State Department of Geology and Mineral Industries

1069 State Office Building
Portland 1, Oregon

CHRYSTALLITE AGGREGATES (Pumice)

Unclassified District
Klamath County

Foreword

This report supplements Department of Geology and Mineral Industries reports under the above title by Dole, 12/20/46; Wagner, 2/2/47; and Wagner, 7/30/49, and reference is made to the foregoing reports for property location and company ownership details.

General

This company still holds title to the property, but active operations by the company were terminated at the end of the year 1949. All equipment was leased early in the spring of 1950, and then purchased outright in November of that year, by Mr. Homer L. Dale, 230 Beatty Street, Medford, Oregon. Dale also leases the Chrystallite Aggregates pit on a royalty basis of 10 cents a yard.

Under the above set-up Dale operated throughout the year 1950. Production consisted of a pit run and a processed block aggregate. This was delivered almost exclusively to a block plant in Medford operated by a Mr. M. Gibbons. In this connection, Dale functioned in the dual role of producer and trucker. Dale plans to expand operations during the present years.

Report by: N. S. Wagner, March 12, 1951.
Informant: Homer L. Dale, interviewed at the pit, 2/14/51.

Chrystallite Aggregates	Christy Pumice Silica Brick and Tile	Pumice	
NAME	OLD NAMES	PRINCIPAL ORE	MINOR MINERALS

26-27 S	8 E	¼ SW¼
T	R	S

PUBLISHED REFERENCES

Klamath ..... COUNTY

Unclassified ..... AREA

..... ELEVATION

MISCELLANEOUS RECORDS

U. S. Highway 97 ..... ROAD OR HIGHWAY

..... DISTANCE TO SHIPPING POINT

PRESENT LEGAL OWNER (S) Omer and Dennis Wisby ..... Address P. O. Box 61, Chemult, Oregon .....

Mrs. H. W. (Stella) Christy .. " " " "

....

....

OPERATOR Omer and Dennis Wisby & Mrs. Christy ....

Name of claims	Area	Pat.	Unpat.	Name of claims	Area	Pat.	Unpat.

EQUIPMENT ON PROPERTY

Chrystallite Aggregates — NAME

OLD NAMES

Pumice — PRINCIPAL ORE

MINOR MINERALS

27 S — T

8 E — R

9 — S

PUBLISHED REFERENCES

Klamath County — COUNTY

Unclassified District — AREA

ELEVATION

ROAD OR HIGHWAY

DISTANCE TO SHIPPING POINT

MISCELLANEOUS RECORDS

PRESENT LEGAL OWNER (S) .....

Address .....

OPERATOR Wisby Brothers

Chemult, Oregon

Name of claims	Area	Pat.	Unpat.
see report			

Name of claims	Area	Pat.	Unpat.

EQUIPMENT ON PROPERTY

truck. This equipment replaces the slackline which proved too costly and inconvenient to operate due to the thinness (6 feet) of the pumice occurrence which necessitated frequent relocation of the lines. The present pit is 100 yards south of the original pit. This necessitates trucking to the crushing plant and rail siding. As the pumice averages 9 feet in this pit as against 6 feet in the original pit, and as tests show the thickness increases to 15 feet on to the southward, the siding is scheduled to be relocated in a more advantageous spot somewhere south of its present location.

The screening plant has been rebuilt with larger screens (vibrating) and larger rolls (18" x 36"). No clean segregated product is made but more attention is paid to sizing than was the practice during the earlier period of this operation and maximum screen sizes are varied in conformity with the shell thickness of consumer's block molds. The usual product produced ranges from 3/16 minus to 3/8 minus. Blanket price regardless of mesh is $1.25/cubic yard f.o.b. mine loaded on conveyance. Of the product an estimated 40 percent is shipped by truck and 60 percent by rail. Sales have reached such distant points as San Jose and Modesto, California, and Chinook and Wolfpoint, Montana. Operations have been maintained year round but are quite difficult during the months of January, February and March due to both snow and freezing of the pumice.

