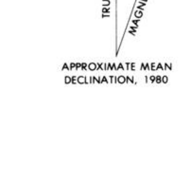
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

Prepared by the Army Map Service (BEPM), Corps of Engineers, U.S. Army, Washington, D.C.



Scale 1:250,000

20 Statute Miles · 30 Kilometers · 15 Nautical Miles

CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

Geology mapped by W. N. Blair 1975-79, Steven Bond 1979, J. K. Cannon 1975-79, Floyd Gray 1974-80, M. P. Foose 1978, M. G. Johnson 1974-79, A. C. Katcher 1979, Daniel Laird 1974, Bruce Lipin 1978, B. C. Moring 1977-80, S. W. Nicholson 1978, N. J Page 1974-80, J. A. Peterson 1977-78, Len Ramp 1978-79, M. G. Sawlan 1978-79, Jerry Smit 1978, J. G. Smith 1975-81, Alison Till 1976-1978, W. P. Ziemianski 1978

PRELIMINARY
GEOLOGIC MAP OF THE MEDFORD 1° X 2° QUADRANGLE, OREGON AND CALIFORNIA

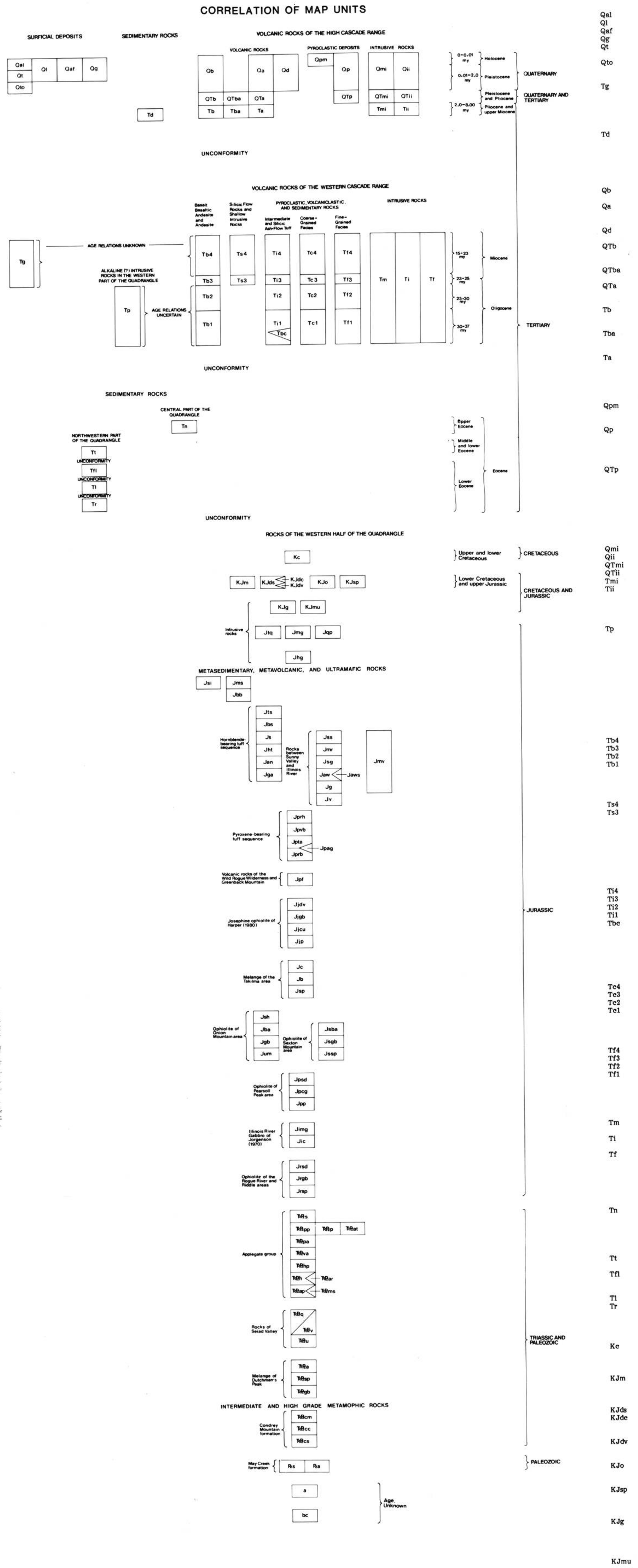
by

James G. Smith, Norman J Page, Maureen G. Johnson, Barry C. Moring, and Floyd Gray

