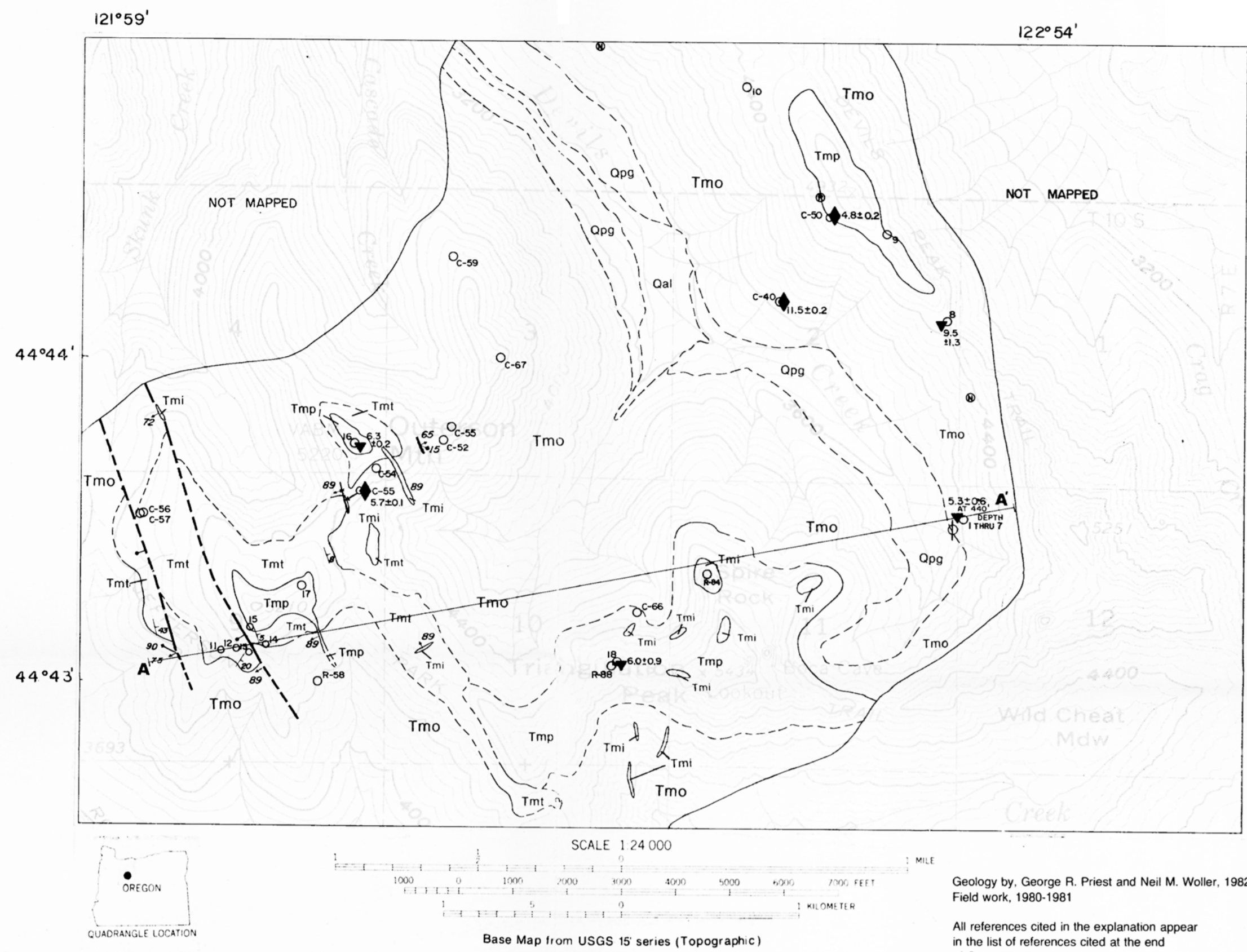


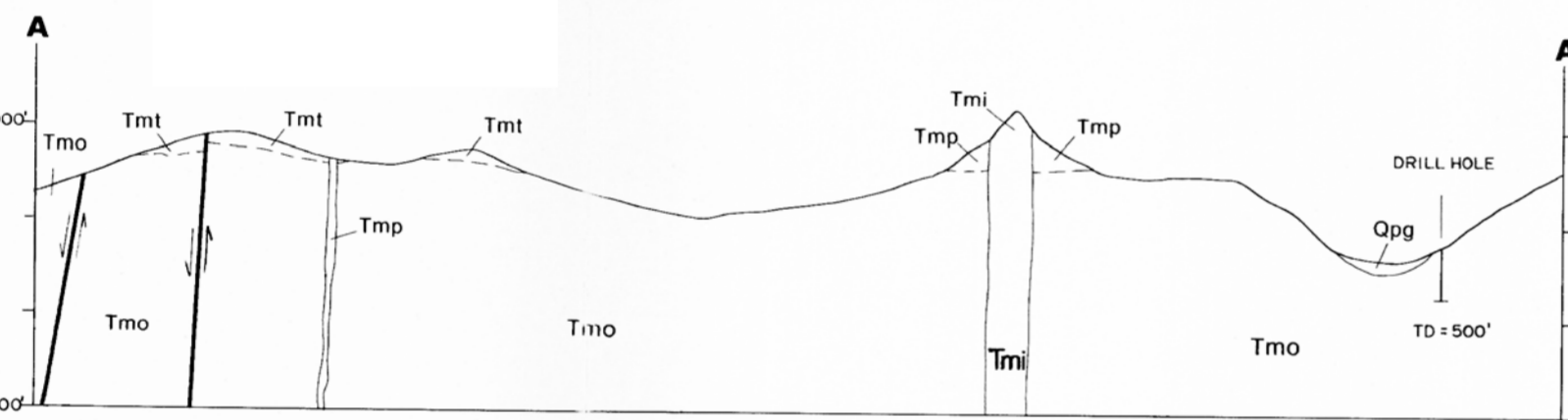
PRELIMINARY GEOLOGIC MAP OF THE
OUTERSON MOUNTAIN, DEVILS CREEK AREA
MARION COUNTY, OREGON