Report by: N. S. Wagner
Date of exam.: July 30, 1949
Date of report: August 11, 1949
Informant: Wisby

State Department of Geology and Mineral Industries

1069 State Office Building
Portland 1, Oregon

COPY. ORIGINAL
LABORATORY CERTIFICATE
HERSEY INSPECTING BUREAU
INSPECTING TESTING ENGINEERS
OAKLAND 11, CALIFORNIA

Lab. No.: 99029

Sample: Red ash

Mark: None

Report to: Chrystallite Aggregates
P.O. Box 61
Chemult, Oregon

June 7, 1946

IN ACCORDANCE WITH YOUR INSTRUCTIONS WE SUBMIT THE RESULTS OF YOUR EXAMINATION AND TESTS MADE ON THE ABOVE MENTIONED SAMPLE AS SUBMITTED:

CHEMICAL ANALYSIS

Silica (SiO_2)	66.0 %
Alumina (Al_2O_3)	17.18
Iron oxide (Fe_2O_3)	4.00
Calcium oxide (CaO)	3.26
Magnesia (MgO)	1.35
Sodium oxide (Na_2O)	3.84
Potassium oxide (K_2O)	1.65
Chloride (Cl)	0.01
Sulfate (SO_4)	Nil
Carbonate (CO_3)	Nil
Fluoride (F)	0.02
Borate (B_2O_3)	0.17
Ignition loss	2.48
Moisture 110°C.	0.40
Undetermined (by difference)	0.04
Total	100.00%

Soluble phosphate (P_2O_5)	15 ppm
Soluble potash (K_2O)	99 ppm
pH of 1 to 5 extract	7.6
Tri-calcium aluminate (calculated)	38.6 %
Specific gravity	2.484
Pyrometric cone equivalent	#6
Equivalent temperature	2282°F.

To: Chrystallite Aggregates
P.O. Box 61
Chemult, Oregon

From: Hersey Inspection Bureau

June 7, 1946

SPECTROGRAPHIC ANALYSIS

Iron	3.0 %
Aluminum	5.0
Chromium	0.001
Manganese	0.1
Copper	0.001
Calcium	3.0
Magnesium	1.0
Strontium	0.1
Titanium	1.0
Sodium	1.0
Potassium	0.1
Silicon	30.0
Nonmetallic elements	Remainder

SIEVE ANALYSIS

Plus #40	29.7 %
Minus #40, plus #100	16.8
Minus #100, plus #140	5.0
Minus #140, plus #200	6.8
Minus #200, plus #230	2.9
Minus #230, plus #325	5.8
Minus #325	32.9
Total	99.9 %

HERSEY INSPECTION BUREAU

SIGNED BY HERSEY

State Department of Geology and Mineral Industries

1069 State Office Building
Portland 1, Oregon

COPY. ORIGINAL
HERSEY INSPECTION BUREAU
INSPECTING TESTING ENGINEERS
OAKLAND, CALIFORNIA

Lab. No.: 99036
Sample: Calaveras Portland Cement; Calaveras Portland Cement combined with varying percentages of red ash additive.
Mark: None
Received: April 26, 1946
Report to: Chrystallite Aggregates June 7, 1946

IN ACCORDANCE WITH YOUR INSTRUCTIONS WE SUBMIT THE RESULTS OF YOUR EXAMINATION AND TESTS MADE ON THE ABOVE MENTIONED SAMPLE AS SUBMITTED:

	NORMAL CONSISTENCY? (GILMORE TEST)	TIME OF SETTING SOUNDNESS TEST (5 HOURS BOILING)
Sample: Portland cement, no additive		
Normal consistency		24.0 percent
Initial set		3 hrs. 5 minutes
Final set		5 hrs. 25 minutes
5 hours boiling test on pat		Satisfactory
Sample: Portland cement, 10% red ash		
Normal consistency		27.0 percent
Initial set		3 hrs. 15 minutes
Final set		5 hrs. 50 minutes
5 hour boiling test on pat		Satisfactory
Sample: Portland cement, 15% red ash		
Normal consistency		28.5 percent
Initial set		3 hrs. 10 minutes
Final set		5 hrs. 40 minutes
5 hour boiling test on pat		Satisfactory
Sample: Portland cement, 20% red ash		
Normal consistency:		30.0 percent
Initial set		3 hrs. 15 minutes
Final set		5 hrs. 20 minutes
5 hour boiling test on pat		Satisfactory
Sample: Portland cement, 25% red ash		
Normal consistency		31.5 percent
Initial set		3 hrs. 10 minutes
Final set		5 hrs. 30 minutes
5 hour boiling test on pat		Satisfactory

The above tests were made in accordance with the American Society for Testing Materials standard methods of testing cement.

