State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

GRANITE

Medford Quadrangle

S. P. Railroad grade

No commercial granite was found along the S. P. R.R. cuts south of Ashland. Mostly the granite has porphyritic texture with ½ inch orthoclase phenocrysts and segregations of dark minerals 5 inches in diameter. One small area of fine-grained granite was found. The area is along the batholith margin and probably represents a contact aureole.

Purpose

A five mile traverse along the S. P. R.R. was made from Highway 99 undercrossing in the NE¼ sec. 17, T. 40 S., R. 2 E., to Siskiyou station. The purpose was to locate commercial granite as exposed in railroad cuts. The traverse covered the switchback in sec. 8. and railroad grade through secs. 17 and 20.

Geology

The Medford geologic map shows this area to be within the Siskiyou batholith, adjacent to and within ¼ mile of the "young metamorphics" and Cretaceous sandstone contact. Field examination shows that the area studied probably is part of a contact aureole as many outcrops show intimate relationships of granite and metamorphics.

Most of the granite is a medium dark colored granite porphyry with felspar phenocrysts ½ inch in length. Many of the phenocrysts show Carlsbad twinning. Segregations of dark colored minerals are common; they average five inches in diameter and decompose more readily than the surrounding rock. Biotite is prominent but the ~~galaxy~~ flakes are 1/8 inch in diameter. The porphyry is cut by aplitic dikes ranging from 3 inches to 48 inches in thickness and the dikes seem to follow joint planes. The phorphyry is weathered and badly jointed.

Included in the porphyry are lenses and bands of metamorphic rock, usually quartizitic, that is badly sheared and contorted. The lenses strike between N. 20 W and N. 40 W and dip about 70 S.W. Most of the switchback area contains these lenses which would make quarrying of commercial rock practically impossible. The area appears to be close to the contact, into which granite was intruded into young metamorphics.

About 200 feet south of semaphore 4144 and between sign boards 414 C and 414 D, a thoro cut exposes a fine grained granite. The rock surface is chocolate colored, just a thin surface coating. The rock itself is well jointed, breaking into angular blocks and has a tendency to fracture parallel to the major joint plane which is parallel to

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the metamorphics lenses. The granite is fine grained like the Ashland quarry rock - on fracture planes it looks more like quartzite. In the denser quartzite-like areas, sulfides are fairly abundant.

This granite seems to be a wide dike in porphyry. The "dike" is about 20 feet wide and grades laterally into porphyry, with embayments of porphyry into the "dike".

It is believed that this fine grained granite is a later phase of the granite intrusion and may correlate with the thinner dikes found at other places. Some of the fine grained granite may ~~pre~~ represent granitization of the metasediment.

South of Wall Creek the outcrops are less prominent and are deeply weathered. Porphyry predominates. Within ½ mile of Siskiyou station, Cretacrous sediments were found.

The highway 99 north of the Junction with the Klamath Falls road exposes some granite. It is not as porphyritic as that exposed along the railroad, but it is cut by numerous aplite dikes and spotted with dark segregations. Cretaceous sediments (fossiliferous) predominate the outcrops between the Junction and the undercrossing.

Conclusions

It is doubtful if the cuts along the highway and the railroad expose granite which would be satisfactory for commercial stone. However, the highway and railroad are so close to the margin of the batholith that the above situation is to be expected. It is probable that the area west of the railroad may contain commercial granite. There are no artificial exposures and natural outcrops are so badly weathered as to make judgment of commercial stone impossible.

Ray C. Treasher,
Field Geologist,
June 10, 1941.

State Department of Geology and Mineral Industries

702 Woodlark Building
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ASHLAND GRANITE
OREGON GRANITES

Jackson County

One of the most promising outcrops of granite which the Bureau has had the opportunity to examine is found in the southern part of Jackson county about seven miles southeast of Ashland on Neil creek and about one and one half miles west of the Southern Pacific railway. Granite outcrops occur over many square miles in this section but it is probable that the most promising locations for quarry sites are to be found on one side or the other of the canon of Neil creek. The Penniston Granite Company of Ashland has had certain options on some of the most favorable outcrops in this region. Their options have, however, been recently taken over by W. M. Blair of the firm Schanen-Blair Company of Portland. Mr. Blair has purchased 120 acres, forty acres in section one of township forty, and the south half of the southeast quarter of section thirty-six in township thirty-nine south, range one east, known as the Ross tract, and is preparing to open up a quarry for handling granite on a large scale.

There has not been sufficient excavation work done to constitute a quarry in this granite. However, the Penniston Granite Company has worked up a considerable amount of the large boulders of weathering which are found on the surface, and the mommental granite obtained from these blocks is giving excellent satisfaction.

The rock is a rather fine-grained bluish gray granite. The principal minerals are feldspar (both orthoclase and plagioclase), biotite, magnetite

and zircon. With a more accurate classification petrographically, the rock might prove to be more nearly a granodiorite in mineral composition but for the purpose of this report it is a granite.

The granite is quite similar in color and texture to the "Barre" granite of Vermont. It is remarkably uniform in its texture and color, works well, breaks with equal ease in all directions, is hard and tough when fresh but slightly less so when weathered. It fractures very smoothly for granite. The weathering of the outcrops in this section varies somewhat in different places but in general the exposures show fresh, unaltered rock. The large, loose boulders already mentioned often show little or no weathering at a depth of four to six inches from their surfaces. The effect of slight weathering is to lighten the color, due probably to the beginning kaolinization of the feldspars. Where considerably weathered, biotite has stained the rock slightly yellow or brown, but even in this condition no deterioration or crumbling is in evidence. The process of weathering is so slow, however, that any discoloration would not appear except after long periods of time.

The joints vary in spacing on the surface from six feet apart in some of the best places to only a few inches in the less favorable. A quarry site could easily be found where joints are measurable in feet. There are no sulphides in the rock itself but the joints are sometimes filled with quartz and occasional grains of pyrite, the weathering of which in places produces an unimportant amount of iron stain on the surface of the stone.

The Neil creek granites are a part of a very large granite intrusion in the neighborhood of Mt. Ashland. In fact, Mt. Ashland is almost entirely

a granite mountain. The geologic relations of this granite will be treated in greater detail in Dr. A. N. Winchell's report on this region which will be published later in the year by the Oregon Bureau of Mines and Geology. The streams in this section have cut deep canons with precipitous walls of which Neil creek canon is a type. On the canon sides the rock outcrops sometimes almost bare and in no place requiring much stripping of soil. The question of locating a quarry site, therefore, is one of selecting an area in which the spacing of the joints of the rock gives promise of good quarry conditions.

The Ashland granite is pleasing in color and texture, is durable and so far as we can now judge, compares favorably in all the desirable qualities such a stone should possess, with the best commercial gray granites.

