerington to dissolve out the clay, after which the sand and gravel was concentrated, and report that it yielded \$75. in gold, plus a considerable amount of gold-bearing black sand concentrate. Samples panned at the State Mining Laboratory were exceedingly rich in coarse gold.

The entire bed of the discovery ravine will probably yield gold in profitable amount. Below the junction of this ravine with Spring Canon, and southwesterly from there to Smith Valley, half a mile or



more, prospecting by drilling or pits will be necessary to prove the extent and value of the placer. In view of the extreme richness of the bedrock gravel at the discovery point, it is possible that drilling in the broad flat bed of Spring Canyon, and in the alluvial fan where the canyon enters Smith Valley, may demonstrate an area of profitable dredging ground. While all of the great amount of alluvium in the canyon and at its mouth probably will not prove to be placer of economic value because of excessive dilution, but a proper development campaign may show that much of it can be worked at a profit. As yet there has been very little prospecting, and no work worthy of note.

According to the owners placer gold is found in numerous places in little gullies and depressions high up on the rhyolite hill east of the rich ravine. Some of this finely divided gold may have originated from the erosion of veinlets in the rhyolite of which little evidence has been left behind. It is more probable, however, that this gold also was derived from old gravels, as will be subsequently explained, and that the portion of the gravel bed which provided it has long since been worn away. It is significant that on the hills west of the rich ravine no colors of gold can be panned above the outcrop of the ancient gravel channel, while below it every panning has yielded some gold.

A search for the source of the gold revealed a bed of washed gravel about 200 feet west of the discovery ravine. This gravel had been steeply tilted to the west by folding, or by intrusive volcanic masses. The gravel stratum is about five feet thick, and it dips under the hillside on which it outcrops, at an angle of 56 degrees. The pebbles are rounded from water-wear, and range in size from one-half inch to six or more inches in diameter. There is only one small open cut on the gravel outcrop. The strike of the gravel bed is N.



20 W., and it can be traced 625 feet in a northerly direction. Bedded conformably on top of the gravel is about three feet of sandstone and arenaceous grit, and on top of the grit is a stratum of 2 feet of light-colored sandy shale. This series of sediments is conformably capped, by andesitic tuff and quartz-latite to a vertical thickness of more than 300 feet.

There were a number of springs along the outcrop of the gravel stratum long since extinct, but of which much evidence remains. The waters found their way upward through the stratum of gravel from an indeterminate source. The ravine and the line of extinct spring craters appear to mark the course of a normal fault which dropped the younger rhyolite east of the ravine to a position lower than the gravel. The chemical activity of the springs has caused varying degrees of alteration in the washed gravels and accompanying sands. Some of the more coarsely crystalline granitic pebbles are so decomposed and softened that they crumble on exposure to the air. Denser pebbles including some of the quartz, were altered to a lesser degree. The waters also deposited much iron in the gravel, possibly as sulphide and sulphate, which has since been oxidized to limonite. This limonite, with a small amount of siliceous sinter serves as a cementing material. The iron oxide has colored both the pebbles and grits a reddish brown.

Samples of this ancient alluvial gravel and sand, and also of the adjacent volcanic rocks were studied carefully under the microscope. This study shows that the heavy minerals occurring with the gold in the placer workings are the same as occur in the gravel stratum above. This fact can be taken as good evidence that the gold, therefore, came from this gravel stratum, which now occurs as a dark red conglomerate.



These similar minerals, among which are zircon, epidote, limonite (pseudomorphic after pyrite) and magnetite, are not present in the associated volcanic rocks. One particle of gold was observed passing directly through a small pyritohedron of limonite, which had originally been a crystal of pyrite.