1982

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

SURFICIAL DEPOSITS

Qal ALLUVIUM (HOLOCENE AND PLEISTOCENE)
Ql LANDSLIDE DEPOSITS (HOLOCENE AND PLEISTOCENE)
Qaf ALLUVIAL FAN DEPOSITS (HOLOCENE AND PLEISTOCENE)
Qg GLACIAL DEPOSITS (HOLOCENE AND PLEISTOCENE)
Qt TERRACE GRAVEL (PLEISTOCENE)—Unconsolidated slightly to moderately weathered deposits of sand, silt, and gravel that form terraces 6 to 40 m above modern flood plains
Qto OLDER TERRACE GRAVEL (PLEISTOCENE AND PLIOCENE)—Deeply weathered, auriferous deposits of sand, silt, and gravel that form terraces ranging from 15 to 210 m above modern flood plains. Occurs only in the northwestern quarter of the quadrangle
Tg UPLAND GRAVEL (MIOCENE)—Deeply weathered lithified deposits of sand and gravel with minor amounts of silt and coal. The deposits are not integrated with modern drainages and occur only as small scattered patches in the western half of the quadrangle

SEDIMENTARY ROCKS

Td DIATOMITE AND VOLCANICLASTIC SEDIMENTS (PLIOCENE AND MIOCENE)—Flat-lying lake beds and deltaic beds in the upper Rogue River Valley

VOLCANIC ROCKS OF THE HIGH CASCADE RANGE

VOLCANIC ROCKS

Qb BASALT (HOLOCENE AND PLEISTOCENE)—Composed of olivine-bearing pahoehoe flows and interbedded cogenetic near-vent pyroclastic deposits. Forms shield volcanoes
Qa ANDESITE (HOLOCENE AND PLEISTOCENE)—Rocks of this unit are extremely varied in texture and mineralogy, but a majority are porphyritic pyroxene andesite. Forms youthful-looking stratovolcanoes, steep-sided shields and smaller vent areas
Qd DACITE AND RHYOLITE (HOLOCENE AND PLEISTOCENE)—Gray to black stubby flows and domes. Unit crops out only in Crater Lake National Park
QTb BASALT (PLEISTOCENE AND PLIOCENE)—Most lavas of this unit are dark vesicular olivine pahoehoe flows. They form intracanyon flows and flank flows which are far removed from possible source vents on shield volcanoes. Source vents cannot be identified
QTba BASALTIC ANDESITE (PLEISTOCENE AND PLIOCENE)—Blue-gray microvesicular olivine and olivine-bearing flows forming deeply eroded coalescing shield volcanoes along the crest of the Cascade Range
QTa ANDESITE (PLEISTOCENE AND PLIOCENE)—Small scattered remnants of originally more extensive andesite flows which are surrounded and partly covered by younger volcanic rocks. Lithologically similar to Holocene and Pleistocene andesite (Qa)
Tb BASALT (PLIOCENE AND UPPER MIOCENE)—Fine-grained high-alumina olivine basalt flows and deeply incised coarse-grained diktytaxitic olivine basalt flows. Forms subdued and greatly eroded shields. Areas underlain by this unit are generally covered by thick clay-rich red soils
Tba BASALTIC ANDESITE (PLIOCENE AND UPPER MIOCENE)—The most common lithology is light-blue-gray fine-grained high-alumina olivine basaltic andesite. Occurs as large deeply eroded coalescing shield volcanoes, interbedded cogenetic near-vent pyroclastic deposits, and extensive valley-filling flows
Ta ANDESITE (PLIOCENE AND UPPER MIOCENE)—Mostly pyroxene andesite, but the unit contains rocks with a variety of textures and mineralogies. Occurs as deeply eroded large composite volcanoes, steep-sided shields, smaller vent areas, and extensive valley-filling flows