1982

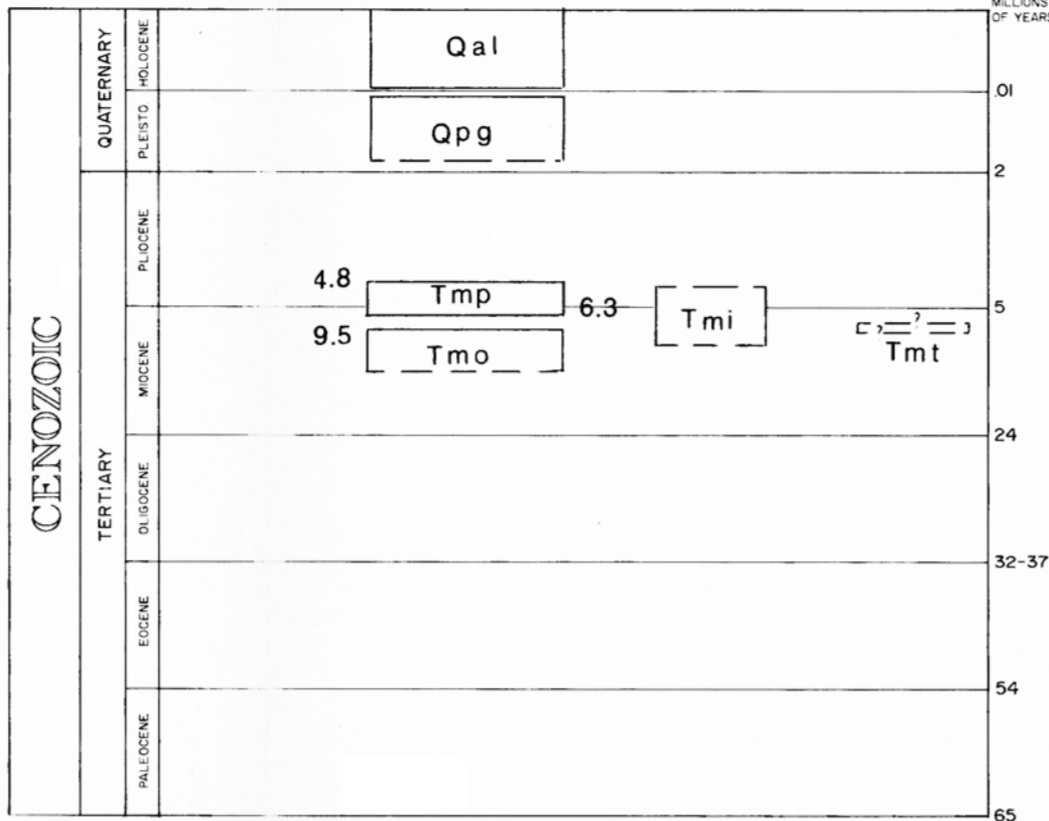
PLATE 3



Geologic Cross Section



TIME ROCK CHART



EXPLANATION

SURFICIAL DEPOSITS

- Qal Recent alluvium: Unconsolidated sediments in present river and creek channels; consists of sand and gravels
- Qpg Pleistocene glacial deposits: Chiefly unsorted till; some glacial outwash gravels

