

State Department of Geology and Mineral Industries

N. S. Wagner, 1950

702 Woodlark Building
Portland 5, Oregon

Eagles Nest Placer Claim (perlite)

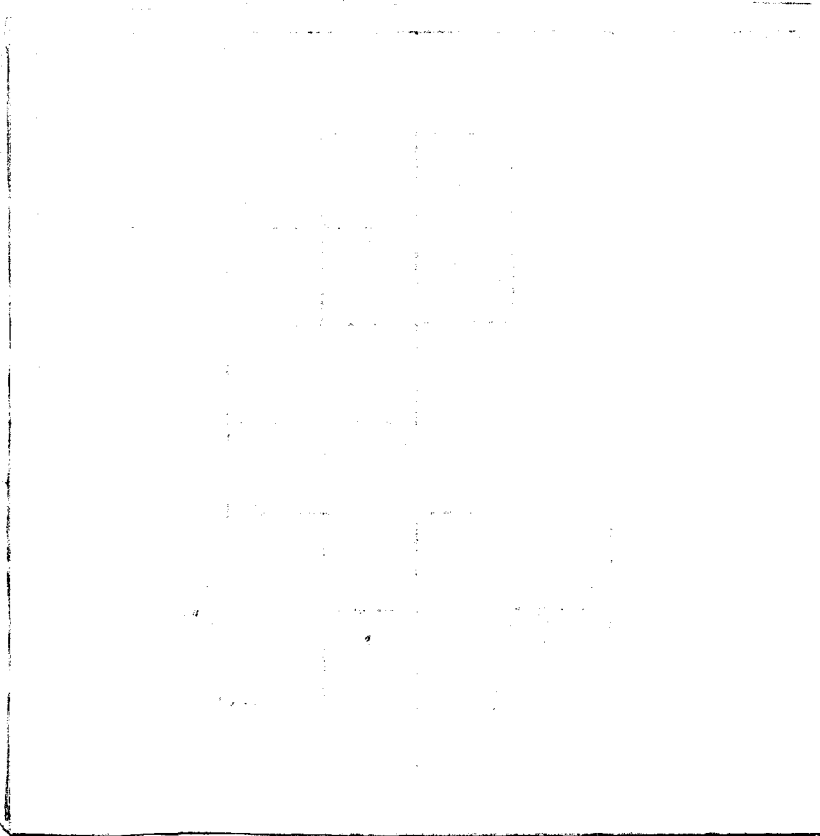
Unclassified District
Lake County

Foreword: This claim was taken to cover occurrences of perlite.

Owners:

W. B. Combs,	Lakeview,	Oregon
D. W. Combs,	"	"
Chas. H. Combs,	"	"
D. C. Walker,	Portland,	Oregon
Harold B. Boone,	"	"
J. B. Annand,	Tigard,	Oregon
Katherine Annand,	"	"
Mary Todd,	"	"

Location: T. 34 S.; R. 19 E.; Section 25. There is a total of 160 acres included in this group. Quarter section distribution thereof is as indicated in the following diagram.



This location covers a large portion of the eastern flank of Tucker Hill which is a low but otherwise prominent hill situated on the western side of Chewaucan Marsh at a point known as the Narrows. State highway No. 31 skirts the base of the hill. The distance thereon from Paisley is ten miles, and from Valley Junction, twelve miles. The nearest rail service is that of the Southern Pacific at Lakeview. The distance from the claim to the rail terminus is about 35 miles.

History:

The location as given in the preceding paragraphs is an amended location, amended as of August 30, 1949. The original location was made March 19, 1949, and is to be found in the County record of mining claims, volume 6, page 223. There is no earlier history of significance in connection with attempted development of this occurrence.

Development:

A large (understood to have been two tons) sample was taken and sent to the U. S. Bureau of Mines laboratory at Tucson, Arizona for testing. This represents the only work of development nature as yet done by the present owners.

Geology:

The portion of Tucker Hill covered by, and immediately adjacent to the claims, is occupied by a series of acidic volcanics. This includes bodies of perlite and also a small amount of rhyolite. The formation at large is, however, intermediate in character and composed of both glassy and stoney material. The glassy material predominates and often makes up from 80 to 95 percent of the rock. It ranges in its occurrence from a massive, fine and even-grained rock through a platy phase to a highly banded one. The banding is commonly due to alternating layers of stoney material and glass. Some of the most highly and delicately banded rock was found, however, on petrographic examination to be composed 90 percent of glass. In

such instances, the banding is apparently a reflection of selective staining of iron oxides.

