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FOSSIL LOCALITIES IN THE COOS BAY AREA, OREGON

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Introduction

Fossil shells are abundant in the sedimentary rocks of the Coos Bay area. Good fossil specimens are most likely to be found where sedimentary rocks are freshly exposed, such as in recent, unweathered road cuts or at the base of cliffs along the coast and the bay where wave action is constantly uncovering new material. Ten easily accessible fossil localities are described in the following text and their location shown on the accompanying map. Localities along the water's edge can generally be reached only at low tide.

Geologic picture

The Coos Bay area is underlain by a very thick sequence of sediments, chiefly of Eocene age, laid down millions of years ago in the environment of a fluctuating sea where deposition was in part marine and in part continental.

The sediments were later folded into a large basinlike trough having lesser folds within its general structure. Even though these folded rocks have long since been beveled by erosion, the ancient structure is still apparent, especially along the coast between Cape Arago State Park and Yokam Point where the upturned edges of the harder strata crop out in parallel ridges.

Within the sequence of sediments in the Coos Bay area, a number of formations have been recognized and named, but the most extensive is the Coaledo formation of Eocene age, which is believed to be at least 6000 feet thick. It crops out in many places in the area and in some sections has an abundance of fossil marine shells. The Coaledo formation contains, also, plant remains in the wide-spread coal beds, but the identity of the plants has been largely lost and consequently the coal beds do not usually make good fossil hunting grounds.

Overlying the truncated folds of the older strata is a deposit of thick-bedded, brown sandstone called the Empire formation. This formation is limited to the South Slough basin and represents a local inundation of the sea during Pliocene time. Within the Empire sandstone is a local lens of fossil conglomerate, called the Coos conglomerate, composed of myriads of shells cemented together. This very fossiliferous lens crops out at the water's edge near Fossil Point, about half way between Empire and Charleston. Besides a great variety of fossil shells, the Empire formation has yielded a number of bones of Pliocene marine mammals.

Descriptions of fossil localities**

1. Cape Arago State Park. Cape Arago State Park is on the coastal headland southwest of Coos Bay, about 15 miles from U.S. Highway 101, and is reached from either North Bend or Coos Bay via Empire and Charleston on a good surfaced road. At the Park, trails lead down the cliffs to the narrow beaches at the base of the three coves (South, Middle, and North). The bed rock which forms the cliffs is the Coaledo sandstone of Eocene age. At Middle Cove, large boulders filled with Eocene fossils lie along the beach. In these boulders and in the outcropping Coaledo sandstone and conglomerate exposed at low tide, one can find many

