OPEN-FILE REPORT O-92-05
PRELIMINARY GEOLOGIC MAP OF THE CEDAR MOUNTAIN QUADRANGLE
MALHEUR COUNTY, OREGON
1992
BY MARK FERNS

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

# CEDAR MOUNTAIN QUADRANGLE
OREGON—MALHEUR CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

Qfc
Qsl
Tcmb
Tcmv
Tbwc
LITTLE MUD FLAT
Red Head Reservoir
Upper McNulty Reservoir
SE Reservoir
Wilsey Reservoir
Long Walk Reservoir
Cedar Mtn Reservoir
Cook Stove Basin
Cook-Stove Reservoir
Lone Tree Reservoir
Burnt Stump Reservoir
Horsetail Reservoir
Hard Time Reservoir
Wood Road Reservoir
Campground Reservoir
Rinehart Creek Reservoir
Rinehart Creek
CEDAR MOUNTAIN
+ AZB-121
AZB-122
JEEP TRAIL
CROWLEY II MI.
HARPER 40 MI.
(SKULL SPRINGS) 2470 IV NE
(COPELAND RESERVOIRS) 2470 I NW
(WALL ROCK SPRINGS) 2470 I NE
(BURNT FLAT) 2470 IV SE
(BIG MUD FLAT) 2470 I SE
(RINEHART CANYON) 2470 II NW
(SACRAMENTO BUTTE) 2470 III NE
(THE HOLE IN THE GROUND) 2470 II NE

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1971. Field checked 1972

Projection and 10,000-foot grid ticks: Oregon coordinate system, south zone (Lambert conformal conic)
1000-metre Universal Transverse Mercator grid ticks, zone 11, shown in blue. 1927 North American datum

Fine red dashed lines indicate selected fence lines

UTM GRID AND 1972 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

OREGON DEPARTMENT OF GEOLOGY
AND MINERAL INDUSTRIES

Field work conducted 1991

Funded jointly by the Oregon Department of Geology and Mineral Industries, the Oregon State Lottery, and the U. S. Geological Survey COGEOMAP Program.

ROAD CLASSIFICATION

Primary highway, hard surface
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route

CEDAR MOUNTAIN, OREG.
N4315—W11737.5/7.5

1972

AMS 2470 I SW—SERIES V892

# OPEN-FILE REPORT O-92-05
# PRELIMINARY GEOLOGIC MAP OF THE CEDAR MOUNTAIN QUADRANGLE MALHEUR COUNTY, OREGON

By M. L. Ferns
Oregon Department of Geology & Mineral Industries

1992



Field work conducted in 1991
Map Scale: 1:24,000

Funding Statement: Funded jointly by the Oregon Department of Geology and Mineral Industries, the Oregon State Lottery, and the U.S. Geological Survey COGEOMAP Program as part of a cooperative effort to map the west half of the $1^{0}$ by $2^{0}$ Boise sheet, eastern Oregon.

## Cedar Mountain

The Cedar Mountain quadrangle is perhaps the most, in terms of geology, boring quadrangle in the Boise Sheet. The southern part of the quadrangle is covered by the large shield volcano at Cedar Mountain. Basalt and basaltic andesite flows erupted from the center, which is breached by a number of north-trending faults. Chemical analyses give a calc-alkaline signature for the eruptive center. The flanks are covered by thick alluvial fan and gravels made up of angular to well-rounded basaltic andesite and basalt clasts.

CEDAR MOUNTAIN

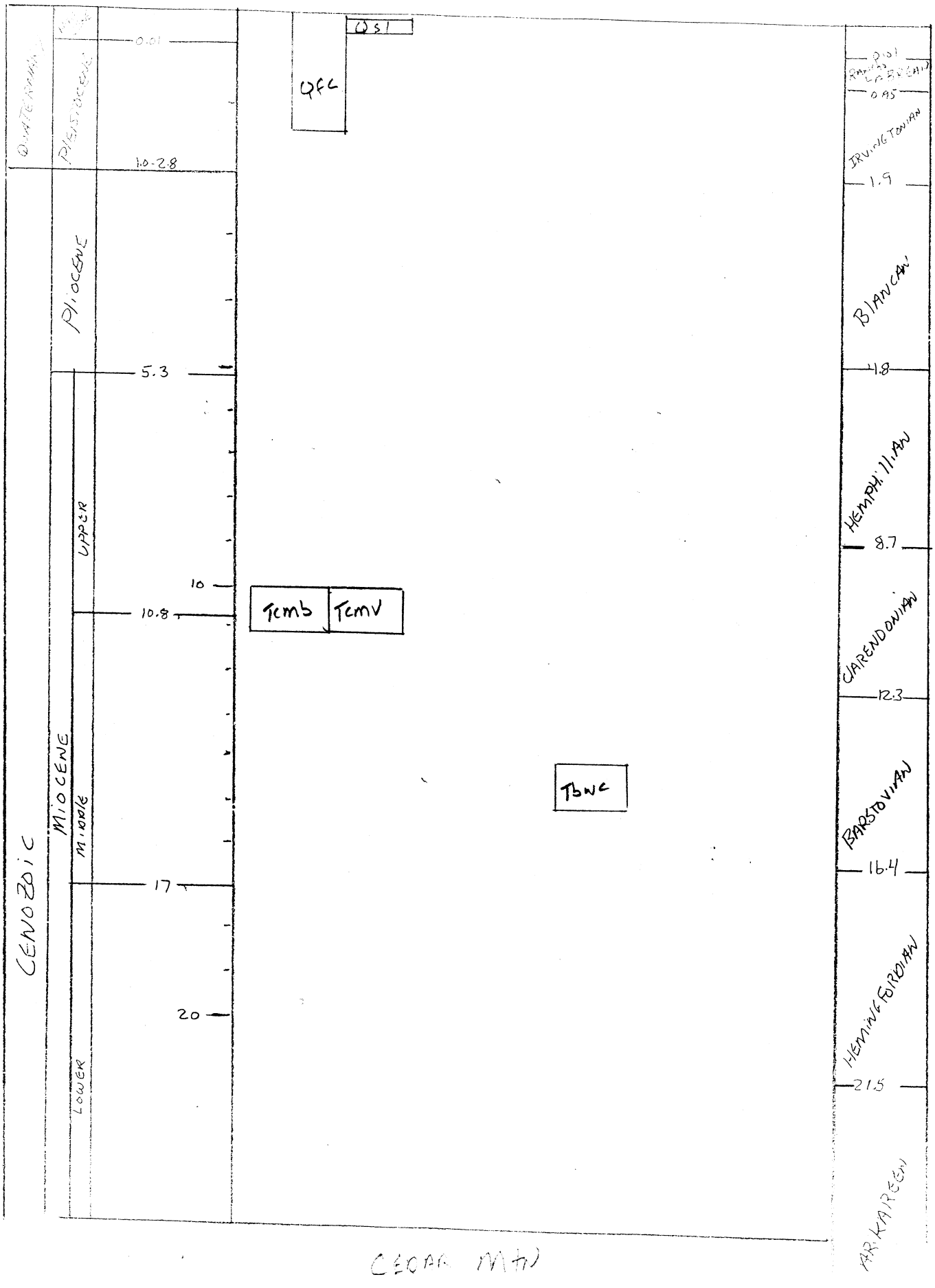
Qsl — Lacustrine sediments (Quaternary) Mainly unconsolidated lacustrine deposits of light-colored, fine-grained sand and silt, may include evaporite deposits.