BEDROCK GEOLOGIC UNITS

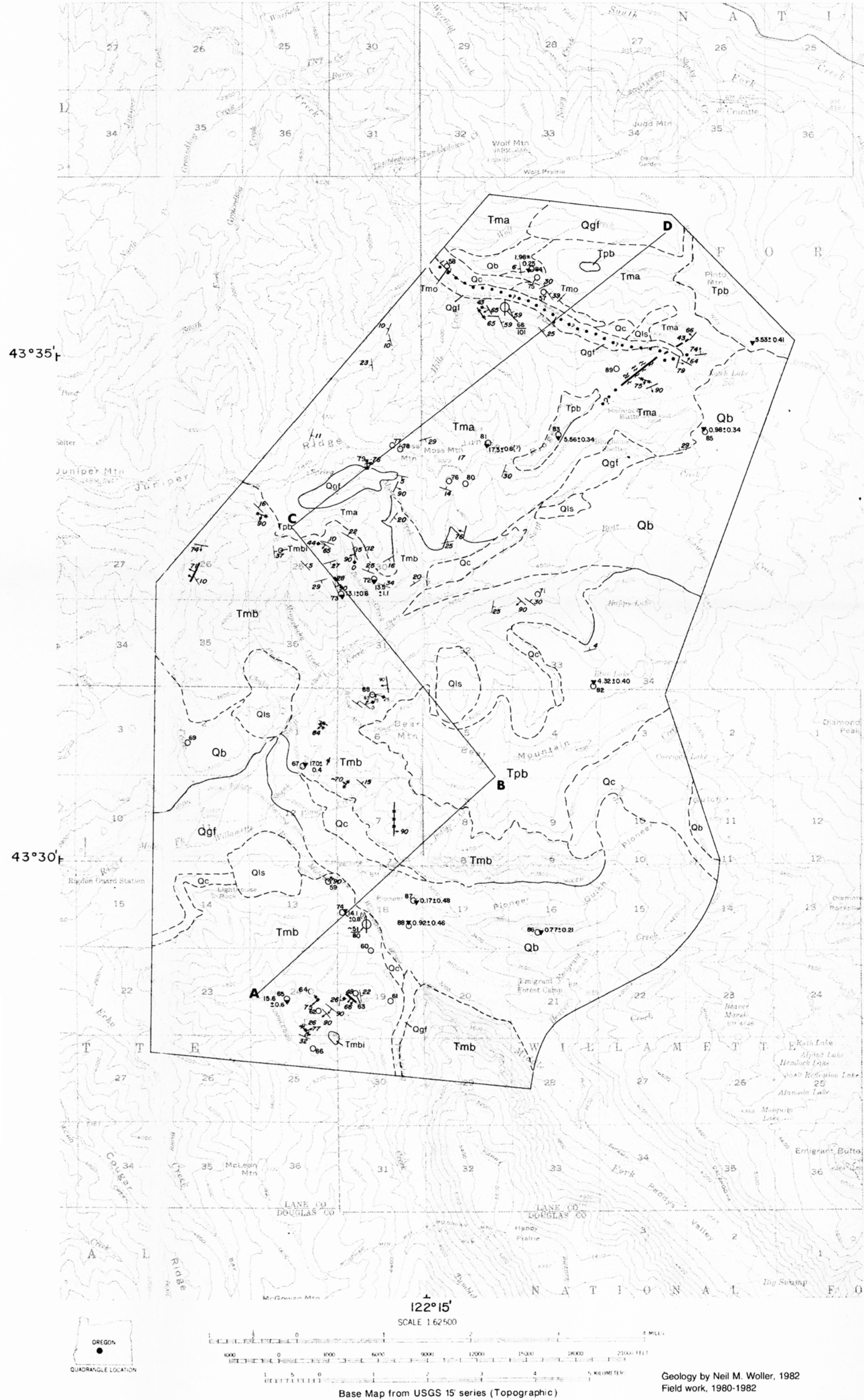
- Tmp Volcanic rocks of early High Cascade time
- Tmo Upper Miocene-Pliocene lavas: Fine-grained, gray basaltic to andesitic lavas of fresh aspect. Mapped as Triangulation Peak volcanics and the Gullwash volcanics by Clayton (1976). Plio-Pleistocene lavas by White (1980c), older basalt and basaltic andesite by Hammond and others (1982), unit Qlv by Hammond and others (1980), unit Qlv by Wells and Peck (1961), unit Qlv by Peck and others (1964), and Outerson volcanics by Thayer (1939). K-Ar date on flow at top of Outerson Mountain is 6,340.2 m.y. B.P.; near Triangulation Peak a K-Ar date of 6,040.9 m.y. B.P. was obtained near the top of the sequence; Sutter (1978) obtained a date of 4,840.1 m.y. B.P. on a sample near Devils Peak (recalculated by Fiebelkorn and others (1982)).
- Tmi Subvolcanic intrusive rocks: Dikes and small plugs of basaltic to andesitic lava. Distribution in Triangulation Peak is taken from Rollins (1976). Unit Tmi is contemporaneous with unit Tmp and probably partially with unit Tmp. Unit Tmi is equivalent to Plio-Pleistocene dikes and plugs of Clayton (1976) and White (1980c), unit Qlv of Wells and Peck (1961), and unit Qlv of Peck and others (1964). One K-Ar date listed by White (1980c) at 11,540.2 m.y. B.P. for basaltic andesite sill in unit Tmp (K-Ar dates have been recalculated by Fiebelkorn and others (1982)).
- Tmb Volcanic rocks of late Western Cascade time
- Tmt Tuffs of Outerson Mountain (Miocene): Five small ash-flow tuff units with thin interbedded epiclastic and probable surge deposits. Oldest and fourth ash flows comprise 90 percent of unit. Oldest ash flow is cream-colored, partially welded orthopyroxene dacite; fourth ash flow is a gray, nonwelded crystal-poor andesite tuff. Unit Tmt definitely occurs below unit Tmp and lies on unit