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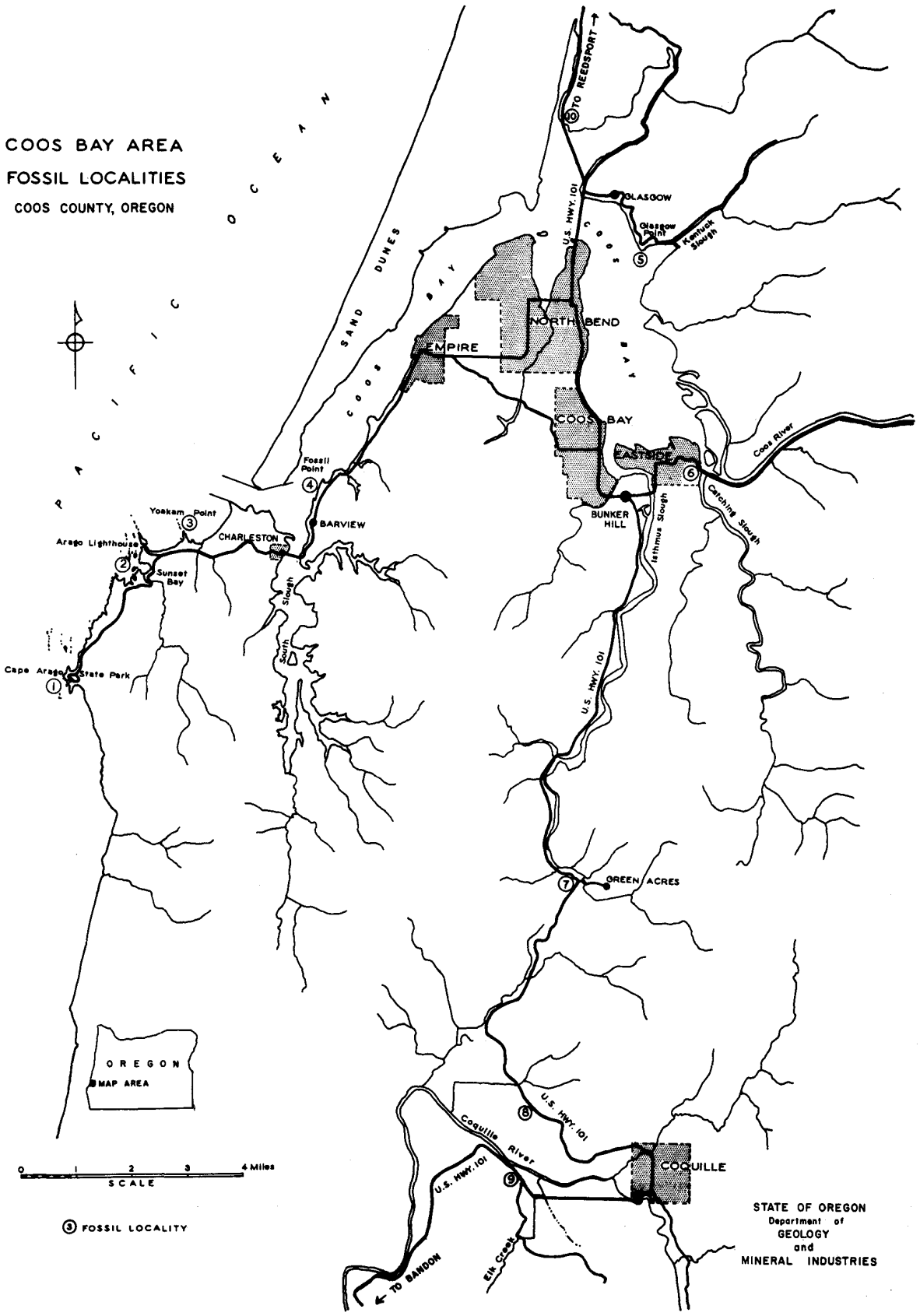
**Numbers correspond to locality numbers on map.


COOS BAY AREA
FOSSIL LOCALITIES
COOS COUNTY, OREGON
PACIFIC OCEAN
SAND DUNES
COOS BAY
TO REEDSPORT
GLASGOW
Glasgow Point
Kentuck Slough
U.S. HWY. 101
NORTH BEND
EMPIRE
COOS BAY
EASTSIDE
Coos River
Fossil Point
BARVIEW
Yoakam Point
CHARLESTON
Arago Lighthouse
Sunset Bay
Cape Arago State Park
South Slough
BUNKER HILL
Isthmus Slough
Catching Slough
GREEN ACRES
Coquille River
COQUILLE
TO BANDON
Elk Creek
OREGON
MAP AREA
0 1 2 3 4 Miles
SCALE
③ FOSSIL LOCALITY
STATE OF OREGON
Department of
GEOLOGY
and
MINERAL INDUSTRIES

species of gastropods and pelecypods and, occasionally, fossilized crabs and sand dollars. Fossil crabs are generally inside hard, limy concretions.

2. Sunset Bay. Sunset Bay is 2½ miles by road northeast of Arago State Park, or 11 miles from Highway 101. The road skirts the landward end of the bay, and a parking area is situated close to the water's edge. At low tide fossil shells can be easily found in the steep Coaledo sandstone cliffs which form the north and south walls of the bay.

3. Yokam Point. Yokam Point, sometimes called Mussel Reef, is a promontory at the west end of Bassendorf Beach, about 1 mile east of Sunset Bay and 10 miles from Highway 101. At this locality, the Coaledo beds are almost vertical, and the more resistant sandstone layers jut out into the ocean as reefs containing highly fossiliferous lenses. The road passes close to the point, and at low tide the reefs can be reached from various trails leading down to the beach.

4. Fossil Point. Fossil Point, a well-known pioneer land mark, juts out from the east shore of Coos Bay, 1.6 miles by road north of the east end of the South Slough bridge, or 3.2 miles south of the right-angle turn in the highway at Empire.

Fossil Point is composed of massive, brown sandstone of the Empire formation. Many species of Pliocene mollusks occur in the sandstone, but of particular prominence are the large and well-preserved pectens. Skulls and other bones of Pliocene whales and sea lions are sometimes found here. The Empire sandstone forms a continuous ledge which may be followed at low tide along the shore for about half a mile to the south. The ledge terminates in a deep-water recess the south wall of which is formed by the Coos conglomerate that projects into the bay. Fossil shells in this conglomerate are so numerous and so firmly cemented together that extraction of single specimens is difficult.