The glass in this formation is grey to blue or blue-black in color and it generally resembles the perlite in appearance. That some of it is in fact perlitic is confirmed by petrographic study¹. On the other hand petrographic study also shows much of this glass to be of the common volcanic variety with incipient crystallization common and often developed to a prominent degree. Inclusions and bubble holes are present, but less abundant.

The stoney phase is chiefly rhyolitic in nature. Feldspar is the most prevalent mineral constituent in the nonopaque fraction. Large crystals are occasionally present, but for the most part grain size is minute. Spherulitic intergrowths of quartz and orthoclase are sometimes developed to an abundant degree. Chlorite is a very minor component and was noted in but few of the samples studied petrographically. Evidence of kaolinization is common although alteration in this respect is generally not in an advanced stage.

From exposures on the steep flanks of the hill it is evident that the different variations or sub-types of this formation may occur individually in large and extensive masses. Faulting and a diversity in both the amount and direction of dips (formations, or flow dips) is also to be noted from the exposures on the flanks of the hill. Conditions underlying the gently undulating surface of the hill above the rim are, however, obscured by a light rubble-filled soil mantle.

Expansion tests were made by this Department on samples of the true perlite and also on eleven samples of the associated country rock.

The types of country rock tested included some stoney material, but for the most part these test were conducted on various of the glassy varieties for the purpose of ascertaining whether or not they possessed any expansion capacity comparable with that of the true perlite. The volume increase obtained from the true perlite amounted to 500 percent (a volume increase of 6 times for material through 20 and retained on 28 mesh at a heat of 1925° F.) This rates as excellent in terms of the capacity of the facilities available for the making of such tests². By comparison, a volume increase of 250 percent at 1950° F. was the greatest expansion obtained from the group of country rock samples tested. The sample which gave this result is described as a mottled grey rock with small white spots and crude banding. It was 95 percent glass in which incipient crystallization was abundant and perlitic cracks common. What few nonopaques there were are described as kaolinized feldspars of very small size. The next highest expansion was 175 percent at 1950° F. for a black and grey banded rock containing an estimated 85 percent glass showing incipient alteration and numerous bubble holes. As in the previous sample the nonopaque fraction consisted mostly of small, kaolinized feldspars.

The remaining samples of the country rock formation yielded appreciably lower expansion results, even some glassy ones that showed perlitic texture. Two samples, one containing 80 to 85 percent glass and the other 70 to 75 percent glass, failed to expand at all.

Conclusions: The portion of Tucker Hill covered by the present claim, and adjacent thereto from the extreme southern tip to a point about a quarter section north of the northern most claim line as is

illustrated on the map of the hill accompanying this report, is composed of a series of acidic volcanics. This includes rhyolite, perlite and an immense tonnage of volcanic glass, some of which is perlitic (microscopically).

On the basis of expansion tests it is evident that despite the fundamental similarity in appearance and nature between the typical perlite and the associated glasses, potential commercial value may properly be credited at this time to the typical perlite only. Whereas some of the glassy phases of the associated country rock did show expansion capacities of moderate proportions, the bulk of it showed little or none. It is still possible, however, that some of the associated glassy rock may possess expansion capacity of commercial proportions as this factor (expansion capacity) may differ appreciably with differing test conditions³. Additional sampling and testing of this material is therefore warranted. Such is, in fact, necessary as an aid in establishing the bounds and calculating the reserves of the perlite occurrences themselves inasmuch as the two are quite intimately related. Under the present circumstances no estimate of the tonnage of perlite existent on the claim can be given with the available data. It can, however, be stated that the grade of the perlite can be tentatively accepted as excellent to the extent that it merits at least a sufficient amount of prospecting to determine the probable tonnage of available reserves. Likewise the occurrence as a whole merits more investigation than it has had, at least insofar as testing of the associated glasses are concerned.