HERSEY INSPECTING BUREAU
SIGNED BY HERSEY

Yonna Formation of the Klamath River Basin, Oregon

R. C. NEWCOMB
U.S. Geological Survey
Portland, Oregon

THE PRE-QUATERNARY part of the rocks referred to by Callaghan and Buddington (1938) as the volcanic rocks of the High Cascades extends eastward through much of the Klamath River basin of Oregon. This extension of these rocks was recognized by Moore (1937, p. 37). The volcanic rocks of the High Cascades in the Klamath River basin consist of two sequences of basaltic lava flows and a medial zone of stratified tuff, agglomerate, shale, diatomite, sandstone, volcanic ash, and mixtures of these materials. The pre-Quaternary rocks as a whole are cut by andesitic and basaltic intrusives, which are especially plentiful in the lower lava sequence and in the medial sedimentary and volcanic-sedimentary zone. This zone ranges in thickness from 0 to 2,000 feet, and, with a thickness of 200 to 800 feet, extends over much of the Klamath River basin (and the adjacent Lost River basin) in Oregon. It crops out in large areas in the physiographic subunits known as Yonna, Swan Lake, Sprague River, Williamson River, Poe, and Klamath valleys. It is a definite lithologic unit and is here named the Yonna formation.

Type Locality and General Field Relations

The area of type exposure is along the west side of Yonna Valley in Township 38 South, Range 11½ East, of the Willamette meridian and baseline. There it crops out in the slopes and is exposed in road cuts and foundation excavations. From this area its outcrop extends in an irregular band, 1 to 2 miles wide, north across the divide into Sprague River valley, where it crops out in slopes and streambanks over large parts of the valley. It extends north up the tributary Sycan River into T. 33 S., R. 11 E., where, after passing for a few miles under the lavas near Taylor Butte, it crops out along the east side of Williamson River northward for 12 miles to the slopes of Yamsay Mountain. This is the farthest north that the Yonna formation has been observed.

To the east, the Yonna formation crops out at intervals beneath the capping lavas at least as far as the Klamath Basin drainage divide, and it has extensive exposure in Barnes Valley. The Yonna formation continues westward down Sprague River valley into the lower part of Williamson River valley, where the formation crops out in the vicinity of Chiloquin. There are ex-

cellent exposures in the road cuts for 7 miles north of Chiloquin to the Spring Hill grade on Highway 97.

South from Chiloquin the formation is exposed intermittently in the fault escarpments along the east side of Upper Klamath Lake and crops out extensively in Klamath Valley southward from Klamath Falls to the vicinity of Merrill. Additional outcrops are found along the west side of Swan Lake Valley, in the escarpments around Poe Valley, and in the pass south from Poe Valley into the mountain slopes around the north end of Tule Lake basin.

The contact between the Yonna formation and the underlying, or lower, lava rocks is exposed in several places. Among the best of these contact exposures are those in the bank north of Harpold Dam on Lost River, and in Sprague River canyon just below Braymill. At these places the lowest part of the Yonna formation lies upon the eroded top of the lower lava rocks.

The Yonna formation is overlain with minor erosional unconformity by the upper lava rocks (Pliocene?), by Quaternary lava, or by alluvium. The upper lava rocks form a relatively thin but extensive caprock over the Yonna formation in large areas of the Klamath River and Lost River basins. Many of the linear exposures of the Yonna in lava-capped bluffs could not be shown in Figure 1. The Yonna is cut by many dikes and sills of a generally basaltic composition. Larger intrusives, such as those forming masses like Bug Butte and Council Butte in Sprague River valley between Beatty and Sprague River (town), are formed of crystalline dioritic or gabbroid rock.

Through most of the Klamath River and Lost River basins the Yonna formation, as well as the rest of the pre-Quaternary part of the volcanic rocks of the High Cascades, is broken by an intricate system of block faulting. The fault breakage and displacement are greatest in the trenchlike structures known as the Klamath and Langell grabens. In those grabens the strata of the Yonna formation have dips as high as 30 or 40 degrees. In the larger blocks, outside the main grabens, the strata dip mostly at low angles over broad areas.