Tmp. Mapped as the upper part of Clayton's (1976) Cheat Creek sediments. First ash flow and probably some uppermost unit Tmb breccias and surge deposits are Rollins' (1976) Cheat Creek beds. Unit was mapped as Plio-Pleistocene lavas by White (1980c), unit Qlv by Wells and Peck (1961), unit Qlv by Peck and others (1964), Outerson basalt by Hammond and others (1980) and Rhododendron Formation by Hammond and others (1982). Thayer (1939) included unit Tmt in his Outerson volcanics.
- Tma Lavas of Outerson Mountain (Miocene): Moderately phyrlic, olivine-bearing high-silica basalt (51-53 percent SiO₂), basaltic andesite, and andesite. More highly siliceous units more common in upper part of unit, where partially pumicitized surge deposits, as flows, and clinder deposits are abundant. Some heavily pumicitized surge deposits occur in middle part. Lower part is chiefly moderately altered lavas; upper part is gradationally fresher and less altered. Greenish phyllosilicates replace olivine in lower part, whereas only reddish phyllosilicates, generally idiosyncratic, replace olivine in upper part. Mapped as Outerson lava and breccia and lower part of Cheat Creek sediments by Clayton (1976) and as San Creek volcanics by Rollins (1976). Probably equivalent to Rollins' (1976) Grizzly Creek lavas below about 3,500-ft elevation. Mapped as unit Qlv by Wells and Peck (1961), unit Qlv by Peck and others (1964), Outerson basalt by Hammond and others (1980), and basalt of Outerson Mountain and Rhododendron Formation by Hammond and others (1982). Corresponds to Outerson volcanics of Thayer (1939). A sample from a depth of 440 ft in Devils Creek drill hole yielded K-Ar date of 5,340.6 m.y. B.P., but this date has probably been affected to some degree by pervasive low-grade alteration. Unit is older than 9,541.3 m.y. B.P. date of uppermost flow near Devils Peak.