Report by: N. S. Wagner
Date of exam: August 8-9, 1949
Date of report: December 10, 1950
Informants: Judge Chas. H. Combs

References: U. S. G. S. Water Supply Paper No. 22, Waring, 1908.
Drainage Project Map in the Z-X Ranch office, Paisley.

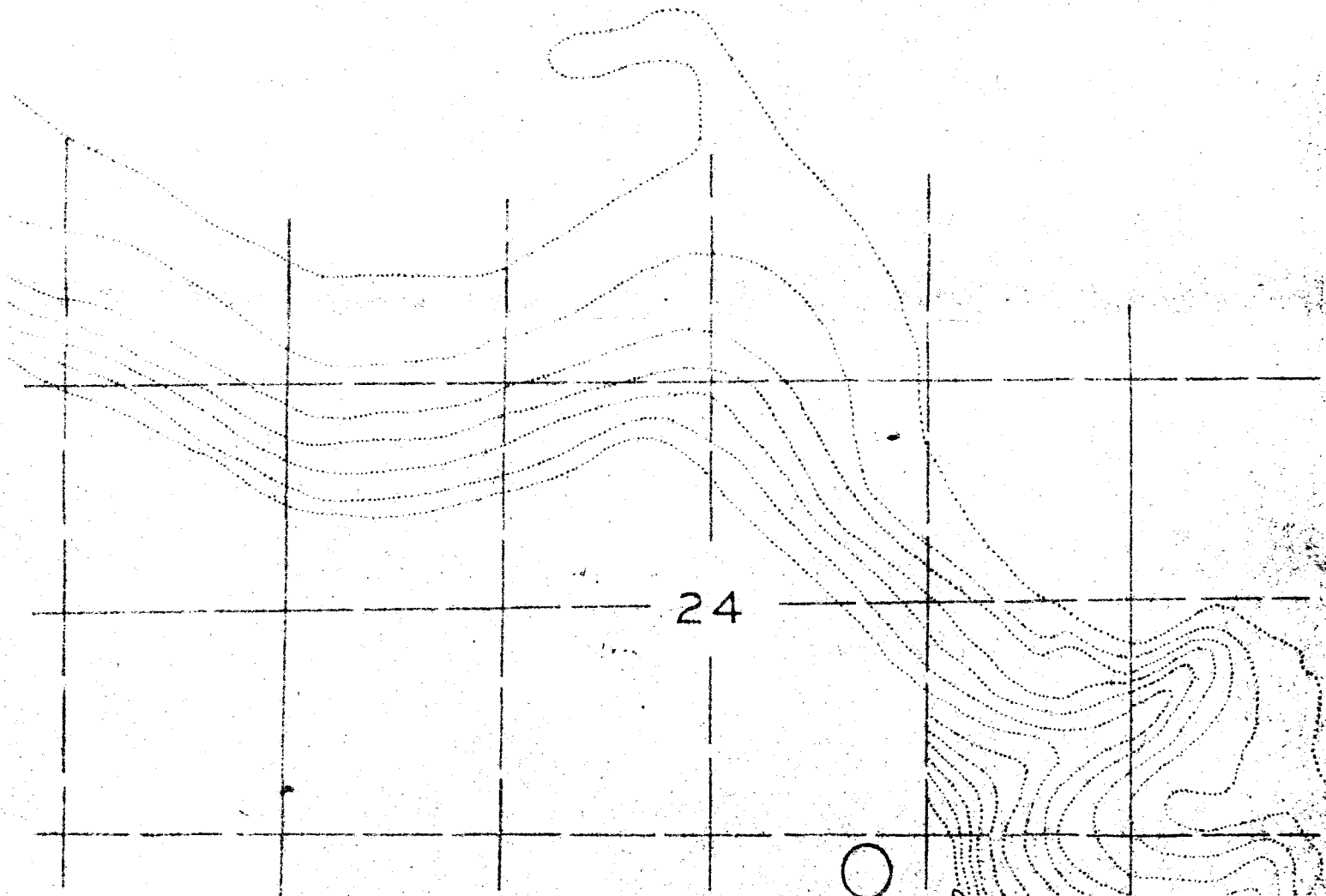
Sample records: P-9310 A
P-9310 B 1
P-9310 B 2
P-9310 B 3
P-9310 C
P-9310 D
P-9311
P-9312 A
P-9312 B
P-9313 A
P-9313 B
P-9531 (JB-392)