The locality is not so easily accessible as in the past, for the narrow strip of land between the highway and the shore is now largely private property. The outcrop of Coos conglomerate may be reached at low tide by following the beach north from the east end of the South Slough bridge for a distance of about 1 mile. Fossil Point may be reached at low tide from the small bay at the north end of the point where the highway comes close to the water's edge, 3.1 miles south of the right-angle turn of the highway in Empire.

5. Glasgow Point. Glasgow Point is a headland across the bay from North Bend and southeast of the town of Glasgow. It is reached from the north end of the Coos Bay bridge by following a surfaced road east through Glasgow for 2.5 miles to the edge of Kentuck Slough. From here one can walk back along the shore for about ¼ mile to Glasgow Point and continue northwest for a short distance along the base of the high cliff. Large sandstone boulders of the Coaledo formation lie along the shore beneath the cliff from which they originally came. Many of the boulders contain layers packed with well-preserved fossils such as the corkscrew gastropod Turritella and numerous pelecypods.

6. Catching Slough. A fossiliferous zone in the Coaledo formation is exposed in the cliff beside the Coos River road near the west end of the bridge which crosses the mouth of Catching Slough. The locality is 1.0 mile east of the right-angle turn of the highway in Eastside. Small Eocene fossil shells occur in narrow bands in the bed rock of the cliff.

7. Green Acres. Locality 7 near Green Acres and Locality 8 near China Creek are only two of a number of fossiliferous exposures of the Coaledo formation in road cuts through hills along U.S. Highway 101 between Coos Bay and Coquille. Cuts through soft rock are weathered and slumped, but those through harder strata expose vertical sections of sandstone and shales, many of which are fossil bearing.

The Green Acres locality is on Highway 101 near the sign pointing east to Green Acres, 8 miles south of the junction in Bunker Hill of Highway 101 and the Coos River Road. A large road cut in the hillside beside the highway exposes several thick bands of fossil shells in gray Coaledo shale.

8. China Creek. The locality is a long road cut in a low hill just east of China Creek. It is 5.3 miles southeast of the Green Acres locality and 3.5 miles northwest of the junction in Coquille of highways 101 and 42. In the cut, shales and sandstones of the Coaledo formation dip at a low angle to the west. Eocene fossils occur in thin bands at several horizons.

9. Fat Elk Road. A thick section of dense gray shale in the Coaledo formation crops out on the south side of Highway 101, 0.1 mile west of the intersection of Fat Elk Road, and 2.5 miles west of the bridge which crosses the Coquille River at Coquille. Fossils are abundant but break easily. This rock was quarried and used to build up the shoulders of the highway between Fat Elk Creek and Coquille, and the large blocks of rock on either side of the highway in this section contain many fossils.

10. North End of Causeway. The Coaledo formation crops out in road cuts in the headland at the north end of the new causeway leading from Coos Bay bridge across Haynes Inlet. As this portion of the highway was not completed at the time the field investigations were made, this locality was not visited by the writer, but it is likely that fossils are present in the fresh exposures of shale at this locality.

Fossils to look for

Pelecypods (clam shells) and gastropods (snail shells) are the most abundant of the marine invertebrates in the Coos Bay area and occur in great variety; there are about 35 species of each in the Coaledo formation and about 50 species of each in the Empire formation. Other marine invertebrates, such as scaphopods (tooth shells), echinoids (sand dollars), and crustaceans (crabs), are not as common and are limited to one or two species each.

Vertebrate animals also lived in the Eocene and Pliocene seas. Fossilized fish vertebrae and shark teeth of Eocene age are sometimes found in the Coaledo beds. In the Empire formation, fossil bones of Pliocene marine mammals are not uncommon. The skull of an immense sea lion (Pontolis magnus True) was discovered many years ago near Fossil Point by a resident of Empire, and since that time a number of bones of unidentified species of sea lions and whales have been found in the Pliocene sandstone.

Names, descriptions, and illustrations of the fossils characteristic of the various sedimentary formations in the Coos Bay area are given by Dall, Howe, Turner, Weaver, and others (see bibliography).

