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REPORT ON WALKER-JOHNSON TUNGSTEN PROSPECT.

BY OSCAR H. HERSHEY.

San Francisco, California,
June 3rd, 1930.

Mr. F. W. Bradley, President,
San Francisco Commercial Company,
1022 Crocker Building,
San Francisco, California.

Dear Sir:

The Walker-Johnson group of tungsten claims is situated on several low hills in the Pine Nut Range in Douglas County, Nevada, 14 miles by road from the railroad at Minden. The owners are R. C. Walker and E. A. Johnson, but the property is under bond to your company and Mr. C. K. Dennis has had several men trenching and sampling it for the past three weeks. Very few samples have been sent in for assay because Mr. Dennis roughly determines the WO_3 content by crushing and panning the rock and most of the samples so tested have run so far below a commercial grade that it seemed a waste of money

to have them assayed. In fact, Mr. Dennis seemed rather discouraged when I arrived and at first glance the many holes dug did not seem to yield much encouragement of finding an orebody worth while. So I made a rough map on a scale of 20 feet to the inch and soon had reduced the exposures in the cuts and outcrops to system, showing the probability of at least two ore-shoots and I advised Mr. Dennis to concentrate his work largely into an effort to prove the extent and average content of these shoots.

The ore has been formed by contact metamorphic action on two relatively thin beds of limestone that are separated and enclosed in beds of quartz-sericite and quartz schists. The strike of the beds varies from north to N. 60° W. but usually is about N. 20° W. The beds dip westward 25° to 45°, usually about 30°. Under the lower bed of altered limestone there is at least several hundred feet thickness of light gray and dark gray quartz-sereeite schist of fine texture. The lower bed of altered limestone is about 8 feet thick. Usually the lower 1 to 2 feet has been converted largely to brown garnet and is almost barren of scheelite. Over the garnet rock in places there is a bed of contact metamorphic silicates in which epidote is important and there is considerable calcite. This bed is the ore-bearing member and carries scheelite enough to make the material often assay 1 to 5% WO_3. The upper portion of the bed usually has been less metamorphosed and appears in the trenches as thin-bedded white limestone.

Over the lower limestone bed there is a bed of white soft quartz schist of fine texture. This bed is about 13 feet thick. Over it is the middle limestone bed. This may be about 14 feet thick. Toward the south it has not to any great extent been converted to contact silicates but toward the north it is rich in brown garnet with little scheelite. Over this bed there is probably 10 feet thickness of white quartz schist. Then comes the upper limestone bed not over 7 feet thick and usually not much converted to silicates. No ore has been found in it and it is not well exposed. Indeed, it may be lensy in character. Above it there is probably 150 feet thickness of quartz-sericite schist of rather coarse texture. Then comes a great thickness of limestone that forms the high steep mountain west of the prospect. The lower several hundred feet has largely been marbleized by the contact metamorphic action but the bulk of the mountain is a dark blue-gray limestone in heavy beds that dip westward 20° to 45°.

The belt containing the prospect is cut and somewhat displaced by several steep faults that strike north to N. 10° W. They have been the cause of some confusion in the southern trenches.

No. 6 trench at the south end of the group had a so-called "boulder" of ore. The eastern portion of the trench is in garnet rock, the central portion in ore and the western portion in thin-bedded white limestone. The beds dip west 30°. Sampled horizontally along the bottom of the trench, 2.67 feet in the middle

section carried 1.41% WO_3. Of course that represents only about 1.5 feet in thickness. About 15 feet farther north a bunch of silicate rock will pan scheelite per Dennis but was not sampled. About 15 feet farther north a trench has the garnet rock at the east, then 16 inches horizontal measurement of silicate rock that went 2.28% WO_3 per Dennis and the remainder of the cut is in the white thin-bedded marble. In a cut about 10 feet farther north the silicate band ought to be ore and pans about 1% per Dennis. About 25 feet farther north is No. 4 trench. It is 30 feet long and cuts, beginning at the east, the footwall schist, 3.5 feet horizontal measurement of brown garnet rock that carried 0.2% per Dennis, white marble, a fault that dips westward 60° and beyond it white quartz schist. Dennis sampled across 11 feet and got 0.14% WO_3. Evidently the good streak does not extend as far north as this trench and I must terminate it at the last cut. It is, therefore, known for 40 feet in length. But the thickest portion is in the southern cut and it may increase in that direction. For at least 300 feet the belt is buried under debris. I advised Dennis to try to explore it by trenching through the debris and he started a man to digging a trench about 50 feet south from No. 6 trench. In an effort to find the ore band Dennis has dug many cuts, some 30 or more feet long and has sampled all kinds of material that carried from a trace to a quarter of a percent WO_3, but if hereafter he will confine his attention to the epidote band he will get a much better average result and do less trenching.