Qfc — Alluvial fan deposits (Quaternary) Mainly unconsolidated and poorly sorted accumulations of coarse gravel deposited along the flanks of Cedar Mountain.

Tcmb — Basalt and basaltic andesite flows of Cedar Mountain (Miocene) Mainly dark bluish-black, plagioclase-phyric basaltic andesites. Includes glomeroporphyritic flows with olivine and plagioclase phenocrysts and hypersthene-phyric basaltic andesites. Chemically, includes calc-alkaline basaltic andesites (Samples 1 and 2, Table 1). Equivalent to unit Tob of Walker (1977).

Tcmv — Vent complex (Miocene) Accumulation of red cinders and agglutinate which presumably marks a vent at Burnt Stump Reservoir.

Tbwc — Basalt of Whiskey Canyon (Miocene) Grayish-black and locally reddish-brown, plagioclase-phyric hyalocrystalline olivine basalt flows. Correlative with the Deer Butte Basalts of Plumley (1986) and laterally continuous with the basalts of Hammond Hill (Cummings).


CENOZOIC
QUATERNARY
PLEISTOCENE
PLIOCENE
MIOCENE
UPPER
MIDDLE
LOWER
0.01
1.0-2.8
5.3
10
10.8
17
20
Qsl
Qfc
Tcmb
Tcmv
TBwc
0.01
0.95
IRVINGTONIAN
1.9
BLANCAN
1.8
HEMPHILLIAN
8.7
CLARENDONIAN
12.3
BARSTOVIAN
16.4
HEMINGFORDIAN
21.5
ARIKAREEN
CEDAR MTN

| LAB # | Quadrangle | 1/4 | 1/4 | Sec. | T.(S.) | R.(E.) | Lithology | Unit | SIO2 | AL203 | TIO2 | FE203 | MNO | CAO | MGO | K20 | NA20 | P205 | LOI | Cr | Co | Ni | Cu | Zn | Rb | Sr | Y | Zr | NB | BA | LI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AZB-121 | Cedar Mountain | SW | SW | 21 | 26 | 41 | Andesite | Tcmb | 54.8 | 16.5 | 1.12 | 8.58 | 0.14 | 7.95 | 4.56 | 1.59 | 3.34 | 0.35 | 1.08 | 68 | 25 | 67 | 62.8 | 85. | 37 | 538 | 18 | 182 | 28 | 849 | 5.4 |
| AZB-122 | Cedar Mountain | SE | SW | 22 | 26 | 41 | Andesite | Tcmb | 55 | 16.3 | 1.16 | 8.55 | 0.16 | 7.79 | 4.33 | 1.64 | 3.51 | 0.35 | 1.08 | 69 | 24 | 49 | 68.0 | 87. | 38 | 554 | 32 | 183 | 33 | 1660 | 8.8 |

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REFERENCES OF-O-92-5

Cummings, M.L., 1991a, Relations among volcaniclastic sedimentation, volcanism, faulting, and hydrothermal activity west of Lake Owyhee, Malheur County, Oregon: in Raines, G., Lisle, R.E., Schafer, R.W., and Wilkinson, W.H., editors, Geology and ore deposits of the Great Basin, Symposium Proceedings: Geological Society of Nevada vol.1, p. 111-132.

Plumley, P.S., 1986, Volcanic stratigraphy and geochemistry of the Hole in the Ground area, Owyhee Plateau, southeastern Oregon: Moscow, Idaho, University of Idaho M.S. thesis, 161 p.

Walker, G.W., 1977, Geologic map of Oregon east of 121st meridian: U.S. Geological Survey Miscellaneous Investigations Map I-902, scale 1:500,000

MAP SYMBOLS

———— **Contact** -- approximately located

**Fault contact** -- dashed where approximately located, dotted where concealed. Ball and bar on down throw side

**Strike and dip of beds**

**Location of whole rock sample analyzed in** Table 1