Lithologic Composition

The Yonna formation in the type area consists in general of two units: (1) A lower sedimentary (lacustrine) section consisting of ashy diatomite, stratified sandstone, laminated siltstone, waterlaid volcanic ash, pumice, and semiconsolidated gravel, and (2) a rather thick upper unit of basaltic lapilli tuff, part of which was deposited in water. In general, the lacustrine rocks are best exposed along the banks of Lost River, whereas the lapilli tuffs crop

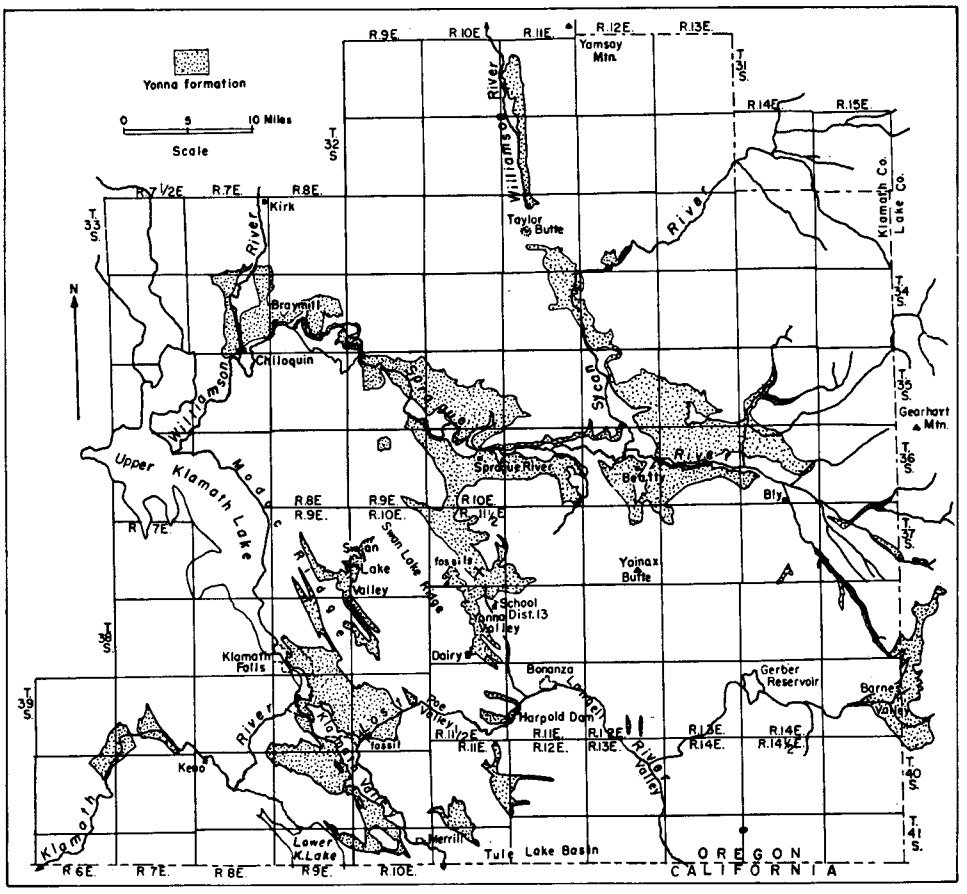

Figure 1. Map of the Oregon portion of the Klamath River basin showing the larger known areas of outcrop of the Yonna formation.

out more extensively in Yonna and Swan Lake valleys. Outside the type area there is much diatomite, waterlaid volcanic ash, and other sedimentary material in the upper part of the formation, and the relation of a sedimentary lower unit and a tuffaceous upper unit is not clearly established for the entire area of the Yonna formation.

