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STATE DEPT OF GEOLOGY
& MINERAL INDS.

A Reconnaissance of the
"Radiolarian Chert Deposits Southwest of Roseburg"

The investigation was made with Mr. Kenneth Hamblen of the Silica Products Oregon, Ltd. in view of determining if the mode of occurrence of the chert deposits and the physical characteristics of the chert. A deposit was desired which ^{was} accessible in such a manner that it could be readily mined.

The three larger deposits as mapped by Diller north of Brockway and Winston and one of the smaller deposits on Willis Creek were visited.

Only the deposit in Range 8 W., Township 28 S., Section 24 outcropped prominently. Here it was exposed on a crest of a hill. A rib of light buff and gray chert probably ten feet wide stood about ten feet above the adjacent ground for about 50 feet. To the southeast adjacent vertical bands of brownish chert were seen. They were not clearly exposed but probably had a total width of 100 to 200 feet. The bands had a strike of N. 65° E.

The other two larger deposits to the north of Brockway and Winston respectively were found to be in the valleys, the more prominent ridges being meta-gabbros. The presence of chert was only indicated by float, consisting of small boulders up to 6 or 8 inches in diameter. In one instance an outcrop of chert 6 x 4 feet on a gentle slope was exposed. No outcrops were seen at these two occurrences which were exposed so they could be readily mined.

The deposit on Willis Creek was poorly exposed. The chert here is exposed in a road cut on Willis Creek 2.9 miles above the

Radiolarian Chert Deposits

page 2

point where the road leaves the Umpqua River and turns up the creek. The part of the deposit to the south of the road is covered by several feet of overburden and considerable vegetation. The outcrop as exposed in the road cut is about 15 feet by 10 feet with the beds in a horizontal position.

The chert occurs in many colors. The massive outcrops appeared to be composed largely of the gray and white variety. The banded occurrences were largely of the reddish-brown variety, permeated by a number of minute veins of white quartz. The chert readily broke into small angular pieces with sharp thin edges. The chert occurring in the deposit on Willis Creek was of the reddish-brown variety but much softer due probably to a much higher iron content. It had also a tendency to fracture along bedding planes rather than conchoidal as in the other deposits.

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Report by:
Date:

E. A. Youngberg
June 15

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

Douglas County
Umpqua Area
December 17, 1945
By: Elton A. Youngberg

NAME:

Sams Ranch Chert Deposit

LESSEE:

L. C. Bufton, Silica Products Oregon Ltd., Portland,
Oregon.

OWNER:

Mr. Sams, Dillard, Oregon

LOCATION:

The chert deposit is located in the N.E. 1/4, Sec. 24, T. 28 S., R. 7 W. in Douglas County. The deposit may be reached by turning north from Brockway, which is on the Coos Bay highway, on a graveled county road up Lookingglass Creek for a distance of three miles. The deposit outcrops on the crest of a ridge due south of the second bridge across Lookingglass Creek from Brockway.

AREA:

The deposit is on deeded land belonging to Sams Ranch.

HISTORY:

This deposit was mapped by J. S. Diller along with other Radiolarian chert outcrops when he mapped the geology of the Roseburg Quadrangle. The geologic maps were published by the U. S. Geological Survey in 1898. A preliminary survey was made of the deposit in the spring of 1945 by the Silica Pro-

ducts Company Ltd. accompanied by the field engineer of the Oregon Department of Geology. The deposit was mapped by the Department in December 1945. No chert has been mined from the deposit, except about 1000 pounds by Silica Products Oregon Ltd. for test purposes.

