

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

Van Gilder Occurrence of Gold near Wasco, Sherman County, Oregon.

Location and area:

Most of the known deposits occur close to U. S. Highway 97, 1 to 2.5 miles northwest of the town of Wasco, as shown on the accompanying map. Mr. Harry Van Gilder's farm in sec. 5, T. 2 N., R. 17 E., W.M and Mrs. Sadie Rich's farm, adjacent to the north, in sec. 32, T. 3 N., R. 17 E., include much of the area under discussion. Mr. J. W. Judy of Bend, Oregon, and Mr. Harry Van Gilder hold a mineral lease on Mrs. Rich's property.

History:

On April 22, 1946 the Department received a sample (P-4600) from this area from Mr. Ryland Scott of Wasco, who requested that it be analyzed for gold and silver. The sample, according to Mr. Scott, was hand-picked; it assayed 21.18 oz. gold and 12.90 oz. silver. Another hand-picked sample from this area was submitted by Mr. Scott in May 1946; it assayed 12.37 oz. gold and 10.33 oz. silver. On October 4, 1941 Mr. Judy called at the office and requested the Department to make an examination of the occurrences in this area. The area was examined by R. S. Mason and W. D. Lowry on October 8, and by F. W. Libbey on October 18, 1946.

Topography, climate and transportation:

The deposits occur in the upper part of Spanish Hollow Canyon which is drained by a creek which flows northwestward into the Columbia River. The southern part of the canyon is rather wide and shallow, whereas farther northwest it is narrower and steep-sided. The elevation of the area concerned ranges from about 1000 to more than 1200 feet at Wasco.

Wasco is situated on the Shaniko surface*, a broad, gently northward-sloping plain which terminates at the Columbia River. The northward slope of this partially dissected plain reflects the attitude of the underlying Columbia River basalt flows. Much of the northern part of the Shaniko surface is covered by a blanket of fine, water-laid sediments from which the devious courses of the Deschutes and John Day rivers may have been superimposed on the underlying rock.

The climate is characterized by warm, dry summers and rather cold winters with an annual precipitation of about 15 inches. Part of the precipitation in the winter is in the form of snow. A branch of the Union Pacific Railroad follows Spanish Hollow Canyon as far as Klondike, several miles east of Wasco.

Development work:

At the time of the examination the mineralized siliceous masses were exposed only in a few road cuts and in several outcrops.

A small amount of prospecting had been done in the road cuts, and F. W. Libbey noted that an outcrop below and southwest of the highway half a mile north of the Harry Van Gilder farm house had been blasted.

Geology, mineralization, and analytical results:

Columbia River basalt of Miocene age is exposed continuously from the Columbia River southeastward to the upper reaches of Spanish Hollow Canyon where it is largely covered by a blanket of massive Pliocene silt known as the Shutler formation.** In the upper reaches of the canyon the basalt is

* Hodge, E. T., Geology of North Central Oregon, Oregon State Monographs, Studies in Geology, no. 3, April 1942, Oregon State College, Corvallis, Oregon.

** Idem.

exposed in road cuts and at several places in the creek bed where alluvial material, largely reworked Shutler silt, is not present. In places large chalcedonic and opaline masses occur in the basalt. Mr. Scott's samples were made up of pieces of this chalcedony. These siliceous masses crop out in several places on the northeast slope of the canyon and in at least one place along the creek bottom. The material is also exposed in several of the road cuts where it is shown to be associated with the basalt. These occurrences are indicated on the accompanying map. Chips of the chalcedonic and opaline material are fairly common in the soil on the northeast slope.

Some of these partially exposed siliceous masses are at least 15 feet long and 4 feet thick. Their vertical and lateral extent cannot be ascertained from the exposures. They do not appear to be interconnected but they may occur within the same basaltic horizon, for the elevations of those farther northwest, which is down dip in the basalt, are somewhat lower. However, the horizon containing the siliceous masses would appear to be 25 or more feet thick in the northern part of sec. 5.