Taken from Mineral Resources of Oregon, vol. 1, no. 2, pp. 16-18

Ashland District
Jackson County

Name: Ashland Granite Quarries, Inc.
(Also known as the Blair Granite Quarries)

Owners: Ashland Granite Quarries, Incorporated, Ashland, Oregon
Frank J. Van Dyke, President
Moray L. Applegate, Vice-President and Manager
Mrs. Alice A. Peil, Secretary and Treasurer
An Oregon corporation formed July 19, 1937. 2,000 preferred and 3,000 common stock.

Location: On ridge west of Neil Creek about 8 miles S.E. of Ashland. See Location map. 1½ miles to Mistletoe, a station on the Southern Pacific Railroad. Elevation of Mistletoe 2400 feet. Elevation at lower quarry 3300 feet. 1 mile to Highway 99.

Area: 160 acres of patented land and described as follows: The S.½ of the S.E.¼ of Sec. 36, T. 39 S., R. 1 E., and the N.½ of the N.E.¼ of Sec. 1, T. 40 S., R. 1 E. (See enclosed sketch.)

History: Mr. Walter M. Blair began the development of the quarry in 1916 and operated it until 1929 when it was incorporated as the Blair Granite Quarries, Inc. In 1937 this corporation was taken over by the Ashland Granite Quarries, Inc.

Production:

1921	$20,000.00	
1926	27,635.00	
1927	29,445.54	

From March 30, 1929 to Nov. 30, 1932 building stone amounted to $47408.85 and the sale of the Manumental stone for the same period was $18,976.97.

1933	$ 4,002.50	Monumental stone. (No building stone produced.
1934	8,113.20	" " (" " " "
1935	9,542.74	" " (" " " "
1936	9,696.76	" " (" " " "
1937	10,206.20	" " (" " " "

This granite was sold mostly in Northern California, Oregon, and Washington.

Development: The granite is opened up by two quarries. The upper quarry, which is the lighter colored stone and called building stone, is about 75 feet long and about 50 feet wide with about a 30-foot face. Most of the granite from this quarry has come from big boulders. The lower quarry has been excavated until the face is about 150 feet high by 150 feet long and with a floor of about 100 feet in width. Monumental stone is quarried at the latter only. The upper quarry is about 475 feet vertically above, and 1200 feet north of the lower quarry.

Ashland Granite Quarries, Inc. (Continued)

Quarrying: Conditions for quarrying are very favorable. The fractures and joints will greatly facilitate the extraction of this stone.

The lower quarry is on the south side of a steep hill, the top of which is about 500 feet vertically above the quarry floor. The east slope of the hill is formed by the dip of the granite which varies from 20 to 30°. There is very little over burden. If the hill is all granite as it appears to be, a conservative estimate would be about 3,000,000 cubic feet. However, all of the hill is not on this property.

Geology: The Ashland Granite Quarries are located on the granite intrusion which formed the Siskiyou Mountains. On the north slope of Ashland Mountain, there are deposits of granite suitable for building and monumental stone. The Ashland Granite Quarries are located on one of these large granite exposures. The general strike of the granite is about 20° southeast and dips from 20° to 30° to the east.

In the upper quarry weathering has taken place along the joints and rounded the blocks into boulders. One of these large boulders rolled down from the top of the quarry and broke open. One piece was almost a cube with a 10 foot square face. Only two fractures were noted in spite of its closeness to the surface. It has a tendency to break at right angles, and runs are not common.

In the lower quarry there is about 30 feet of overburden which has protected the granite from weathering. The fractures are more common than in the upper quarry, but they decrease with depth. In the bottom, a 50 ton block could be quarried without any flaws.

No knots, inclusions or dikes have so far been found. There are two small quartz veins about half way between the two quarries, but I do not believe they will interfere with quarrying.

The bluish gray monumental, and the gray building stone are the only two colors produced. Both granites are of uniform texture.

In December, 1924, Mr. C. L. Jefferies of Columbia University, made a Petrographic Report on this granite and quoting from his report, "The granite is composed of quartz 26%, feldspar 68%, and biotite 5%, with very little chloride, epidote, sericite and carbonate and no introduced substances or mineralization and was classified as a biotite granite." He also states that it is excellent granite for the following reasons: "1.-The grains are as uniform in size as can be expected in a rock of this type, and much more uniform than many other granites I have examined, which have an established reputation as good stone. "2.-The grains are well interlocked and are not arranged in flow lines or in parallel fashion, so that the structure is massive and homogenous. 3.-The grains are fresh and free from any alteration. The rock compares favorably in composition, texture, structure and condition with any of the well known granites, and I see no objection to it as a source for structural monumental material. It should be understood, of course, that these

Ashland Granite Quarries, Inc. (Continued)

observations are based solely on a study of samples submitted, without any knowledge of the extent of the rock in the field, structural conditions that may obtain in the quarry, or any other data as to quarry conditions."
His report does not mention iron, ~~but~~ and I did not observe any at either of these quarries and there is no evidence of iron stain on any of the rocks. The only thing that might be construed as iron is that in some of the cracks there appeared to be a little reddish stain, but I believe it is due to surface materials entering through the cracks. The granite appears to have no objectionable characteristics.

Equipment:
1 Lane Granite Saw, 8 blades, with 40 h.p. electric motor purchased and installed at total cost of $12,000.00. Capacity to take blocks 7'x7'x14'.
Cutting Shed 150'x 24', with Traveling Derrick.
2 Pneumatic Surfacing Machines
3 Polishing Machines
1 Grinding Stone and Stand
Various carving tools and implements
2 Blacksmith's Outfits
Quarrying Equipment
3 Ten-Ton Derrick
1 Electric Hoist for Derrick
1 Ingersoll Rand Compressor
1 Chicago Pneumatic Compressor
1 Allis-Chambers 60 h.p. motor
1 Wagner 30 h.p. Motor
1 General Electric 60 h.p. Motor
4 Plug Drilling Machines
3 Jackhammers
3600 ft. of 7/8 inch Cable
1 International Harvester 1-Ton Truck
1 Kenworth 3-Ton Truck

The Lane Saw and motor were installed but never used. Power for the plant is supplied by a power line of the California-Oregon Power Company. There is an abundant supply of running water coming from springs on the mountain above the quarry, sufficient for all requirements. There is a dwelling house, bunkhouse for workmen, office and housing for motors and compressors.

Informant. J. E. Morrison. March 8, 1939.