Above the lower lava rocks at the site of the old Harpold Dam, and for about half a mile southwest of the dam, there are exposed in the right bank of Lost River small segments of the sedimentary rocks that there form the lower part of the sedimentary-rock unit of the Yonna formation. These segments have been cut by numerous small normal faults and tilted to the southwest. The section as described by Meyers and Newcomb (1952) is as follows:

	Feet
Top of section eroded	
Tuff, sandy black, fine-grained, laminated, friable	5
Ash, tan, fine-grained, laminated, consolidated	4
Tuff, sandy, black, fine-grained, laminated, friable	4
Ash, diatomaceous, white, and intercalated thin gray sandy laminae and one 4-inch bed of pumice	18
Lower lavas, base of section	
Total thickness of section	31

About 1.1 miles farther southwest, on the north side of the highway in the NW¼ sec. 30, T. 39 S., R. 11 E., a 15-foot-thick sheet of dense basalt rests on indurated brown tuff. Still farther west, on the north side of the road, sedimentary rocks crop out for a distance of 200 yards. Those rocks are faulted and tilted to the southwest. The following section was measured there:

	Feet
Top of section eroded	
Siltstone, grayish-green, laminated, indurated; breaks with a shaly fracture	5
Ash, diatomaceous, gray, laminated	20
Tuff, grayish-black, laminated, indurated	18
Siltstone, tuffaceous, brown, indurated; breaks with a shaly fracture	5
Basalt, sill, blue-black, dense, cubical jointing	15
Tuff, brown, indurated; contains angular fragments of basalt and glass of about 0.1-inch diameter in fine-grained matrix	10
Base not exposed	
Total thickness of section	73

In Yonna Valley there are extensive exposures of diatomite, diatomaceous volcanic ash, laminated siltstone, stratified sandstone, and volcanic ash. Those rocks crop out in the cuts of State Highway 66 and the O.C.&E. Railroad where they cross the long swells in the valley floor northeast of Dairy. The beds have been folded mildly and cut by numerous northwest-trending faults. In general, the siltstone and tuffaceous sandstone are comparatively firm and strong and are predominantly laminated, whereas the diatomaceous beds are friable and massive. A section measured in a railroad cut 1.5 miles northeast of Dairy is as follows:

	Feet
Top of section eroded	
Siltstone, gray-green, laminated, indurated; breaks with a shaly fracture	6
Lapilli, black, semiconsolidated, consisting of 1/10- to 1/4-inch subangular pebbles of basalt scoria, waterlaid, friable	.3
Siltstone, like the top unit	2
Sandstone, tuffaceous, brown, consolidated, fine-grained	1
Ash, diatomaceous, tan, friable	.1
Sandstone, black, laminated, fine-grained; waterlaid basaltic ash and lapilla, friable	1
Siltstone, like those units above	2
Sandstone, tuffaceous, brown, fine-grained and intercalated laminae of black basaltic tuff	3
Lapilli, black, semiconsolidated, consisting of 1/10- to 1/4-inch subangular pebbles of basalt scoria, waterlaid, friable	.5
Siltstone, grayish-green, indurated, laminated in 1/4- to 1/2-inch-thick layers of black angular basaltic sands and minute tan and brown particles	12
Ash, diatomaceous, tan and buff, very light in weight, massive	15
Total thickness exposed	42.9

The lacustrine unit exposed in the southwestern part of Yonna Valley appears to interfinger with the upper, or lapilli-tuff, unit at the north end of the valley. At the north end of Yonna Valley, beneath the upper lava rocks that cap Swan Lake and Modoc Ridges, a rather thick unit of basaltic lapilli tuff occurs. A similar unit also occurs in Swan Lake, Poe, and Sprague River valleys. In general, the tuff is in thinly stratified layers and consists of scattered grains of black glassy lapilli within a matrix of tan to greenish-brown fine-grained angular ash and pumice. The greenish-brown ashy matrix of the thicker and more massive layers contains more basaltic fragments, lapilli, and glassy scoria than are commonly contained in more finely layered tuff. The basaltic fragments range in size from ⅛ to ½ inch. In the northern part of Yonna Valley, north of District School No. 13, there are several low swells made up of the edges of lapilli-tuff beds inclined outward in circular patterns that suggest truncated tuff cones. Those truncated cones probably represent old vents from which some of the tuffaceous material was thrown out. One of those beveled cones in the tuff forms Juniper Rock, a small eroded dome about 200 feet high in the SW¼ sec. 36, T. 37 S., R. 11½ E.

The thickness of the lapilli tuffs is more than 500 feet in the exposures in the northern part of Yonna Valley and in the northwestern part of Swan Lake Valley. The thickness of the lacustrine unit is nearly 500 feet in the

southern part of Yonna Valley and in the vicinity of the Harpold Dam. It is doubtful whether a complete section of both units is present at any single place. However, the Yonna formation reaches a thickness of more than 1,500 feet in wells at the northwest end of Swan Lake Valley and in Klamath Valley southeast of Klamath Falls. The thicknesses drilled in Yonna Valley range from 100 to 900 feet. Thicknesses of about 500 to 700 feet are penetrated commonly by deep wells in the Beatty area of Sprague River valley.