GEOLOGIC SYMBOLS

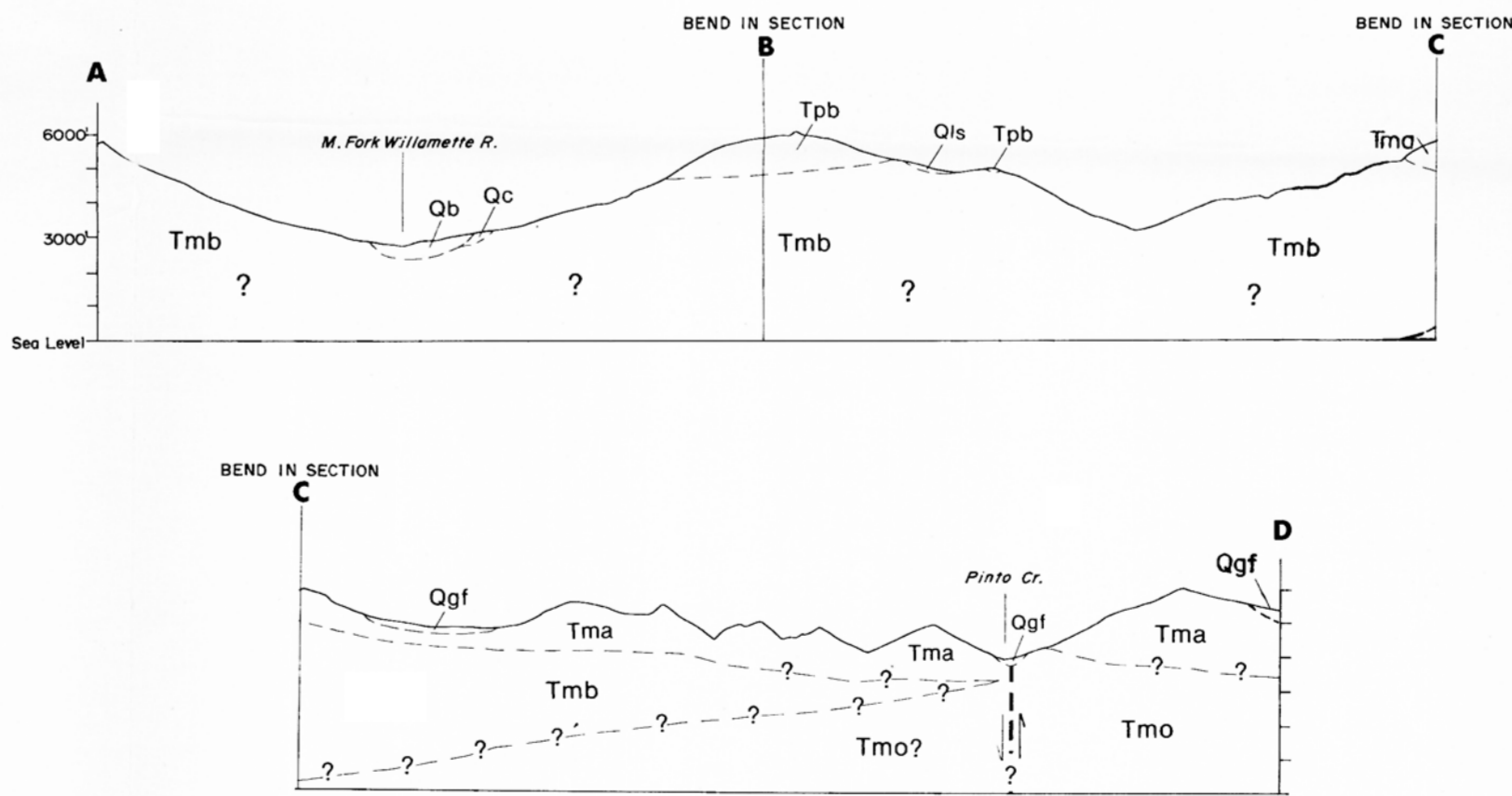
- Bedrock contact: Dashed where inferred beneath thin colluvial deposits; or in areas not traversed
- Normal fault with dip of fault plane: Bar and ball on the downthrown side; dashed where inferred; dotted where covered by younger deposits. Arrow shows dip
- Strike and dip of thinly bedded sedimentary unit
- Dike: Dip shown by arrow
- K-Ar date, this study
- K-Ar sample location from Sutter (1978) and White (1980a): Recalculated ages cited using currently accepted abundance and decay constants from Fiebelkorn and others (1982)
- Chemically analyzed sample: Number = sample number of this study; R = no date; sample number of Rollins (1976); C = number = sample number of White (1980a)
- Paleomagnetic station: R = reversed polarity; N = normal polarity
- Temperature-gradient hole: 152 m deep, 16.58° C @ 152 m; terrain-corrected gradient = 72.6° C/km; heat flow = 101 mW/m²; sample numbers 1 through 7 analyzed for chemical composition; one sample at 134 m (440 ft.) yielded a K-Ar date of 5,340.6 m.y. B.P. (sample somewhat altered)
- Strike and dip of shear zone with rake of slickensides