The genetic relationship of the siliceous masses to the basalt is not known. The base of the masses is not visible, but in one road cut the presence of chalcedonic seams in fine-grained basalt overlying the main siliceous mass in vesicular or scoriaceous basalt indicates that the mineralization occurred after the basalts had cooled. Alteration of the basalt adjacent to the siliceous masses to light gray clayey material in some road cuts supports this assumption.

Both chalcedony and opal make up the siliceous masses. The chalcedony varies in color from nearly black to various shades of brown or reddish brown to white, the white being minor. The color of the brownish or jaspery varieties, which are most common, is due to the presence of numerous limonite inclusions. Some of the siliceous material is banded. In one road cut reddish brown and white bands are especially common and both are intimate mixtures of chalcedony and opal. A soft, lead-gray sulfide is intimately associated with this material. Spectrographic analysis* of a sample (P-5352, same location as P-5323) of a mineralized portion showed it to contain more than 10 percent iron; it contained neither gold nor silver.

The analysis follows:

<u>Sample no.</u>	<u>Element</u>	<u>Percent</u>
P-5352	Silicon, iron - - - - -	Over 10
	Aluminum, magnesium, calcium, manganese, vanadium, barium - -	0.01 to 0.1
	Titanium, lead, copper, boron -	0.001 to 0.01

A lesser constituent of these siliceous masses is a light-colored, white, or colorless chalcedony which fills cavities and small fractures in the rest of the rock. Much of the sulphides present in the masses is associated with this light-colored chalcedony. The gray, probably partially oxidized, sulfide mineral or minerals are largely beneath a later coating of white chalcedony which contains very little or no sulfides. Spectrographic analysis* of this sulfide-bearing material (sample P-5353, from the same piece from which sample P-5352 was taken) shows that it contains much iron, some silver, but no gold. The analysis follows:

* - - - - -
Made by Thomas Mathews, spectroscopist, Dept. of Geol. and Min. Ind.

<u>Sample no.</u>	<u>Element</u>	<u>Percent</u>
P-5353	Silicon, iron - - - - -	Over 10
	Magnesium, calcium, manganese, vanadium, barium - - - - -	0.01 to 0.1
	Aluminum, titanium, tin, copper	0.001 to 0.01
	Silver - - - - -	less than 0.001

The sequence of deposition, as shown by sample P-5352, began with the formation of light-brown, rather dense chalcedony which carried little or no sulfides. This gave way to the simultaneous deposition of reddish brown and white opal and chalcedony some of which contained the soft, lead-gray iron sulfide. Minor fracturing ensued and the fractures and cavities were partially coated with iron sulfide and light-colored chalcedony. This in turn was covered by a layer of clear or white chalcedony which carried little or no sulfide.

The results of assays of samples collected by the Department are given in the table below along with descriptions of the samples. Locations of the samples are indicated on the accompanying map. Also listed in the table are the assay results for samples submitted to the Department by Mr. Ryland Scott, Mr. J. W. Judy, and Mr. Harry Van Gilder. Mr. Scott's samples include one (P-5374) of altered material associated with the chalcedonic mass exposed in the creek bottom. Mr. Judy's samples/^{are}from the same place and both his and Scott's samples as well as sample P-5383 taken by the Department, were taken after a hole had been blasted in the outcrop.

Mr. Van Gilder's sample was taken from a hole blasted in an outcrop in his field northeast of the highway. It was submitted to the Department on December 16, 1946, after the preliminary draft of this report had been prepared.