East of and adjoining the old alluvial gravel is an area of rhyolite tuff which composes the entire hill east of the ravine. Overlying the gravel and to the west, to a height of more than 300 feet, are andesitic tuffs and quartz-latite flows, i.e., lavas. These inclosing volcanic rocks had been definitely placed in the Tertiary period by Knopf, Jones and Ransome, which of course places the old gravel channel in the tertiary. Fossilized wood in the gravel also indicates the same period. Thus by correlation, the gravel belongs to the same past age as the great rich Tertiary gravel channels of California. Indeed, the ancient stream which concentrated these gravels may have been a member of the extensive Tertiary river system of California. The Sierra Nevada range was uplifted at the close of Jurassic time, but a long period of erosion followed and lowered them to low rolling hills. While it is possible that the Tertiary streams may have flowed across them westerly, before the latest uplift took place in Pleistocene and Recent times, it seems more probable that the Tertiary Sierras were, as now, a divide that caused the Tertiary stream system of this area to be an independent one flowing easterly from California.

Examination of the volcanic hills adjacent to the strike does not seem to support a theory that the erosion of auriferous veins in the Tertiary porphyries or lavas, was the source of the coarse placer gold. There are apparently no veins or pockets of importance



in these rocks and there has been practically no mineralization in them. We cannot well escape a conclusion that the gold was derived from the gravels, and not from the neighboring volcanic rocks.

How wide was the old channel? Is the present gravel outcrop but the vestige of a broad river bed that has since been eroded away? We can trace it only 625 feet where we lose it on the south end, did it once loop around to the east, or is it cut off at that point and displaced by a post-Tertiary fault which we find there?

In Professional Paper 114, United States Geological Survey, entitled "Geology and Ore Deposits of the Yerington District, Nevada" by Adolph Knopf, this geologist has observed and mapped beds of fluvial conglomerate similar to the gravel bed described near the Hughes strike. These beds occur at the very bottom of the Tertiary series of rocks. These gravel beds were originally alluvial fans and other collections of water worn rocks, and are fairly persistent, vary in thickness from thin beds to 150 feet or more in thickness and no doubt originally covered great areas. They lie upon granodiorite of post-Triassic age, and are covered by quartz-latitude of Pliocene age. There is much of this conglomerate, or gravel, still in place about  $2\frac{1}{2}$  miles north of the Hughes strike. At one time, it may have covered many square miles. It seems probable that this conglomerate is the primary source of the gold. It was worked over and concentrated by later Tertiary streams. The recent erosion of the resulting later Tertiary gravels has given us the gold we find in this new discovery as a reconcentration from the original older gravels, now consolidated into conglomerates.

Knopf observed and mapped other exposures of the fluvial conglomerate in the district. One is just west of the May Queen mine three miles west of Yerington. Another is shown two miles north-



westerly from Yerington, on the west side of McLeod hill. In addition to the localities where fluvial conglomerate outcrops, Knopf has shown several other points where Tertiary quartz-latite is in contact with the older granodiorite. This contact is the geological horizon of the conglomerate, but he observed none. Thin gravel beds more or less covered up by recent unconsolidated surface detritus may be present at some of these points and have escaped observation. It seems probable that the originally large areas of fluvial conglomerate contained small amounts of gold, and that these gravels were further worked over and the gravels again concentrated by Tertiary streams, the old channels of which are now undergoing erosion and a second and closer concentration, as at the Hughes discovery.

Remnants of these tertiary channel gravels are known to occur in the Virginia, Pine Nut and other ranges just east of the Sierras. One, near Lakeview, was mined in a small way a good many years ago and placer gold recovered from it. With the new discovery described it will probably be well for the prospectors to examine these more closely. While all of the gravels are not known to contain placer gold, yet there is the possibility of finding pockets and reconcentration of the gold in the gulches in which these Tertiary gravels outcrop.

The Nevada State Bureau of Mines will, be interested in obtaining all information possible regarding these channel gravels and if sufficient data can be collected, will prepare a bulletin making the information available to the public.

This new discovery and the inferences drawn from it greatly increase the placer gold possibilities in Nevada west of the 118th Meridian and south of the 40th parallel. The Yerington and Buckskin Mining Districts and the adjoining townships to the north appear to be particularly favorable areas in which to prospect for placer gold.



The canyons and the shallow ravines should be searched for it. New sources of wealth await the intrepid prospector of the old school who knows that gold is where you find it, and it also awaits the newer prospector, college trained, who knows that gold should be found where the geologic conditions are favorable to its deposition.