- Footnotes mentioned in report:
1. Petrographic study by Hollis Dole (samples P-9310 A through P-9313 B).
 2. Expansion tests (on all the above listed samples were made in a fire assay furnace in which it is impossible to maintain agitation of the sample or to effect other refinements necessary in connection with establishing optimum expansion conditions. One common difficulty to be faced under a set-up of this kind is a tendency for expanded material to fuse before it can be removed from the furnace. On a comparative basis, however, tests of this type are significant to the extent of being indicative and in this connection, L. L. Hoagland, the analyst, reports that an expansion of $6\frac{1}{2}$ times (550 percent) is the highest ever obtained for any expansion test yet run by this Department under this set-up. The expansion result of 500 percent for the Tucker Hill perlite rates as second highest and therefore may tentatively be accepted as excellent. It is understood that this conclusion regarding grade is substantiated by the results of the comprehensive tests made by the U. S. Bureau of Mines in their especially designed laboratory at Tuscon.
 3. The situation in this respect is well summarized in the recent State of Washington, Division of Mines report (Report of Investigation, No. 17, Huntting) on Perlite and Other Volcanic Glass Occurrences in Washington.

TUCKER HILL, T. 34 S., R. 19 E., LAKE CO., ORE.

BASE TAKEN FROM A MAP IN THE Z X RANCH OFFICE.
THE ORIGINAL MAP WAS MADE IN CONNECTION WITH AN
EARLY RECLAMATION PROJECT.

ONLY ADDITIONS TO THIS BASE ARE THE DASHED LINE
AND THE VERTICAL NUMBERS THEREON. THE DASHED
LINE IS OF SKETCH ACCURACY AND REPRESENTS THE
APPROXIMATE TREND OF THE RIM OF THE HILL IN
THE OTHERWISE UNMAPPED AREA. THE VERTICAL NUM-
BERS ARE ANEROID ELEVATIONS. TRACING AND ENTRIES
BY N S. WAGNER, JULY, 1949



NAME			OLD NAMES	PRINCIPAL ORE	MINOR MINERALS
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34 S	19 E	25
T	R	S

PUBLISHED REFERENCES

Lake COUNTY

Unclassified AREA

..... ELEVATION

..... 10 miles from Paisley ROAD OR HIGHWAY

..... 35 miles from S. P. RR DISTANCE TO SHIPPING POINT

MISCELLANEOUS RECORDS

PRESENT LEGAL OWNER (S)

W. B. Combs

D. W. Combs

Chas. H. Combs

D. C. Walker

Harold B. Boone

J. D. Annand

Katherine Annand

Mary Todd

Address

Lakeview, Oregon

" "

" "

Portland, Oregon

" "

Tigard, Oregon

" "

" "

OPERATOR

Name of claims	Area	Pat.	Unpat.
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160 acres

Name of claims	Area	Pat.	Unpat.
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EQUIPMENT ON PROPERTY

Lake County Perlite (Combs - Annand property)

Three distinct types of glass were observed. From the northwestern part of the deposit a zone of light gray perlite of granular to spherulitic character extends about a thousand feet to the southwest where a zone of a few hundred feet of a glassy type was noted, which is brownish in color. Continuing southeastward the perlite is gray in color and granular. In this area the perlite shows considerable flow banding. Talus and soil cover at the base of the deposit hide evidence of the underlying material, but it is probable that it overlies old lake bed sediments.

All three types expand. A composite sample consisting of pieces from the northwesterly area taken over a distance of about eight hundred feet was expanded at 1050 degrees C. and produced a product white in color with a bulk density weight of 8.3 pounds per cubic foot. A sample from the eastern section where the material is more dense and finely granular produced a white product of 16.2 pounds bulk density weight at the same expansion temperature. The perlite in this area appears to be slightly more refractory. Expansion at a slightly higher temperature should reduce the bulk density weight. Subsequent tests on samples from the northwestern section produced expanded material from 5.4 pounds to 13.2 pounds bulk density weight.

Extract of paper by K. E. Hamblen prepared for the A.I.M.E. Industrial Minerals Conference held at Seattle April 6, 1950.