PYROCLASTIC DEPOSITS

Qpm PUMICE AND ASH OF MT. MAZAMA (HOLOCENE)—White, pink, buff, gray and black rhyodacite, dacite, and andesite, unwelded to partly welded ash-flow tuff, ash-cloud deposits, and unconsolidated ash-fall deposits erupted during the climactic phase of volcanic activity of Mount Mazama
Qp YOUNGER PYROCLASTIC DEPOSITS OF BASALTIC AND ANDESITIC CINDER CONES (HOLOCENE AND PLEISTOCENE)—Unconsolidated to poorly consolidated well stratified red, brown and black, fine- to coarse-grained basaltic to andesitic ejecta of ash, cinder, scoria, agglomerate, and bombs. Unit includes minor flows and feeder dikes, as well as yellow to buff plagonitized tuff. The tuff was deposited in tuff rings, which crop out along the upper Klamath River
QTp OLDER PYROCLASTIC DEPOSITS OF BASALTIC AND ANDESITIC CINDER CONES (PLEISTOCENE AND PLIOCENE)—Unconsolidated to poorly consolidated well stratified red, brown, and black, fine- to medium-grained basaltic to andesitic ash, cinder, scoria, tuff breccia, agglomerate, and bombs. Includes minor flows, thin feeder dikes, and vent breccia. Constructional volcanic features are poorly preserved

INTRUSIVE ROCKS

Many small intrusive bodies are present in the volcanic rocks of the High Cascade Range. For the most part they consist of solidified lava in central conduits, plugs, dikes and sills. Only the larger bodies are shown on this map.

Qmi MAFIC INTRUSIVE ROCKS (HOLOCENE AND PLEISTOCENE)
Qii INTERMEDIATE INTRUSIVE ROCKS (HOLOCENE AND PLEISTOCENE)
QTmi MAFIC INTRUSIVE ROCKS (PLEISTOCENE AND PLIOCENE)
QTii INTERMEDIATE INTRUSIVE ROCKS (PLEISTOCENE AND PLIOCENE)
Tmi MAFIC INTRUSIVE ROCKS (PLIOCENE AND UPPER MIOCENE)
Tii INTERMEDIATE INTRUSIVE ROCKS (PLIOCENE AND UPPER MIOCENE)

ALKALINE(?) INTRUSIVE ROCKS IN THE WESTERN PART OF THE QUADRANGLE

Tp DACITE AND DACITE PORPHYRY DIKES (OLIGOCENE)—Light-colored fine-grained dike rocks in the southwest corner of the quadrangle. Correlated with the Mt. Emily intrusion in the Coos Bay 1° x 2° quadrangle

VOLCANIC ROCKS OF THE WESTERN CASCADE RANGE

The volcanic rocks of the Western Cascade Range form a structurally simple but stratigraphically complex package of terrestrial volcanic, volcaniclastic, and sedimentary rocks some 5,500 m thick. The volcanic rocks of the Western Cascade Range are composed of many overlapping and intertonguing volcanogenic and sedimentary units. Individual beds generally extend for only a few kilometers to a few tens of kilometers

BASALT, BASALTIC ANDESITE, AND ANDESITE (MIOCENE AND OLIGOCENE)— Basalt, basaltic andesite, and andesite flows and interbedded volcanic breccia, and pyroclastic deposits. Locally includes other rock types in beds too thin, discontinous, or poorly exposed to map separately. Divided into 4 units based on K-Ar determinations
Tb4 Unit 4 (MIOCENE)
Tb3 Unit 3 (MIOCENE AND OLIGOCENE)
Tb2 Unit 2 (OLIGOCENE)
Tb1 Unit 1 (OLIGOCENE)