Age

Few fossils have been found in the Yonna formation. On the basis of the diatoms in samples examined for Moore (1937), K. E. Lohman (Geological Survey) assigns the deposits to the Pliocene (personal communication). In the NW¼NE¼ sec. 34, T. 37 S., R. 11½ E., numerous but poorly preserved fresh-water shells and a few fish bones were found by Meyers (Meyers and Newcomb, 1952, p. 39). Those fossils occur in a brown semiconsolidated tuffaceous sandstone, which apparently interfingers with the lapilli tuff. Specimens collected were identified by G. Dallas Hanna of the California Academy of Science as follows (Meyers and Newcomb, 1952):

> From a careful comparison with material from other western fresh-water deposits I am convinced that the age is Pliocene. It would be advantageous to date it closer, but I do not believe there is sufficient evidence available.
>
> The very large gastropod in your collection is *Carnifex* the species being the one I noted on page 6 'Univ. Oreg. Publ. vol. 1, no. 12, Aug. 1922.' It has not yet been described specifically because of lack of suitable well-preserved material.
>
> The abundant impressions of small gastropods are of a large high-spired *Amnicola* similar to the living *longinqua* (Gould). A few fragments of *Parapholyx* of *packardi* (Hanna) and a few internal impressions of bivalve *Sphaerium* are present.

Ten-Chien Yen of the U.S. Geological Survey examined a collection of specimens from the same site and identified the following forms of fresh-water mollusks:

Sphaerium	sp. undet.
Valvata	sp. undet.
Amnicola	sp. undet.
Laux cf. *L. klamathensis*	Hannibal
Physa	sp. undet.
Vorticifex binneyi	(Meek)
Lymnaea	sp. undet.

Yen concluded his analysis by stating that: "The occurrence of these related species seems to indicate a Pliocene age of its enclosing bed."

A peccary skull, reportedly found in the "Wilson's quarry pit" in the NW¼NW¼ sec. 32, T. 39 S., R. 10 E., was identified by Jean Hough of the U.S. Geological Survey as that of *Prosthennops oregonsis* Colbert, and its age placed as middle Pliocene (Meyers and Newcomb, 1952, p. 40). Although the exact position at which the fossil occurred in the pit is unknown, as it was found while excavation of the gravelly material was in progress, the reported find seemed to be authentic and the rock matrix enclosing the skull was a light-gray consolidated sandy tuff that appeared to be lithologically similar to the tuffs exposed in the sides of the quarry pit.

Just south of the quarry pit a ridge rises about 600 feet above the quarry. That ridge is made up of a thick sequence of lapilli tuff capped by the upper lava rocks. Those tuffs are lithologically similar to the ones exposed in Yonna Valley. The exact relationship of the two phases is not completely clear, but it is concluded that the diatomite and related sedimentary beds exposed in the quarry must represent the lacustrine phase and underlie the lapilli-tuff phase exposed in the ridge. Thus, the lacustrine phase of the Yonna formation is believed to be of middle Pliocene age, and the lapilli tuffs are of the same age or but slightly younger in the Pliocene.

Similar Rocks of the Region

To the north of Klamath Basin in the Deschutes River valley, a deposit of continental fluviatile deposits of great lithologic variety, The Dalles formation of Miocene or Pliocene age has been considered to be Pliocene in age by some authors (Chaney, 1941; Hodge, 1942). The principal area underlain by these deposits includes some of the valley and plateau areas between Bend and The Dalles, respectively 130 and 240 miles north of Klamath Falls. The topographic situation of the deposits—on the eastern flank of the Cascade Range—indicates a depositional environment similar to the basin to which the Yonna formation was deposited farther south. In Harney Lake basin, 160 miles northeast of Klamath Falls, two tuffaceous sedimentary and volcanic-sedimentary deposits, called the Harney (Pliocene?) and Danforth (Pliocene) formations by C. F. Park, Jr. (Piper, Robinson, and Park, 1939), are lithologically similar to the Yonna formation. In parts of Fort Rock Basin, which includes several subbasins—such as Silver Lake Basin and Christmas Lake Valley—and borders Klamath Basin on the northeast, there are extensive exposures of tuffaceous deposits of Tertiary age (Trauger, 1950). These deposits of Fort Rock Basin are lithologically similar to the Yonna formation and to parts of the Harney and Danforth formations.