PRELIMINARY GEOLOGIC MAP OF THE
SWIFT CREEK AREA
LANE COUNTY, OREGON

1982
PLATE 6

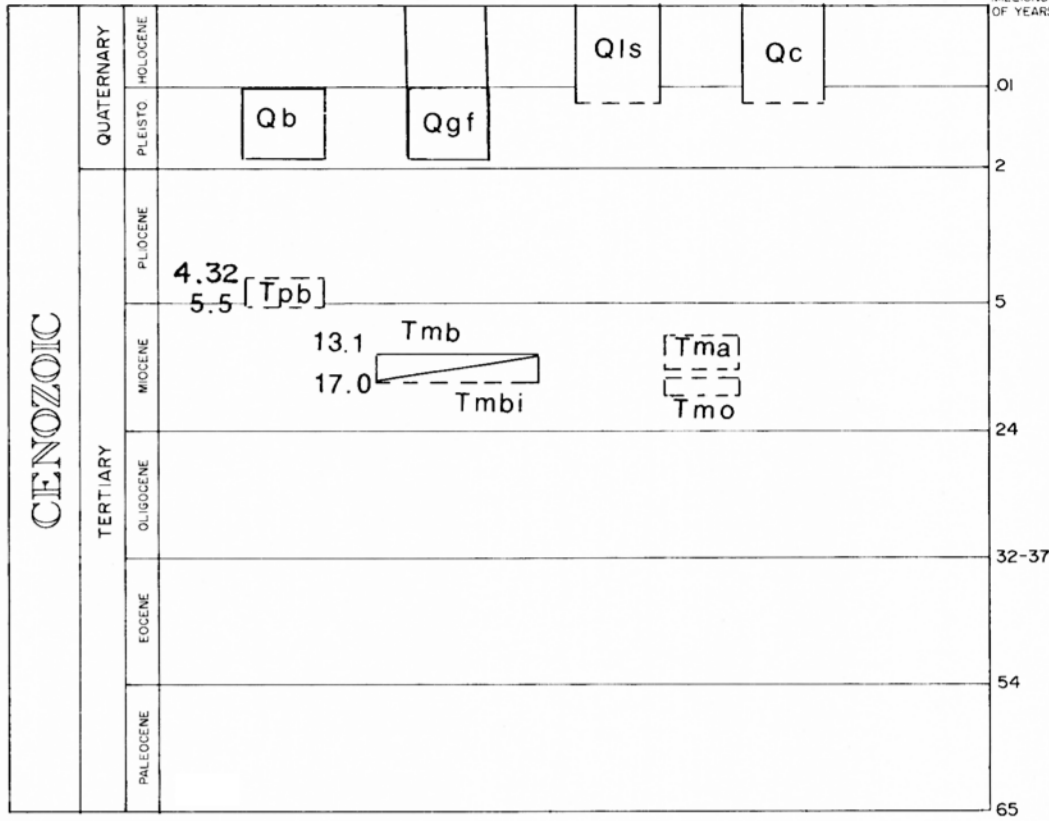


Geologic Cross Sections



The work was supported by the United States Department of
Energy (Cooperative agreement No. DE-FC07-79D12041).