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Informant: J. E. Morrison, March 8, 1939


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F
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Q
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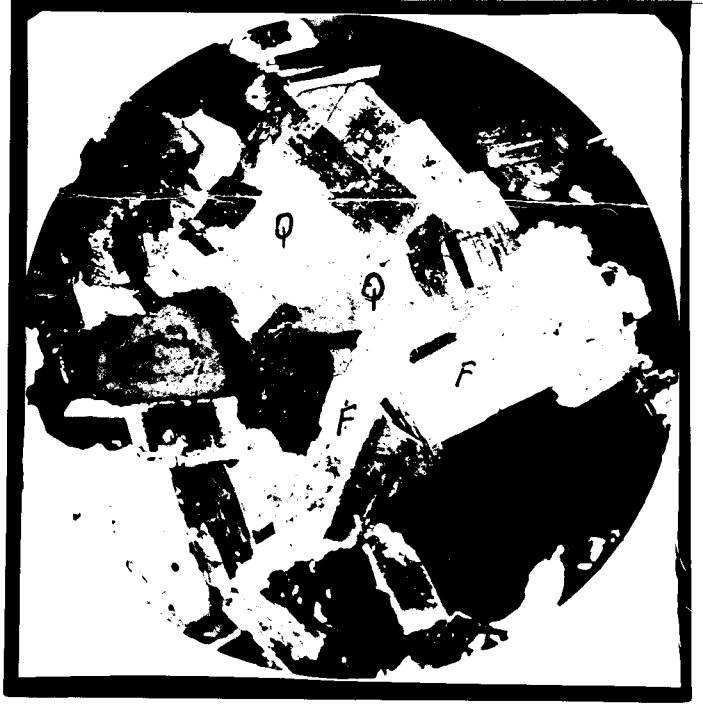
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"E X H I B I T B"

of

ASHLAND GRANITE QUARRIES, Inc.

No. 441

Petrographic Report

and Report of Crushing Tests on a

Sample of Granite from Oregon

for

Mr. C. L. Jeffries

by

R.J. Colony

COLUMBIA UNIVERSITY

GENERAL STATEMENT

A sample of granite from Oregon was submitted for photographic study, and for a comparison with the granite quarried in the vicinity of Barre, Vermont. Three dressed cubes, each approximately 3 inches on the edge, cut from the Oregon granite, were submitted for crushing tests.

Thin sections of the Oregon granite (not crushed) have been studied under the photographic microscope, and a thin section was cut from a specimen of Barre granite, selected at random from the specimens at hand.

The results of this examination are outlined in this report. The chief questions involved have to do with the structural condition and the quality of the Oregon granite, as compared to the granite from Barre.

The report from the Testing Laboratory on the crushing strength of the Oregon granite is included in this report, and both the Oregon granite and the Barre granite are shown, as they appear in thin slices, by means of photographs taken under the microscope.

PHOTOGRAPHIC DESCRIPTION

Date December 1924 Description No.441

Collector Mr. C.L.Jeffries

I. FIELD NOTES

Locality: Oregon

Occurrence: Massive intrusive

Question: Character and quality of rock

II. HAND SPECIMEN DESCRIPTION

General Appearance: Medium textured gray granite, Moderately biotitic

III. MICROSCOPIC STUDY FOR CLASSIFICATION

Texture: Granitoid Size of Grain: 0.25 to 3.0 mm.

Primary Process Represented: Crystallization from magma

Original Structure: Massive - Hypidiomorphic

Secondary Structure: Negligible

Secondary Processes Represented: Neglible

MINERALOGY (Minerals are grouped for interpretation purposes and are arranged in each group in approximate order of abundance) (In some cases approximate percentages are given)

Primary (X) Essential Minerals	%	(Z) Secondary -Alteration Products (Especially Intermediate Products)
Quartz	26	Very little Chlorite
Feldspar	68	" " Epidote
Biotite	5	" " Sericite
		" " Carbonate
(Y) Accessory Minerals		(M) Metamorphic(Recrystallization Minerals)
Zircon Apatite Muscovite Carbonate		Not represented
(O) Introduced Substances or Mineralization		(T) Tertiary Changes or Weathering and Enrichment Effects. (Especially End Products)
None		Not represented

Origin of the Rock: Igneous

Classification: Biotite Granite

Special Features

The rock is composed of quartz, alkalai feldspars including orthoclase and acid plagioclase, and biotite, with the usual minute quantities of the very small accessory minerals of

There are but traces of the usual secondary products, the sum total of which is probably less than one per cent. These are chlorite, epidote-zoisite, sericite, and carbonate. They are present in such minute quantity as to play no part at all in affecting the quality of the rock.

All of the important minerals, that is, quartz, the feldspars and the black mica (biotite) are remarkably fresh and free from alteration, strain or fracture. They are quite uniform as to grainsize and well interlocked; there is no prominent arrangement of the grains in a linear manner, so that the rock should "tool" well in almost any direction.

All of the petrographic evidence points towards an excellent structural condition, and shows this rock to be of exceptional qua ity, so far as can be judged from the character of the samples submitted for examination.

In brief, I judge the rock to be an excellent granite because:

1.- The grains are as uniform in size as can be expected in a rock of this type, and much more uniform than many other granites I have examined, which have an established reputation as good stone.

2.- The grains are well interlocked and are not arranged in flow lines or in paralel fashion, so that the structure is massive and homogenous.

3.- The grains are fresh and free from any alteration.

The rock compares favorably in composition, texture, structure and condition with any of the well known granites, and I see no objection to it as a source for structural monumental material. It should be understood, of course, that these observations are based solely on a study of samples submitted, without any knowledge of the extent of the rock in the field, structural conditions that may obtain in the quarry, or any other data as to quarry conditions.

Comparison with the Barre Granite

There are several different varities of the Barre granite, and numerous quarries are established in that locality. A truly just comparison should involve a separate study of all of these varietal phases; but that is scarcely feasible. I have had one thin section cut from a sample of the Barre granite that closely resembles the Oregon granite, and find the same suite of minerals; that is, quartz, feldspar and biotite, in approximately the same quantity. The grains are equally fresh, and a little more complexly interlocked, in the Barre stone, but in the Oregon granite the grains are more uniform in size and there is no strain effect and no fractures, which are rather prominent in the particular sample of the Barre granite which I happen to have.

Considering only these two samples, I think the Oregon stone equally as good, and probably even a shade better, than the sample of Barre granite from which the section was cut.

I have tried to illustrate these points by photomicrographs, which follow:

Photomicrograph No. 1

This section of Oregon granite, taken in polarized light, crossed nicols, magnification 25 diameters. Chiefly quartz (irregular grains, like Q) and feldspars(rectangular and squarish grains, like F) well interlocked, fairly uniform in sisze, free

from fracture and strain. The structure and composition are both good.

Photomicroscope No. 2.