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NEW DRILLING PERMITS

Drilling Permit No. 10 was issued June 6, 1955, to R. N. Ranger, 1007 Broadway Building, Portland, Oregon. The test is in SW¼ sec. 15, T. 16 S., R. 44 E., Malheur County, Oregon. The lessee is Sinclair Oil and Gas Company, Portland, Oregon. Lessor is Eastern Oregon Land Company, San Francisco, California.

Drilling Permit No. 11 was issued June 2, 1955, to Sinclair Oil and Gas Company, 1010 Broadway Building, Portland, Oregon. The test is in SE¼ of NE¼ of SE¼ sec. 12, T. 16 S., R. 10 W., Lane County. Lessor is U.S. Government.

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ADMINISTRATIVE ORDER NO. G.M.I. 2

At a public hearing held June 6, 1955, at 10:30 a.m. in Room 36 of the State Office Building, Portland, Oregon, certain rules promulgated September 15, 1953, as Administrative Order No. G.M.I. 1 were amended and incorporated in Administrative Order No. G.M.I. 2 as follows:

Under Rule IV, the paragraph defining "Owner" was amended to read:

"Owner shall mean the person who has the right to drill into and produce from a field or pool, or to appropriate the production therefrom, or both, either for himself or for himself and others."

Rule V was amended as follows:

"Application and Permit to Drill

"Before any person shall spud in and begin the actual drilling of any well in search of oil or gas, such person shall file with the Board his application, in such form as the Board shall require, for a permit to drill said well. The application shall be accompanied by the sum of $25.00, which sum is fixed as a fee for granting of a permit. When satisfied that the application and the bond are in conformance with law, the Board shall issue a permit to the applicant, in such form as it may have established by its rules and regulations; and the number appearing upon such permit shall at all times be conspicuously displayed on the derrick used in drilling such well.

"As a further condition precedent to the granting of a permit for drilling any oil or gas well, the operator shall furnish a bond in the sum of $4,000, conditioned as provided by law and on a form supplied by the Board. The surety on the bond shall be a corporate surety authorized to do business in the State of Oregon."

Rule VI was amended as follows:

"Changes of Location or Ownership

"A. If, prior to the drilling of a well, the person to whom the permit was issued desires to change the location, he shall submit a letter so stating and another application properly filled out showing the new location. No additional fee is necessary, but drilling shall not be started until the transfer has been approved and the new permit posted at the new location.

"B. If, while a well is drilling or after it has been completed, the person to whom the permit was issued disposes of his interest in the well, he shall submit a written statement to the director setting forth the facts.

"C. Before the transfer of any well, the person who is to acquire it must obtain a permit and post a bond as required by Rule V."

Rule IX was amended as follows:

"Organization Reports

"Every person acting as principal or agent for another or independently engaged in drilling for oil or gas or in the production, storage, reclaiming, treating, or processing of crude oil or natural gas produced in Oregon shall immediately file with the Board in the form of an affidavit: the name under which such business is being conducted or operated; the name and postoffice address of such person, the business or businesses in which he is engaged; the plan of organization and, in case of a corporation, the law under which it is chartered and the name and postoffice address of any person acting as a trustee, together with the name of the manager, agent, attorney-in-fact, or principal executive thereof, and the name and postoffice address of each officer thereof. In each case where such business is conducted under an assumed name, such report shall show the names and postoffice

addresses of all owners in addition to the other information required and also the name of the county in which the certificate of assumed name is filed. Immediately after any change occurs as to the facts stated in the report filed, a supplementary report under oath shall be immediately filed with the Board with respect to such change."

Done at Portland, Oregon, June 6, 1955.

Hollis M. Dole, Secretary

Mason L. Bingham, Chairman (Seal)

Niel R. Allen (Seal)

Austin Dunn (Seal)

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URANIUM BOOKLET PUBLISHED

"Radioactive Minerals the Prospector Should Know" has just been published in its third edition by the State of Oregon Department of Geology and Mineral Industries. The new edition has been entirely revised and enlarged in order to incorporate the new developments that have been so rapidly taking place in the field of uranium prospecting. Author of the revised edition is Mr. Max Schafer, geologist at the Department's field office in Grants Pass.

The 21-page booklet is designed to assist the prospector in searching for and recognizing uranium ores. It describes the economically important uranium minerals, the major occurrences of uranium outside Oregon, particularly those in adjacent states, and the likely areas for uranium prospecting in Oregon. Described also are radiation detection instruments, methods of prospecting for uranium, mining regulations, and the Atomic Energy Commission ore purchase schedule. Atomic Energy Commission field offices as well as distributors of Geiger and scintillator counters are listed, and a selected bibliography is appended.