SILICIC FLOW ROCKS AND SHALLOW INTRUSIVE ROCKS (MIOCENE AND OLIGOCENE)—Generally light-colored rhyolite and rhyodacite in stubby flows, domes, and shallow intrusives and associated breccia. Locally contains a few scattered small phenocrysts of plagioclase, hypersthene, or hornblende. Commonly flow banded, generally devitrified. Divided into 2 units based on K-Ar determinations
Ts4 Unit 4 (MIOCENE)
Ts3 Unit 3 (MIOCENE AND OLIGOCENE)

PYROCLASTIC, VOLCANICLASTIC, AND SEDIMENTARY ROCKS

INTERMEDIATE AND SILICIC ASH-FLOW TUFF (MIOCENE AND OLIGOCENE)—Welded to nonwelded ash-flow tuffs, dominantly intermediate in composition. Most ash-flow tuffs show extensive vapor phase alteration and devitrification. Basal vitrophyres are rare. Included rock fragments are common. Plagioclase is the dominant phenocryst mineral, and in many flows is the only phenocryst. May also contain minor amounts of phenocrystic quartz, biotite, hornblende or pyroxene. Locally includes interbedded coarse-grained debris flow deposits and beds of fine-grained volcaniclastic material. Divided into 5 units based on K-Ar determinations and lithology
Ti4 Unit 4 (MIOCENE)
Ti3 Unit 3 (MIOCENE AND OLIGOCENE)
Ti2 Unit 2 (OLIGOCENE)
Ti1 Unit 1 (OLIGOCENE)—Locally includes:
Tbc ASH-FLOW TUFF OF BOND CREEK (OLIGOCENE)—Thick regionally extensive biotite quartz rhyodacite ash-flow tuff composed of two major cooling units (Smith and others, 1980). Thickness, of the lower cooling unit variable due to pre-eruption topography, thickness of upper cooling unit variable because of posteruption channeling

COARSE-GRAINED FACIES (MIOCENE AND OLIGOCENE)—Coarse-grained rocks of pyroclastic, volcaniclastic, and sedimentary origin. Includes tuff-breccia formed by direct pyroclastic origin and by reworking of just-vented and unlithified pyroclastic ejecta, volcanic conglomerate, mudflow deposits, and block-and-ash(?) deposits. Includes all of the vent facies of Smedes and Prostka (1972), as well as coarser units in their alluvial facies
Tc4 Unit 4 (MIOCENE)
Tc3 Unit 3 (MIOCENE AND OLIGOCENE)
Tc2 Unit 2 (OLIGOCENE)
Tc1 Unit 1 (OLIGOCENE)

FINE-GRAINED FACIES (MIOCENE AND OLIGOCENE)—Medium- and fine-grained rocks of pyroclastic, volcaniclastic, and sedimentary origin. Includes volcanic sandstone, siltstone, and mudstone, diatomite, and air-fall tuff. Includes finer grained part of alluvial facies of Smedes and Prostka (1972). Divided into 4 units based on K-Ar determinations
Tf4 Unit 4 (MIOCENE)
Tf3 Unit 3 (MIOCENE AND OLIGOCENE)
Tf2 Unit 2 (OLIGOCENE)
Tf1 Unit 1 (OLIGOCENE)

INTRUSIVE ROCKS

Dikes, sills, plugs, and stocks. More common near volcanic centers.

Tm MAFIC INTRUSIVE ROCKS (MIOCENE AND OLIGOCENE)—Rocks in this unit range from fine-grained pyroxene gabbro to black aphanitic glassy basalt, and have a wide variety of textures
Ti INTERMEDIATE INTRUSIVE ROCKS (MIOCENE AND OLIGOCENE)—Mostly hypabyssal. Locally hydrothermally altered. Many plugs and stocks are probably subvolcanic magma chambers
Tf FELSIC INTRUSIVE ROCKS (MIOCENE AND OLIGOCENE)—May merge laterally with silicic flows. Locally contains phenocrysts of quartz, plagioclase, hornblende, or pyroxene