Another section from another sample of the Oregon granite. Taken in polarized light, magnification 25 diameters. This shows the black mica(biotite)B), in addition to quartz(irregular grains, Q) and feldspars (rectangular grains, like F). Here also the minerals are fresh, free from strain and fracture, and the crystals are well interlocked. The structural and mineral conditions are excellent.

Photomicrograph No. 3.

Thin section of Barre granite, for comparison. Taken under

the same conditions, in polarized light, nicols crossed, magnification 25 diameters. The composition is essentially the same. The rock shows more strain (the peculiar "wavy" shadows on the quartz,Q) and also it shows minute fractures, which have been healed, however (arrows). Of these two granites, the Oregon rock exhibits a little better structural condition than the sample of Barre granite, which was selected haphazard, without picking any special one.

Comment on the Crushing Tests

The reports from the Testing Laboratory, showing the maximum load per square inch, based on a crushing test of three-inch dressed cubes, is included in this report.

From U.S.G.S. Bulletin 738, on "The Commercial Granites of New England", by T.Nelson Dale, ranges in maximum load per square inch of some Barre granites were obtained. According to Dale (page 125), the range is from 14,968 pounds per square inch to 19,957 pounds per square inch, the latter figure being a high maximum which is not reached in every granite.

In the case of the samples of Oregon granite, the lowest figure is 11, 980 pounds, the highest 14,900 pounds. This is a fair average strength, comparing very well with the lower ranges for Barre granite, and far exceeding any load the granite would ever be called upon to carry, even in large construction work. Moreover, I had no knowledge of the orientation of the dressed cubes sent for testing. That is: all granite sustains less load when the stress is applied paralel tothe "rift", so it is customary to designate the rift direction on the test blocks. This can be determined only when the stone is being taken from the quarry. In the dressed cubes there is no way of determining this so the cubes were, of necessity, crushed with a random orientation.

To sum up, I see no objection whatever to this rock as either monumental or structural material, and I think it compares very favorably with and probably equals, the average granite of similar composition from Barre.

(Signed) R. J. COLONY
Consulting Geologist.

New York, December 1924.

COLUMBIA UNIVERSITY
Department of Civil Engineering
Testing Laboratories
New York City

Committee on Testing
E.B.Lovell, Chairman
A.N.Beyer, D.of Test.
J.K.Finch, Secretary
W.J.Krefeld, Engr.of T.

Date: 11/28/24
Made for Dr.R.J.Colony
Dept. Geology.

REPORT OF COMPRESSION TESTS

Machine used: Olsen 400,000#

Used by J.S.Peck

Material	Oregon Granite		
Laboratory Test Number	28530- 28531		28532
Mark on Test-Piece	1	2	3
Shape of Test-Piece	Cube		
Bedded with	Plaster of Paris		
Length in inches	3.00	3.00	3.05
Diameter or width in inch.	2.98	3.00	2.97
Heighth in inches	3.00	3.00	3.00
Area in sq.inches	8.94	9.00	9.06
Maximum load in pounds	112580	107780	135110
Ultimate Strength, lbs. per sq. inch---------	13720	11980	14900

Seal: TESTING LABORATORY
COLUMBIA UNIVERSITY
NEW YORK CITY

Signed by W.J. Krefeld.

NOTE: The foregoing report was made at my request. On the 16th day of November, 1924, I went to the quarry and had Mr. Blair prepare 3 one-inch cubes of granite, dressed but not polished. Two of the samples were taken from separate parts of the present working face. The other one was taken from a block that was taken from the face several years ago and had been lying exposed to the weather all the time. I sent the samples to my friend, Mr. C.L.Jeffries, in New York City, who at my request, took them to the Columbia University with a request to make report and compare the same with the Barre, Vermont, granite, or any other granite that was considered the best known. The result bares out the many statements made by geologists, builders, and monument experts.

(Signed) E.T.STAPLES,
Ashland, Oregon.

The following copy of report is self explanatory.

BUREAU OF MINES AND GEOLOGY
State of Oregon

Henry M. Parks
Director
417 Oregon Building
Portland, Oregon
1924

I submit the following report concerning the Ashland granite based on my brief observations at the Blair quarry on April 3, also a couple of previous examinations made at the quarry site before much development was done.

Extent and Quantity Available

The stone in the vicinity of the Blair quarry is part of a very large mass of granite which makes up the main part of Ashland mountain. Like all granites it represents a body of rock which was intruded or forced up into overlying rocks while in a liquid or molten condition. When first formed the granite which we now see on the surface in the vicinity of Neil creek was probably thousands of feet below the surface of the earth where it cooled very slowly. This slow cooling gave rise to the typical granite texture. Since that time the overlying thousands of feet of rocks have been removed by erosion and the granite, originally formed at depth, exposed as we now find it. With this idea, therefore, of the origin of the large mass of granite which makes up Ashland mountain, there is no question as to the quantity of stone available in the vicinity of the Blair quarry. It is practically unlimited.

QUALITY OF THE STONE

The Ashland granite will in general compare favorably with the best gray granites in the country. Like the well known "Barre" granite of Vermont its principal minerals are orthoclase and plagioclase feldspars, quartz and biotite. The size of the crystal grains in the Ashland granite is also similar to that of the Barre stone. With therefore both the mineral content and the texture very much the same, the general appearance and color are strikingly like that of the well known Vermont granite.

It is common in such granite masses to find in parts near the border between the granite and the rocks into which it was intruded, occasional dark-colored spots or knots as they are called by the quarrymen. Many examples of such knots may be seen on Ashland creek south of the city of Ashland where the granite outcrops in many places. This locality is near the western border of the granitic mass and the black knots are probably due to the inclusion of fragments of the overlying rocks in the granite mass while it was still in a molten state, and these fragments were not completely melted and absorbed before solidification and crystallization took place.

The area around Neil creek, however, seems to be entirely free from these spots which suggests that this particular part of the granite body was a long distance removed from the border of the intrusion.

During the cooling of such a mass of molten material and its slow solidification and crystallization into granite, certain fractures or cracks develop through which underground waters later circulate. In this way these fractures or cracks sometimes become filled with certain vein minerals such as quartz and occasional grains of pyrite. These veinlets very often coincide with the joint planes and, if they happen to be properly speced, assist in the quarrying operations. They will be found more or less frequently in any granite mass. The spacing between them will vary considerable from place to place.

It appears that the pyrite grains are found only in the veinlets or joint cracks. Careful search has revealed no such grains in the body of the joint blocks. This is an important point since the few pyrite grains which occur in the granite are confined to the faces of the joint blocks and are removed by the dressing process. Pyrite grains if left in the finished stone near the faces tend to produce brown spots after being exposed to the weather.