No correlations with these similar formations or with unnamed deposits in these other basins of central Oregon are proposed at this time.

Literature Cited

Callaghan, Eugene and A. F. Buddington, 1938. Metalliferous mineral deposits of the Cascade Range in Oregon. U.S. Geol. Survey Bul. 893.

Chaney, R. W. 1941. Age of The Dalles formation. Geol. Soc. American Bul., vol. 52, no. 12, pt. 2 (abstract) p. 1945.

Hodge, E. T. 1942. Geology of north-central Oregon. Oregon State College Monographs —Studies in Geology no. 3 and included map "Geological map of north-central Oregon."

Meyers, J. D. and R. C. Newcomb. 1952. Geology and ground -water resources of the Swan Lake and Yonna Valleys area, Klamath County, Oregon. U.S. Geol. Survey open-file report (duplicated).

Moore, B. N. 1937. Nonmetallic mineral resources of eastern Oregon. U.S. Geol. Survey Bul. 875.

Piper, A. M., T. W. Robinson, and C. F. Park, Jr. Geology and ground-water resources of the Harney Basin, Oregon. U.S. Geol. Survey Water Supply Paper 841.

Trauger, F. D. 1950. Basic ground-water data in Lake County, Oregon. U.S. Geol. Survey open-file report (duplicated).

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

CHRISTY PUMICE * **KLAMATH COUNTY**

Operator: H.W. Christy, Chemult, Oregon.

Location: SW¼ sec. 9, T. 27, R. 6 E., on U.S. Highway 97 1½ miles north of Chemult on Great Northern Railroad.

Loading facilities have been improved recently. A bulldozer delivers the pumice from a pit to a 3/8-inch grissly mounted at top of short incline. Oversize passes through rolls. Finished product is loaded on gondolas with Scoopmobile. Some of the pink volcanic ash from deposit located between highway and Southern Pacific Railroad due west of plant is added to each car shipped. The ash is said to serve as a natural cementing agent which materially reduces the amount of cement required. The deposit of ash is said to be at least 70 feet deep.

Christy holds numerous claims in the area surrounding his plant. He plans to enlarge his operation in the near future by increasing his siding to hold 15 cars and by installing a suction hose loading device which would deliver pumice from pit to cars or crusher.

Present freight rates from Chemult for a minimum car of 70,000 lbs. based on a 1000 lbs. per yard agreement, are 34¢ per 100 lbs. to San Francisco, 32¢ per 100 lbs. to Medford, and 13¢ per 100 lbs. to Portland.

Shipments are being made to California points principally, with some cars going to Seattle, Klamath Falls, and Portland.

Although pumice blocks and brick were formerly manufactured at this plant, only bulk pumice is being shipped now.

E. M. Baldwin
R. S. Mason
September 24, 1946

---

* See report on Silica Brick and Tile Company, Klamath County

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

Report by H. M. Dole
December 20, 1946

Chrystallite Aggregates (Pumice)

Unclassified Mining District
Klamath County

Old Names:
Silica Brick and Tile

Christy Pumice

Owners and Operators:
Omer and Dennis Wisby — P. O. Box 61, Chemult, Oregon

Mrs. H. W. (Stella) Christy — Same
A partnership.

Area:
4,700 acres, held by location as placer claims.

Location:
Claims are in Tsp's 26 and 27S, R8E.

Present quarry and siding: SW¼, Sec. 9, T27S, R8E.

1½ miles north of Chemult on U. S. Highway 97 and the G.N.R.R. Siding is named Silbrick.

History:
In 1940 the Silica Brick and Tile Co., C. A. Moore, Pres., Jordon, Mgr., manufactured pumice brick at this site.

In 1940 Mr. H. W. Christy, Herman Loftdahl, and Enlow acquired the rights to the property. Their production was not great (an estimated total of 50 cars of pumice up to the latter part of 1945 would probably be high).