TIME ROCK CHART



EXPLANATION

SURFICIAL DEPOSITS

- Qc Colluvium: Recent unconsolidated deposits including local Hazama air-fall deposits of ash and pumice lapilli, debris slopes, and thin soil covering bed rock
- Qls Landslide deposits: Unconsolidated landslide debris; includes slumps and slide blocks
- Qgl Glacial and fluvial deposits: Unconsolidated and semiconsolidated sedimentary deposits of glacial and fluvial origin; includes terrace deposits, tills, and moraines. Bed rock shown where till is thin

BEDROCK GEOLOGIC UNITS

- Qb Volcanic rocks of late High Cascade time
- Tpb Pleistocene basaltic rocks: Olivine-bearing basalts and basaltic andesites; black to gray; very fresh; diktytaxitic to compact. Found in glaciated valleys of Pioneer Gulch, Engstrom Creek, upper Swift Creek, and Pinto Creek, and in valley of Willamette River. Vent areas are from east of map area in the vicinity of Diamond Peak. Undeformed. Equivalent to High Cascade lavas of White (1980a) and basalts of High Prairie of Brown and others (1980b); partially equivalent to volcanic rocks of the High Cascades, (undivided) of Peck and others (1964). Oldest flow 1,980±23 m.y., youngest flow 0.1740±46 m.y.
- Tmb Volcanic rocks of early High Cascade time
- Tma Miocene-Pliocene basaltic lavas: Olivine-bearing basalts; gray; compact; fresh. Most highest areas of Bear Mountain. Oldest flow K-Ar age of 5.56 m.y.; upper part K-Ar dated at 4,324±40 m.y. B.P. Undeformed. Includes sedimentary interbeds. Equivalent to Outerson volcanics of Thayer (1939), Pliocene volcanic rocks of Brown and others (1980b), and Outerson formation of White (1980a)
- Tmbi Volcanic rocks of late Western Cascade time
- Tmbd Andesitic lavas of Moss Mountain (Miocene): Pyroxene andesites and basaltic andesites; gray to black. In lower part, flows are plagioclase-rich two-pyroxene andesites. In upper part, flows become increasingly mafic plagioclase-rich olivine-pyroxene basaltic andesites. One K-Ar date of 17,340.8 m.y. B.P. was obtained (see Chapter 6 for explanation). Includes interbedded epiclastic volcanic rocks and minor thin ash flows. Equivalent to Sardine Formation of Peck and others (1964) and Miocene volcanic rocks of Brown and others (1980b)
- Tmbf Basaltic lavas of Tumblebug Creek (Miocene): Olivine- and pyroxene-bearing basalts and basaltic andesites; black to gray; compact to diktytaxitic. Includes interbedded epiclastic volcanic rocks and minor thin ash flows. K-Ar dates between 17,040.3 m.y. B.P. and 13,100.6 m.y. B.P. were obtained on various parts of the sequence. Equivalent to Sardine Formation of Peck and others (1964) and Miocene volcanic rocks of Brown and others (1980a,b).
- Tmbg Intrusive plug
- Tmbh Older volcanoclastic sediments and lavas (Miocene): Immature sediments containing aphyric andesites and dacites of various colors that resemble lavas of the underlying Little Butte Volcanic Series (Peck and others, 1964) (not visible in map area). Also contains fine-grained, altered, frequently discolored or oxidized silicic rocks associated with these sediments. This is probably the oldest unit in map area, but no K-Ar data are available. Equivalent to Sardine Formation of Peck and others (1964) and Miocene volcanic rocks of Brown and others (1980b). May be older, more deformed members of unit Tmb

GEOLOGIC SYMBOLS

- Contacts: Solid where visible, dashed where inferred below cover or from aerial photo interpretation
- Fault: Solid where visible, dashed where approximately located, dotted where concealed by alluvium or landslide. Dip on fault plane indicated; bar and ball on downthrown side
- Shear: Strike and dip of shear plane with rake of slickensides shown; rakes are not always measurable
- Geothermal heat-flow hole: Terrain-corrected gradient (°C/km) and heat flow (mW/m²) shown
- Geochemical sample
- K-Ar date
- Dike, dip shown by arrow
- Strike and dip
- Horizontal attitude
- Fault with extreme brecciation or numerous shears