From my examination of the Blair quarry and adjacent outcrops I believe the spacing between joint cracks, veinlets, seams and rifts compare favorably with those in other areas or quarry sites which might be found on Mount Ashland. It is to be expected also that the size of the crystals or grains and the color will vary slightly from place to place. It seems fairly certain, however, that these essential features of the granite in the neighborhood of Neil creek will remain commercially constant as the development of the quarry proceeds and no fear need be had on this account.

It should be said in passing that an inspection of the present development in the Blair quarry gives the impression that a change in its location might be made with profit. Where the Blair opening has been made there is a greater amount of weathered material near the surface which has to be stripped off before coming to the fresh rock than would probably be the case if the quarry were opened at some other point on the same hillside. The development of this quarry has shown also an unfavorable spacing between the small quartz veins that run more or less parallel through the rock to such an extent as to make difficult the procuring of large dimension blocks without undue waste. This feature is evident only in the east half of the quarry opening, the joint spacing and arrangement otherwise being excellent. Before considering such a change all other outcrops should be studied in detail from the standpoint of the spacing between veinlets, joint cracks, color, texture, etc., as well as the amount of overburden to be removed.

In the fall of 1913 samples of the Ashland granite were taken in the neighborhood of the present quarry opening. A number of four inch cubes of the granite were prepared and sent to the Bureau of Standards Testing Laboratory at Washington, D. C. The results of the tests are given below in the table:

Lab. No.	Material	Percentage of Absorption	Crushing strength, pounds per square inch: Specimen dry	Specimen Saturated with water	After freezing*
2584	Granite marked A-1	0.11	14849	9703	12106
2585	Granite marked A-2	0.20	12910	10101	7416
2586	Granite marked A-3	0.20	13781	---	10469

* Made after ten successive freezings and thawings while speci-

It should be noted that the only materials available at that time were boulders lying on the surface which had been subjected to weathering for a long time and which were therefore probably much inferior to the fresh stone that is now being exposed in the floor of the Blair quarry. If desired the State Bureau of Mines will be glad to repeat these tests on fresh samples if cubes are prepared for that purpose. There should be, say 10 samples, 4 inches in each dimension.

In conclusion I wish to say that the Ashland granite is a beautiful stone. It has the proper texture and a pleasing blue-gray color which should make it a standard product. On account of its high quality and the fact that it can be had in unlimited quantity there seems no good reason why the Ashland granite should not be developed and pushed into the markets of the West until it has no competitor this side of the Rocky Mountains.

Respectfully,

Henry M. Parks

Director.

Copy of letter from

E. W. Lazell, Ph.D.
Chemical & Efficiency Engineer
Chemical & Physical Laboratories
537 Railway Exchange Building
Portland, Oregon

Blair Granite Co.,
Ashland, Oregon

Gentlemen:-

We report our investigations on a sample of Ashland Granite and a sample of pulverized Ashland Granite received from you May 17th.

Laboratory No. 8185

This granite contains no iron in the form of sulphide and no sulphur. There is further very little iron soluble in acids.

From the above investigations we consider the granite to be free from any material which will cause it to rust or stain.

Respectfully submitted,

Edwards & Lazell

by E. W. Lazell

Copy.

True copy of body of letter

BUREAU OF MINES AND GEOLOGY
State of Oregon

Henry M. Parks
Director
417 Oregon Building
Portland, Oregon
1924

In former letter I gave you a report dealing with the quality, quantity and extent of the granite in the vicinity of the Blair quarry. Since that time Mr. Ira A. Williams and I have examined many localities on the northeast side of Mt. Ashland. The purpose of this report is to describe other areas of granite outcrops and to compare them as to availability and quality with those in the vicinity of Neil creek. (Blair)

This report deals with the region to the south of the Southern Pacific Railroad extending from Ashland creek south of Ashland, about 12 miles southeast and some 2 or 3 miles from the railroad. All land locations given are taken from the map furnished by yourself which covers the region under investigation.

Our examination was confined largely to the vicinity of stream canyons that come down from the higher land to the south, since in them practically and the only fresh rock outcrops are to be found. It is a matter of common knowledge that the most favorable outcrops of rock in places are always found in the steeper side-walls of the products of weathering are most quickly removed. The description, therefore, of rock outcrops in favorable stream canyons constitute the larger part of this report.

Ashland Creek

Large bodies of fairly fresh granite are exposed in the canyon of Ashland creek within two to three miles of the city of Ashland. The stone in this vicinity, however, has large knots of dark-colored rock mixed with it which seriously impairs its value for quarrying on account of the enormous waste which would be experienced in sorting out and discarding inferior stone. This characteristic of the granite along Ashland creek is probably due to its being near the western border of the granitic intrusion; the black knots being fragments of the surrounding rocks into which the granite was intruded.

Beeson Lacality

Some of the most massive and precipitous cliffs of granite in the entire area studied occur in south Sec. 26, T. 39 S., R. 1 E. From the standpoint of mechanical handling of the stone excellent quarry sites could be found here.

The general quality of the granite in this stream canyon is, however, quite inferior. The rock is coarse-grained and the crystals of the constituent minerals are very uneven in size. It is not uncommon to find crystals of feldspar as large as one square inch in cross section. In addition to this unfavorable feature small dikes of pegmatite and other granitic material of entirely different texture, run through the body of the rock.

These dikes are so plentiful that it would probably be difficult to find locations which would furnish stone in quantity without much waste and expense to sort out the inferior rock.

Clayton Creek

Some prominent outcrops of granite occur on the north side of the canyon of Clayton creek near its head in west Sec. 36, T. 39 S., R. 1 E.

The quality of the granite in this section is good and a quarry site could be had which should furnish a large volume of stone. The grain of the rock, however, is considerably coarser than in the Neil creek section, and for this reason its quality would hardly compare with the beautiful blue product which is at present produced by the Blair Granite Co. Moreover, there would probably be a greater amount of overburden to be removed than in the Neil creek area.

Farther up Clayton creek to the southwest, probably in Sec. 35, in an area of finer-grained gray granite. But this, in some respects like that described above under the Beeson outcrop, is cut by many and sundry dikes of varying texture and is not, in our judgment, a favorable area in which to look for a quarry site.

Russell Farm

The Russell farm is in the northwest quarter of Sec. 8, T. 40 S., R. 2 E. The southeast quarter of Sec. 6, same township and range was also examined.

No outcrops of granite were found on the Russell farm. The overburden of weathered material is quite heavy and from float picked up in many places, it is quite evident that no granite is to be found here.

There are some very limited exposures of granite in the northeast quarter of Sec. 6 in the creek-bed about a thousand feet from the railroad. Fairly fresh samples were procured from the dump of an old mining prospect tunnel where an arrastre had been operated in earlier days. These samples showed the rock to be quite coarse-grained, even more so than that described in the Clayton creek section. In quality, therefore, it would not compare favorable with the Neil creek stone, and the overburden is everywhere so great that satisfactory quarry sites in this vicinity would not be available.