In December of 1945 the Wisby Brothers and Mrs. H. W. Christy took over the operation of the plant. A total of 13,000 cu. yds. were shipped during 1946 and plans are to increase this considerably in 1947.

Topography and Climate:
The quarry lies at an elevation of 4750 in a narrow N-S trending valley bounded on the east by Walker Rim and to the west by an unnamed escarpment. The valley gives the impression of being a graben.

In the winter months several inches to several feet of snow will fall; the ground also freezes toa depth of a few inches. Neither impedes mining seriously.

Development work:
An area approximately 500' square has been cleared and the overburden remov
Another area of about the same size is nearly mined out.

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

Geology:

As mapped by Moore (U.S. Geological Survey Bull. #875) the holdings of this partnership lie within the area of the "Younger Pumice of Crater Lake" Howell Williams (in his map of the "Distribution and Thickness of Crater Lake Pumice") shows T27S and approximately the southern one half of T26S, R8E to lie within the 10' isopach of the pumice fall from Crater Lake. The "Older Pumice" of Moore (Nuees Ardentes of Williams) reaches and may overlap the southern limit of the holdings.

The lump pumice mined covers the low ridges and hills. "Ash", evidentially derived from the weathering of the "Older Pumice", is taken from the "flats" bordering the hills and is added to each carload at a ratio of 1 "ash" to 7 lump pumice.

In the cuts in the pumice no sorting is apparent--the material is uniform throughout; sand to pebbles sizes predominate (for screen analysis from this locality see U. S. Geology Survey Bull #875, samples # 1,2,3,51,52, 150-157). The same is true of the "ash". A screen and chemical analysis of the "ash" was made available by Mr. Wisby and is given at the end of this report.

Thickness of the pumice varies from 5 feet to 15 feet and averages 10 feet. Overburden (a pumiceous soil) will average 10 inches. Below the pumice is a reddish clay containing angular fragments of lava from grit to pebble size. A dug well 1 mile south (in the NE¼, Sec. 20, T27S, R8E) shows the clay underlying the pumice to be 5 feet thick; below this is lava.

Mining:

Open cut methods are used for the mining of the pumice.

A 12 cu. yd. scraper is used to remove the overburden after the land has been cleared of timber and brush. Then a bulldozer pushes the pumice to a hopper which feeds into a set of rolls 9" x 24". The product (-3/8") falls to the stock pile where it is picked up by a 1 cu. yd. Scoopmobile and loaded into railroad gondolas.

A high line with a 450' working length and employing a 3½ cu. yd. bucket is being installed to increase production.

Equipment:

International TD 18 diesel tractor with a 9' 11" Isaccson blade.

Woolridge 12 cu. yd. scraper.

Scoopmobile with a 1 cu. yd. bucket.

1 set of rolls 9" x 24" powered by a 20 h.P. Wisconsin motor.

A "surplus" generator.

3 fairly modern homes.

1 shed 20' x 70'.

A 5 car siding on the G.N.R.R., now being enlarged.

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

Economics:

Chrystallite Aggregates are reported to have a contract with the Myers Engineering Company of 206 S.E. Grand Avenue, Portland, Oregon to furnish a minimum of 5,000 yds. of pumice a month. The Myers Engineering Co. are to furnish all equipment necessary to produce this amount, install same and to do the marketing, advertising and what engineering that is necessary For this they are reported to receive 60% of the profits. The length of the contract is indefinite.

All the Wisby's have to do is to get the pumice into the cars, i.e. operate the machinery and keep it in repair.

This is their (the Wisby's) first experience in mining of any sort. The elder Wisby (they are two nice fellows about 30 yrs. and 27 yrss old) has some heavy equipment experience and the younger one is catching on fast. They are both eager, industrious, and willing but I'm afraid they are a little lacking in efficient mining practice. They apparently have no long range mining program set up and their percentage of waste on their last cut appeared to be higher than it should have been, many thousands of cu. yds. being left.

There is no reason why this shouldn't be a successful mining venture. Their location as to transportation is ideal--being right at the junction of a highway and two railroads. Stripping costs should be at a minimum as should mining costs. Also there is plenty of "ore"in sight for many years to come.

If the Myers Engineering Co. is on the "ball" on the marketing end of the business and if they can give any good engineering advice to the Wisby's on the mining end this should be a real nice little business.