The publication designated as Short Paper 18 may be obtained from the State Department of Geology and Mineral Industries at 1069 State Office Building in Portland or the field offices at Baker and Grants Pass. Price of booklet is 30 cents.

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REMEMBER

Assessment work must be completed by noon of July 1, 1955, or if not completed must have been started and must be continued with reasonable diligence until completed. Within 30 days after completion an affidavit must be recorded in the mining records of the county in which the claim is situated setting forth (1) name of claim or claims and book and page where location notice is recorded, (2) number of days' work done and kind and value of improvements made together with their location, (3) dates of performing labor and making improvements, (4) work was done at whose instance or request, and (5) actual amount paid for labor and improvements, and by whom paid when same was not done by claim owner.

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SURVEY GEOLOGISTS IN OREGON

Messrs. Allen Griggs and Dallas Peck, U.S. Geological Survey geologists, have started field work on the State Geologic Map which is a cooperative project with the State Department of Geology and Mineral Industries. Griggs and Peck both experienced in Oregon geology will map in the Western Cascades. Dr. Aaron Waters of Johns Hopkins University will continue geologic mapping for the U.S. Geological Survey on the same project. He will map in the Columbia Gorge. For the past several years, Dr. Waters has been mapping in central Oregon during summer field seasons.

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THE SOLDIERS' AND SAILORS' CIVIL RELIEF ACT OF 1940

Citation No.
Title: 50 USCA
Appendix,
Paragraph 565

E-X-C-E-R-P-T

Section 505. (Mining Claims). (1) The provisions of section 2324 of the Revised Statutes of the United States, which require that on each mining claim located after May 10, 1872, and until patent has been issued thereof for not less than $100 worth of labor shall be performed or improvements made during each year, shall not apply during the period of his service, or until six months after the termination of such service, or during any period of hospitalization because of wounds or disability incurred in line of duty, to claims or interests in claims which are owned by a person in military service and which have been regularly located and recorded. No mining claim or any interest in a claim which is owned by such a person and which has been regularly located and recorded shall be subject to forfeiture by nonperformance of the annual assessments during the period of such military service, or until six months after the termination of such service or of such hospitalization.

(2) (Person Entering Service to File Notice). In order to obtain the benefits of this section, the claimant of any mining location shall, before the expiration of the assessment year during which he enters military service, file or cause to be filed in the office where the location notice or certificate is recorded a notice that he has entered such service and that he desires to hold his mining claim under this section.

(Note: Act extended 5 years in September 1954.)

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DEPARTMENT GEOLOGIST TO MAP GRANT COUNTY QUADRANGLE

Mr. N. S. Wagner, Department field geologist stationed at Baker, has started field work on a geologic map of the Desolation Butte quadrangle, Grant County, Oregon, as a part of the State geologic mapping project.

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EASTERN OREGON MINING NEWS

The Great Lakes Carbon Corporation is now test drilling extensive diatomite holdings in the Otis Basis District of Harney County. The work which is being supervised by Mr. R. McMillan was begun early in May and it is understood that the program may be continued throughout the summer. All test holes are being sunk 30 inches in diameter so that a man can be lowered for direct observation and sampling.

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Mr. Anthony Brandenthaler, Baker, Oregon, is investigating a scheelite prospect on Lemon Creek, Grant County. The occurrence was discovered by Lester E. Thornton last year and developed by a 60-foot adit and surface pit. The Brandenthaler work will be directed by Mr. Beldon and will include bulldozer trenching to explore the lateral extension of the adit showing. Other work will also be done to determine if the Lemon Creek placer carries any significant amount of scheelite.

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Mr. Neuman and associates of John Day have worked most of the winter getting the Ward chrome mine in shape for operation, and several loads of development ore have already been milled by the John Day Mining Company with which Mr. Neuman is also associated. The Ward is a Grant County property which is credited with a production of between 2000 and 2500 tons up to 1918. Current development has consisted largely of stripping designed to expose the lowest levels of the early workings on a clean quarry bench from which new workings can be extended.

The John Day Mining Company still holds a lease on the Dry Camp mine which it operated last year until closed by adverse weather conditions. It is reported that Mr. Neuman plans to resume work on the Dry Camp property later this summer after work on the Ward mine is finished.