<u>Sample no.</u>	<u>Description</u>	<u>Assay Results</u>	
		<u>Au</u>	<u>Ag</u>
<u>Samples collected by the Department</u>			
P-5319	Piece of chalcedony from outcrop in field east of U. S. 97	Nil	Trace
P-5320	Opaline and reddish brown powdery material in basalt in road cut on U. S. 97, 2.6 mi. NW of railroad tracks in Wasco	0.02 oz.	Nil
P-5321	Brownish siliceous seams in finer grained basalt above sample P-5320	Nil	Nil
P-5323	2-foot vertical chip sample of banded chalcedony in road cut on U. S. 97, 2.2 mi. NW of railroad tracks in Wasco.	Nil	Nil
P-5325	Chalcedonic material associated with altered basalt in road cut on U. S. 97, 1.99 mi. NW of railroad tracks in Wasco.	Nil	Nil
P-5326	Grab sample of altered basalt in same cut as sample P-5325.	Nil	Nil
P-5327	Chip sample of chalcedonic material from outcrop in creek bed 100-150 ft. SW of U. S. 97, 1.51 mi. NW railroad tracks in Wasco.	Nil	Nil
P-5329	Chip sample of chalcedonic material from outcrop about 100 ft. N. of sample P-5327	Nil	Nil
P-5383	Chalcedonic material from recent blast hole. Same location as sample P-5327.	Nil	Nil
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<u>Samples submitted by Mr. Scott</u>			
P-4600	A hand-picked sample submitted by Mr. Scott. Van Gilder reported this sample was taken from same road cut as sample P-5323.	21.18	12.90
P-4632	Mr. Scott, who submitted the sample, stated that it was a hand-picked piece of float from the field east of U. S. 97 - same location as sample P-5319.	12.37	10.33
P-5374	Altered basaltic (?) material from recent blast hole. Same location as samples P-5327 and P-5383. Submitted by Mr. Scott for Mr. Van Gilder	1.79	1.00

<u>Sample no.</u>	<u>Description</u>	<u>Assay Results</u>	
		<u>Au</u>	<u>Ag</u>
<u>Samples submitted by Mr. Judy</u>			
P-5422	Material from blast hole - collected by Mr. Judy	Nil	Trace
P-5423	Altered, slightly porphyritic basalt from blast hole - collected by Mr. Judy.	Nil	Trace
P-5424	Another sample from blast hole - collected by Mr. Judy.	Trace	Trace
P-5425	Essentially the same material as P-5424, Collected by Mr. Judy.	Nil	Trace
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<u>Sample submitted by Mr. Van Gilder</u>			
P-5561	From blast hole in Van Gilder's field northeast of highway. Exact location not known.	Trace	Nil
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As shown by the assays and spectrographic analyses, the mineralization is very spotty.

Other occurrences of chalcedony in Columbia River basalt:

A number of other similar siliceous masses have been noted in this district. These occurrences are shown on the accompanying map. None was seen in the basalt along The Dalles-California Highway (U. S. 97) a mile or more south of Wasco. Chalcedonic material occurs in a road cut in Columbia River basalt about 5 miles to the northwest in sec. 33, T. 2 N., R. 16 E. Another basaltic flow exposed in a nearby small quarry, adjacent to the northwest, apparently stratigraphically overlies it and does not contain any siliceous masses. The basalt in the quarry is characterized by a well-developed pillow structure. A grab sample (P-5330) of the chalcedonic material from this locality was assayed and found to contain neither gold nor silver.

A grab sample (P-5359) of similar material from the creek bed west of Thornberry where a ledge at least 2 feet thick forms a 3-foot drop was assayed and found to contain a trace of gold but no silver. Two large chunks of chalcedony were found in the draw along the road about three-quarters of a mile southeast of Locust Grove, probably in the SE $\frac{1}{4}$ sec. 2, T. 1 N., R. 16 E. A grab sample, P-5385, failed to show any values in gold or silver. Another grab sample of similar material, P-5384, from a road cut 2 miles west of Wasco on the road to Locust Grove, probably in the SE $\frac{1}{4}$ sec. 6, T. 1 N., R. 17 E., also did not contain any gold or silver. A jaspery layer, a foot or so thick, occurs on the east wall of Spanish Hollow Canyon about a mile south of Biggs on The Dalles-California Highway (U. S. 97) but it was not sampled.

Mr. Scott reported that siliceous material similar to that near Wasco also occurs in Columbia River basalt about 8 miles northeast of Wasco and that it assayed \$14 or \$15 in gold.

Report by: W. D. Lowry, R. S. Mason, and F. W. Libbey

Date: October, 1946