North of No. 4 trench the middle limestone bed appears in trenches west of the steep fault but the marble usually has little contact silicate and tests show little or no scheelite.

In a hole east of the fault about 50 feet north of No. 4 trench, the rock is rich in brown garnet, has a little scheelite but was not sampled per Dennis. About 6 feet farther north is a trench that is rich in brown garnet with a trace of scheelite and at the surface there was a bunch of fair ore over the garnet bed. About 26 feet farther north is No. 3 trench. The trouble here is that the lower limestone is pinching out against the steep fault and there was a bunch of 0.5% rock at the surface per Dennis and nothing lower. The garnet rock appears in the bottom of the trench west of the fault, but it is associated with the middle limestone bed. A 33-foot trench 130 feet farther north shows the footwall schist, the steep fault, the white schist and then the middle limestone so poorly altered that four samples showed nothing. As a matter of fact, erosion has removed the lower limestone bed east of the fault and it is buried west of the fault. It comes to the surface west of the fault about 55 feet farther north. Thence it runs N. 45° W. for 40 feet. Thence it changes more westerly and nearly the whole thickness of the bed is occupied by garnet rock that makes an outcrop. But a lens of silicate rock fairly well supplied with scheelite comes in over the garnet rock. At the first exposure Dennis thinks it is about 1% ore. About 25 feet farther northwest it pans 4 or 5% ore Dennis thinks. About No

25 feet farther northwest 2.5 feet carried 0.86% per the Dennis test, and 1.25% by assay. Beginning 30 feet farther and extending N. 60° W. 40 feet the outcrop has the appearance of ore, but it gradually pinches. Thus for a distance of 120 feet there appears to be a narrow shoot of fair-grade ore. I advised Mr. Dennis to sample this at 10-foot intervals, if necessary putting in pop shots and making shallow trenches. It is the most definite shoot in sight on the property at this date.

Next we come to a 10-foot shaft. The garnet rock is strong here and Dennis has sampled it in various ways and got from 0.12% by assay and 0.32% pan test to 0.70% WO_3. A 50-foot tunnel practically reaches a point in the garnet rock down on the dip from the shaft. Dennis says the garnet will not pan scheelite but occasionally one can see scheelite in pieces on the dump.

Near the mouth of the tunnel there is a practically vertical fault that strikes north. Beyond it I believe it is the middle limestone that has been prospected in four trenches at intervals of 75 to 125 feet. A band of garnet rock begins near the footwall and gradually increases in width northward until it occupies nearly the entire thickness of the limestone. With it is some of the kind of rock that often is ore, but so far 3 feet of 0.37% rock seems to be the highest that has been gotten out of any of these trenches, though sampling has not yet been finished. The lower limestone bed is not in sight. I advised Dennis to trench down the slope in search of the lower bed. If it contains scheelite he can then develop

it by trenching north and south. The lower bed seems to have more scheelite than the middle bed, even though the latter toward the north has a large body of contact silicates. From the last trench a strong garnet outcrop runs north but soon goes under debris. It comes out again on the opposite side of the ridge. Down this ridge to the east across a broad belt of schist there is, on the Ramona claim a patch 4 or 5 feet thick of contact rock over white schist and dipping northeastward 30°. From the uppermost bed Dennis got a sample along 12 inches that tested 1.86% WO_3 and along 3 feet 0.62%. This should be sampled across the bed. The bed doubtless goes down under the schist toward the northeast and I suggested to Dennis that he put a little shaft through the schist and the contact rock and then that the latter be sampled across the bed. This is one of the altered limestone beds going down on the opposite side of an anticline.

Now if any ore-shoots worth while can be found they will doubtless go down to the contact with the granite to whose intrusion is due the metamorphism. Go N. 60° E. 300 feet from No. 1 trench and you will come to the edge of the granite that did the work. It is a mass of acid granite that is much altered, iron-stained and quartz-seamed. The border of the granite seems to run about N. 20° W. but the area does not extend far north and south. Evidently it goes down under the scheelite-bearing beds a little flatter than they dip and cuts them off probably at considerable depth.

Personally I am not very enthusiastic over the prospect. Unquestionably if Mr. Dennis will carry out the recommendations I have made, and I have little doubt but that he will, a much better showing can be made on the property than has been made so far. The trouble is that the ore bands appear to be thin and lensy in character. Mineralogically the ore is similar to that in the Mill City District of Nevada where 4 feet of 1% ore will pay to work. But 1 to 2 feet of 1 to 2% ore dipping 30° is a different proposition and it will take Mr. Udell to figure out a profit in working it. However, having gone so far I assumed that you will want to finish the job by finding out exactly what these shoots contain and so I have advised Mr. Dennis accordingly.

Respectfully submitted,

Oscar H. Hershey