GEOLOGY:

The radiolarian chert deposits in the Roseburg Quadrangle are believed to be of Jurassic Age. They are the oldest sedimentary rocks recognized in this area. The Sams Ranch chert outcrops prominently where it crosses a ridge on S.W. of Lookingglass Creek. An outcrop of massive blue-gray chert about 10 feet wide having a strike of N. 80° E. and a dip of 75° to the south is exposed for a distance of 60 feet. On the south slope from this outcrop banded redish-brown chert outcrops intermittently for a distance of 180 feet. Beyond this point the outcrop is obscured by soil containing numerous chert boulders. To the north the chert body extends probably for 50-60 feet beyond which it cannot be recognized because of soil and talus. The extensions of the deposit to the east and west are also obscure because of talus and soil. Outcrops indicate it may have a length of 230 feet on the strike. It is likely that the chert bed extends beyond the area observed as these beds underly adjacent overlapping younger Cretaceous beds of the Myrtle ~~Creek~~ formation which were noted on all sides of the deposit. The Myrtle Creek formation locally was largely sandstone. The chert deposits outcrop stands in relief

as a body with an elliptical base about 50-75 feet above adjacent surfaces as shown on the attached contour map and section.

The blush gray cherts are usually massive and outcrop prominently. The banded cherts are a brown or red jaspery rock. They do not readily outcrop. In the Sams Ranch deposit the outcrops of the banded cherts was very poor with only an occasional rib exposed. It appears that part of the area containing banded chert may have some layers of siliceous shales.

GENERAL INFORMATION:

The deposit is at an elevation of approximately 1000 feet which is 450 feet above the adjacent valleys. The climate is characterized by long dry summers and wet winters. Snow fall is light and usually remains only for a few days. Rain fall is from 30-40 inches annually.

The nearest shipping point is Dillard, six miles away through which passes the Southern Pacific railway. A good graveled road leads north from Dillard to Brockway and up Lookingglass Creek to the deposit over easy grades.

Informant: E. A. Youngberg

ECONOMICS:

USES:

The proposed use for this material is for roofing granules to be utilized in roofing paper manufactured by several Portland firms. It is possible several other uses may be found for by products as fillers and foundry sand blasting material.

TONNAGES:

Accurate tonnages of chert in this deposit cannot be made because of the lack of good outcrops and surface prospecting. Assuming the area mapped is a solid block of chert for a distance of 75 feet below the highest outcrop the deposit would contain 177,650 tons. To be assured of this tonnage some surface trenching and possibly several inclined holes should be drilled from the south slope of the deposit. The ultimate tonnage of chert, which can be extracted from the deposit, is possibly several times the above estimate as it appears likely a portion of the original chert bed is covered by talus and younger overlapping sedimentary formations. However, it is hazardous to project the deposits horizontally or vertically too far because it is quite likely during the period these Jurassic beds were up lifted and folded considerable faulting took place and this deposit may represent only a small segment of a much larger body. It appears some drilling and surface exploration should be done before a plant is built which will utilize any large amount of chert from this deposit.

State Department of Geology and Mineral Industries

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- 5 -

PLANT:

The plant will consist of washing, crushing, and sizing equipment. The crushing plant will consist of a jaw crusher, gyratory and roles in closed circuit with proper sizing equipment. The plant probably will be located on Lookingglass Creek about 1/2 mile from the deposit. The processed chert will be hauled to Dillard for rail shipment.

It is estimated that 50-70 percent of chert mined will be discarded as undersize or waste which makes it desirable that the plant be located as close to the quarry as possible to save hauling of waste material.

MARKETS:

Possible markets for the roofing granules are Portland and San Francisco. Roofing granules for the Portland area come from Missouri and other eastern sources. Ore deposit in central California supplies a portion of the San Francisco market. This latter deposit is reportedly about mined out. A market for some of the fines as a filler in cement aggregates to replace cement is possible outlet in the Portland area.

The deposit as a source of roofing granules has a substantial advantage in freight rates over its competitors and is so situated that processing and the haul to the railroad will not be excessive.

Initial output of the plant is expected to be 5000-10,000 tons per year. Several Portland consumers have indicated

State Department of Geology and Mineral Industries

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- 6 -

that they would use about 4000 tons per year.

Estimates of costs cannot be made until size of plants has been determined, which will largely effect production cost.

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