Neil Creek

The best quality of granite and the best outcrops in the entire area examined are found in the canyon of Neil creek. The fact that the best granite is found here is probably due to this locality being farther removed from border variations in quality than other areas contiguous to the railroad. There are large quantities of granite of uniform texture in sight, of fine grain and good color and having other general favorable features, such as distribution of joints and scarcity of granite dikes and quartz veinlets.

The many favorable outcrops of granite along Neil creek seems due to the fact that this stream is by far the largest one east of Ashland creek coming down the slopes of Mt. Ashland. Its erosive power has been greater than that of other similar streams and a larger amount of comparatively fresh granite with minimum overburden is exposed.

The best exposures and the best quality of rock in Neil creek canyon begin at about the north line of the SW. 1/4 of SW. 1/4 of Sec. 31, T. 39 S., R. 2 E. and extend up-stream to near the east-west center line of Sec. 1, T. 40 S., R. 1 E. These occur at intervals for about three-fourths of a mile along the canyon and show, in a general way, from the creek level up for 250 to 300 feet in the canyon walls. The texture, color, size of grain, etc., of the rock in the different exposures are quite uniform and compare favorable in these respects with the rock at and in the vicinity of the Blair quarry. If there is any difference, it is the tendency for the texture and size of grain to be a little coarser at the north and finer at the south end of this part of the canyon. This distance includes portions of the main canyon of Neil creek both above and below the entrance of the stream on which Mr. Blair's quarry is located, which, for want of a name, may be called Blair creek.

There is a certain general uniformity of jointing in the granite over all of the area covered in this report. For example, some of the best developed vertical jointing had in many of the different creeks examined a direction varying from N. 40 deg. E. to N. 60 deg. E. with other vertical planes along which the rock separates approximately at right angles to these directions.

The most marked uniformity, was found in the direction of the "lift" of the stone, as designated by the quarryman. These lift joint planes were found to dip to the eastward at angles varying between 20 and 25 degrees from the horizontal. This feature is an important one since it affects the ease with which the stone is quarried and thus has considerable bearing on the locating of a quarry site. With the general direction of the course of Neil creek in mind, it will be seen immediately that on account of the attitude of these lift planes quarry sites along the west side of the creek would be preferable to those on the east side. A quarry at the west side would naturally face the east, which would favor removal of the stone since the floor of the quarry would incline in general away from the quarry face.

On the other hand if a quarry were opened on the east side of the creek the dip of the quarry floor would be much less favorable, as both the loosening of the blocks and their removal would have to be done against or up a slope which is towards the face of the quarry.

Another important factor to be taken into consideration in the opening of a quarry in the canyon of Neil creek is the disposal of the large amount of waste, which necessarily comes from any quarry operation. Such waste material naturally finds its way to the bottom of the canyon regardless of the position of the quarry above the creek level. There would be greater difficulty in Neil creek in taking care of the waste dump than is the case where the Blair quarry now is in a tributary canyon.

The public road and, it is our understanding, certain water rights, are already established in Neil creek canyon, which would necessitate the provision of measures to protect the road and to avoid the pollution of the waters of this stream in case quarry operations were to be undertaken here. On the other hand, every additional 100 feet in elevation to the quarry site increases in like proportion the expense of transportation in getting the product to the railroad.

Taking all factors into consideration, a quarry site whose advantage would most nearly compare with the Blair quarry conditions is to be had on the west side of Neil creek about a quarter of a mile above the junction of "Blair creek" with Neil creek; the same being in the south half of the northeast quarter of Sec. 1, T. 40 S., R. 1 E. which covers the land in

that quarter section not already included in the Blair holdings.

In considering the selection of a suitable granite quarry site, it should be borne in mind that such conditions as slight variations in color and the possibility of encountering more than ordinary difficulties from pyrite can be approximated only by a detailed study of the surface outcrops, such as we have made, and that the final and last analysis can only be made by the actual opening up of the quarry and thereby determining the characteristics and quality of the fresh rock.

In other words, although it appears reasonably certain from surface examination that the general texture and quality of the granite on Neil creek a quarter of a mile above Blair creek is identical with that in the Blair quarry it is probable that the shade of color of the developed fresh stone would be slightly different. It might be more pleasing or less so, but if it were different, the burden of proof would lie with the new development to prove to the trade that it is superior or equal, to the stone which is already recognized on the market.

Yours respectfully,

(Signed) Henry M. Parks, Director

Ira A. Williams, Geologist

Extracts from "The Mineral Resources of Oregon" published monthly by the Oregon Bureau of Mines and Geology at Corvallis, Oregon.

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1. From the issue of February, 1914. Pages 16 and 17. (At just about the time Mr. Blair started to open up his present quarry.)

"One of the most promising outcrops of granite which the Bureau has had the opportunity to examine is found in the southern part of Jackson County about seven miles southeast of Ashland on Neil Creek and about one and one half miles west of the Southern Pacific railway. Granite outcrops occur over many square miles in this section but it is probable that the most promising locations for quarry sites are to be found on one side or the other of the canyon of Neil Creek. -----The granite is quite similar in color and texture to the"Barre" granite, markably uniform in its texture and color, works well, breaks with equal ease in all directions, ------ fractures very smoothly for granite. ----- <u>There are no sulphides in the rock itself</u> but the joints are sometimes filled with quartz and occasional grains of pyrite, the weathering of which in places produces an unimportant amount of iron stain on the surface of the stone."

On page 18. "The Ashland granite is pleasing in color and texture, is durable and so far as we can now judge, compares favorably in all the desirable qualities such a stone should possess, with the best commercial gray granites."

2. From the "Panama-Pacific Exposition 1915" issue.

"In Jackson County gray granites of uniform texture are opened up near the city of Ashland. Tests of the stone show it to be equal in every way to the celebrated Barre granite of Vermont, which it resembles, and architects and stonecutters agree on its eminent adaptability for monument and other decorative uses."

The following pages will show the high esteem held for Ashland granite by "men who know".

Mr. E. V. Carter, President of the First National Bank, made a number of inquiries and copies have been made of the original letters received by him; See following pages.

COPY

Building Stone

mine file

Patrick's Granite at Ashland

Corvallis, Oregon, June 10th, 1921.

Mr. Elmer Patrick and Associates,

Corvallis, Oregon

Gentlemen:

PRESENTATION:

According to your instructions I visited the Elmer Patrick Tract of 50 acres lying, 30 acres within the City Limits of Ashland, Oregon, and 20 acres more continguous to it on the West side of Ashland Canyon, I spent the better part of June 9th in going all over the surface of the property. My conclusions, for your convenience, I have placed immediately following. After that I am giving the general summaries and details upon which I based these conclusions.

CONCLUSIONS:

I find there are two distinct propositions presented as a result of my examination.

FIRST: There is a large well defined outcrop of high quality granite rock, approaching what the geologists call the granodiorite variety, of bluish gray color of fine and medium grain, tough and dense quality and to the eye, at least, equal in every respect to the best imported New England granite, which is so extensively used for building and monuments. This is accessibly located with regard to cheap quarrying and delivery costs.

SECOND: There are also apparently several occurrences of quartz veinlets or stringers in a pegmatite formation, which lies entirely separate and distinct from the building granite. From the past records these quartz veins have been known as gold bearing, though on the day of my examination there was not sufficient time available to make a careful search.

Furthermore, owing to the action of the elements over a number of years, since the veinlets were disclosed by cross-cuts, trenches and pits, these latter were very nearly filled up with washed-in soil and vegetation. It is well to make plain at this point that, whatever may be the ultimate results of further developements in active gold operations, there is no likelihood of any conflicts ever occurring between these and any granite quarrying activities, for the two lie in well separated distinct formations.

SUMMARIES:

In discussing the summaries it will be clearest to deal with each one of the above propositions separately and in turn. I will, therefore, begin first with the granite proposition.

GRANITE: This outcrop of granite appears to be approximately 150 feet high, at least 250 feet in horizontal extent, on a steep hillside having a slope of approximately from 30 to 35 degrees from the horizontal. This area thus exposed by no means represents the entire amount of granite of building quality. It merely is that portion which is already exposed and does not require any stripping in order to lay it bare. There are other outcrops of small extent and also isolated boulders lying promiscuously scattered over the other portions of the tract. I consider all of this of unquestionable evidence to establish the existence of enormous quantities of that material that may be obtained merely by removing the vegetation and covering soil, in addition to the big bare outcrop above described.

The location of this, with regard to delivery to railroad, is very favorable. At a horizontal distance of approximately 900 feet towards the East and approximately 400 or 450 feet vertically below lies the accepted City highway known as Granite Street. From the granite outcrop to Granite Street a simple

double rope counter-balance aerial tramway, with a slope length of approximately 1,000 feet on about a 20 degree angle, would deliver the quarried material with great ease and low cost directly onto trucks for transportation of approximately 5/8 of a mile to the Southern Pacific Railroad siding.

As stated in the conclusions above, the granite appears to be of a granodiorite variety, which differs from the commonest form of gray granite in that the mineral known as hornblende occurs in greater percentage of composition than biotite mica. The hornblende is black, dense and very difficultly affected by atmospheric action, all of which is most desirable for permance of color and durability of the stone. The biotite of the common granite is relatively soft and flaky and in a comparatively small number of years will yield to atmospheric changes. If present in large amounts this may result in causing a yellowish brown stain to appear on the stone, thereby reducing its value for either building or monumental purposes. I estimate roughly that the biggest exposure, as described in the preceding pages, contains over 3,000,000 cubic feet, assuming that no more were excavated than to carry the quarry forward on a level floor, starting at the bottom point of outcrop on the hillside and going forward merely to a point vertically under the highest exposed outcrop. This would leave a quarry working face approximately 250 feet long horizontally by 150 feet high vertically.

GOLD QUARTZ: The old prospect pits and cross-cut trenches have been so filled up in the last ten or twelve years it is impossible to draw definite conclusions now as to the veinlets of quartz which must have been unmistakably formerly exposed. This is a justifiable belief, because there remains on the surface now, lying scattered around the situation of the old pits and trenches, a multitude of fragments of quartz. A very large

percentage of these are well stained with iron oxide and would be considered by any gold miner to be a favorable indication of the possible presence of gold, in fact from the owner of the property I learned that a number of specimens of free gold have been found on the property, and that from the deepest pit was taken a sample of this quartz, which gave, after fire assay, a return value of $10.00 in gold per ton of quartz.

The situation of these gold bearing quartz veinlets is much higher up on top of the ridge, than the exposed granite. Furthermore, the quartz veinlets seem to be entirely confined in their association to pegmatitic formations. I would explain that pegmatite is a form of igneous (volcanic origin) rock, composed principally of quartz and feldspar minerals. It was impossible, at the time of my examination, to determine if there was any recognizable connections between the occurrence of these quartz veinlets and the contact between the pegmatite and the surrounding granite rock. According to general geological information regarding the entire Ashland district it is considered that there have been a number of intrusions of granite rocks of different ages and varying compositions, to which the pegmatite rocks are of closely allied origin. It is not essentially necessary or certain that the gold bearing veinlets will be inevitably connected or closely related to the contact between the pegmatites and any particular one of the granite intrusions.

For the above reasons, I therefore consider with regard to the future developments of the gold bearing veinlets, that my examination is not conclusive. This, however, does not in any way mean that the conditions may not develop favorably in this direction. It is reasonable to hope for this,

as the property lies in close proximity to the Ashland and Shorty-Hope mines, both extensive producers in gold and reported to be in the prevailing granitic formations.

In closing this report I wish to express the pleasure I have enjoyed in going into this matter with you and your associates and my appreciation of the personal courtesies extended to me.

I shall be happy to answer any further questions in connection with this matter if you desire to bring them up by correspondence at a later date.

Very respectfully yours,

Signed J. H. Batcheller
Mining Engineer
Associate Professor-Mining Engineering
Oregon School of Mines.

Earl

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

ASHLAND GRANITE QUARRY — ASHLAND AREA

(Trip of ~~January~~ February 7th, 1941)

Johnson Ly
Ashland Dist

I was unable to get into the quarry as the road was blocked with an automobile and I could not get by. The "blocker" was W. M. Blair, who supplied the information. According to him: ---

The outfit, headed by Applegate, had a $12,000 loan from the RFC, and as they were unable to make the grade, they gave the quarry to the RFC. Blair states that the RFC has had several outfits looking at the property and that he has submitted a bid as well.

The Applegate outfit was so broke that they paid off their help in dressed stone, and even a large stone to their attorney as a settlement of the bill. So the Applegate outfit is out of the picture.

Blair figures on working the monumental quarry if he has his bid accepted. I tried to arouse some enthusiasm for production of building stone, but he was unethusiable. From his conversation I gathered that building stone could be laid down in Oregon localities, f.o.b. the building site for, from $5 to $8 per cubic foot of dressed stone. He says that the Applegate outfit quit working the monumental quarry and in opening the building stone quarry above that they dumped overburden and waste into the monumental quarry. He estimates that it will take $5000 to clean out the monumental quarry and prepare for the dressing of monuments. He figures that it will take $15,000 for work and equipment to put the building stone quarry in shape to produce building stone.

Another of his laments is that the eastern firms, principally Vermont Marble & Granite, and one is Wisconsin (Cold Harbor?) will so undercut local quarry prices that western quarries cannot compete on contracts. If he secures the quarry, he intends to peddle the monuments direct to the public without going thru dealers.

I am not vouching for any of his statements - I'm merely giving the dope he passed to me.

Can you suggest how to check with the RFC to ascertain if the quarry has been given over to them and what the status is?

Ray C. Treasher,
Field Geologist,
February 8th, 1941.

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

GRANITE

Medford Quadrangle

S. P. Railroad grade

No commercial granite was found along the S. P. R.R. cuts south of Ashland. Mostly the granite has porphyritic texture with ½ inch orthoclase phenocrysts and segregations of dark minerals 5 inches in diameter. One small area of fine-grained granite was found. The area is along the batholith margin and probably represents a contact aureole.

Purpose

A five mile traverse along the S. P. R.R. was made from Highway 99 undercrossing in the NE¼ sec. 17, T. 40 S., R. 2 E., to Siskiyou station. The purpose was to locate commercial granite as exposed in railroad cuts. The traverse covered the switchback in sec. 8, and railroad grade through secs. 17 and 20.

Geology

The Medford geologic map shows this area to be within the Siskiyou batholith, adjacent to and within ¼ mile of the "young metamorphics" and Cretaceous sandstone contact. Field examination shows that the area studied probably is part of a contact aureole as many outcrops show intimate relationships of granite and metamorphics.

Most of the granite is a medium dark colored granite porphyry with felspar phenocrysts ½ inch in length. Many of the phenocrysts show Carlsbad twinning. Segregations of dark colored minerals are common; they average five inches in diameter and decompose more readily than the surrounding rock. Biotite is prominent but the ~~galkes~~ flakes are 1/8 inch in diameter. The porphyry is cut by aplitic dikes ranging from 3 inches to 48 inches in thickness and the dikes seem to follow joint planes. The phorphyry is weathered and badly jointed.

Included in the porphyry are lenses and bands of metamorphic rock, usually quartizitic, that is badly sheared and contorted. The lenses strike between N. 20 W and N. 40 W and dip about 70 S.W. Most of the switchback area contains these lenses which would make quarrying of commercial rock practically impossible. The area appears to be close to the contact, into which granite was intruded into young metamorphics.

About 200 feet south of semaphore 4144 and between sign boards 414 C and 414 D, a thoro cut exposes a fine grained granite. The rock surface is chocolate colored, just a thin surface coating. The rock itself is well jointed, breaking into angular blocks and has a tendency to fracture parallel to the major joint plane which is parallel to

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

the metamorphics lenses. The granite is fine grained like the Ashland quarry rock - on fracture planes it looks more like quartzite. In the denser quartzite-like areas, sulfides are fairly abundant.

This granite seems to be a wide dike in porphyry. The "dike" is about 20 feet wide and grades laterally into porphyry, with embayments of porphyry into the "dike".

It is believed that this fine grained granite is a later phase of the granite intrusion and may correlate with the thinner dikes found at other places. Some of the fine grained granite may ~~pyg~~ represent granitization of the metasediment.

South of Wall Creek the outcrops are less prominent and are deeply weathered. Porphyry predominates. Within ½ mile of Siskiyou station, Cretacrous sediments were found.

The highway 99 north of the Junction with the Klamath Falls road exposes some granite. It is not as porphyritic as that exposed along the railroad, but it is cut by numerous aplite dikes and spotted with dark segregations. Cretaceous sediments (fossiliferous) predominate the outcrops between the Junction and the undercrossing.

Conclusions

It is doubtful if the cuts along the highway and the railroad expose granite which would be satisfactory for commercial stone. However, the highway and railroad are so close to the margin of the batholith that the above situation is to be expected. It is probable that the area west of the railroad may contain commercial granite. There are no artificial exposures and natural outcrops are so badly weathered as to make judgment of commercial stone impossible.

Ray C. Treasher,
Field Geologist,
June 10, 1941.

CRIB MINERAL RESOURCES FILE 12

RECORD IDENTIFICATION
RECORD NO..... M061183
RECORD TYPE..... X1N
COUNTRY/ORGANIZATION. USGS
MAP CODE NO. OF REC..

REPORTER
NAME..... JOHNSON, MAUREEN G.
UPDATED..... 80 12
BY..... FERNS, MARK L.; (BROOKS, HOWARD C.)

NAME AND LOCATION
DEPOSIT NAME..... ASHLAND GRANITE QUARRY
SYNONYM NAME..... BLAIR

MINING DISTRICT/AREA/SUBDIST. ASHLAND

COUNTRY CODE..... US
COUNTRY NAME: UNITED STATES

STATE CODE..... OR
STATE NAME: OREGON

COUNTY..... JACKSON

QUAD SCALE	QUAD NO OR NAME
1: 62500	ASHLAND

LATITUDE	LONGITUDE
42-07-16N	122-38-50W

UTM NORTHING	UTM EASTING	UTM ZONE NO
4663071.5	529158.6	+10

TWP..... 40S
RANGE.... 01E
SECTION.. 01
MERIDIAN. WILLAMETTE

LOCATION COMMENTS: SW 1/4 NE 1/4

COMMODITY INFORMATION
COMMODITIES PRESENT..... GRT

PRODUCER(PAST OR PRESENT):
MAJOR PRODUCTS.. GRT

COMMODITY COMMENTS:

EXPLORATION AND DEVELOPMENT
STATUS OF EXPLOR. OR DEV. 3
PROPERTY IS INACTIVE

DESCRIPTION OF WORKINGS
SURFACE

COMMENTS(DESCRIP. OF WORKINGS):
TWO QUARRIES, ONE 50 FT. ACROSS WITH A 50 FT FACE.
23 GRT-EST 150.000+ DOLLARS 1916-1940 GRANITE (MONUMENTAL

GEOLOGY AND MINERALOGY

AGE OF HOST ROCKS..... LJUR-CRET
HOST ROCK TYPES..... GRANODIORITE

AGE OF ASSOC. IGNEOUS ROCKS.. LJUR-CRET
IGNEOUS ROCK TYPES..... GRANODIORITE

LOCAL GEOLOGY

NAMES/AGE OF IGNEOUS UNITS OR IGNEOUS ROCK TYPES
1) NAME: ASHLAND PLUTON
AGE: LJUR CRET

GENERAL REFERENCES
1) OREGON METAL MINES HANDBOOK, 1943, ODGMI BULL. 14-C, VOL. 2, SEC 2, P.22