SEDIMENTARY ROCKS

CENTRAL PART OF THE QUADRANGLE

Tn NONMARINE SEDIMENTARY ROCKS (UPPER EOCENE)—Stratified nonmarine conglomerate, pebble conglomerate, sandstone, siltstone and mudstone. Dominantly nonvolcanic; derived from underlying older rocks. Abundant biotite and muscovite

NORTHWESTERN PART OF THE QUADRANGLE

Tt TYEE FORMATION (MIDDLE AND LOWER EOCENE)—Massively bedded micaceous lithic wacke, pebbly sandstone, cobble conglomerate, and minor siltstone and coal
Tfl FLUORNOY FORMATION OF BALDWIN (1974) (LOWER EOCENE)—Sandstone, mudstone, and conglomerate. Conglomerate and sandstone predominate in the lower part and fine-grained sandstone and siltstone in the upper part
Tl LOOKINGGLASS FORMATION OF BALDWIN (1974) (LOWER EOCENE)—Conglomerate, sandstone, and siltstone
Tr ROSEBURG FORMATION OF BALDWIN (1974) (LOWER EOCENE)—Thin-bedded laminated dark- to medium-gray siltstone with graded beds and local marly beds; exposed only in extreme northwestern corner of the quadrangle

ROCKS OF THE WESTERN HALF OF THE QUADRANGLE

Kc CLASTIC SEDIMENTARY ROCKS (UPPER AND LOWER CRETACEOUS)—Locally fossiliferous sandstones and conglomerates. Includes such units as the sandstones and conglomerates on the West Fork of the Illinois River near Waldo (Imlay and others, 1959), the Hornbrook Formation of Peck and others (1956), and the Grave Creek Strata of Jones (1960) and Page and others (1977)
KJm MYRTLE GROUP (LOWER CRETACEOUS AND UPPER JURASSIC)—Locally fossiliferous conglomerates, sandstones, siltstones, and limestones. Includes such units as the Riddle Formation and Days Creek Formation (Imlay and others, 1959; Jones, 1969)
DOTHAN FORMATION (LOWER CRETACEOUS AND UPPER JURASSIC)—As mapped divided into:
KJds Sedimentary rocks—Sandstones, conglomerates, and graywacke which rarely contain Buchia piochii
KJdc Chert—Predominantly rhythmically banded and lenticular chert, moderately recrystallized, and locally containing radiolarians of Upper Jurassic to Lower Cretaceous age. As mapped, shown only at the northern border of the quadrangle, but occurs as isolated small bodies throughout the formation
KJdv Volcanic rocks—Predominantly basaltic volcanic rocks, including pillow lavas, volcanic breccia, and silicified basalt. As mapped, shown only along the tectonic boundaries of the Dothan Formation but also occurs as isolated small bodies within the formation
KJo OTTER POINT FORMATION (LOWER CRETACEOUS AND UPPER JURASSIC)—Highly sheared graywacke, mudstone, siltstone, and shale with lenses and pods of sheared greenstone, limestone, chert, and serpentinite. Includes blueschist pods correlated by Koch (1966) with the Dothan Formation
KJsp SERPENTINITE (LOWER CRETACEOUS AND UPPER JURASSIC)—Serpentinized harzburgite, dunite, and pyroxenite

INTRUSIVE ROCKS

KJg GRANITIC PLUTONIC ROCKS (CRETACEOUS AND JURASSIC)—Tonalite and quartz diorite predominate but dioritic, monzodioritic, quartz monzodioritic, granodioritic, monzonitic, quartz monzonitic, and rocks of other granitic compositions are included in map unit. K-Ar determinations on hornblende suggest the plutons range in age from 166 m.y. to 143 m.y. (Hotz, 1971); large masses are shown on the map, however, there are many unmapped dikes, sills, and smaller masses intruding Paleozoic through Jurassic rocks
KJmu MAFIC AND ULTRAMAFIC ROCKS ASSOCIATED WITH GRANTIC PLUTONS (CRETACEOUS AND JURASSIC)—Consists predominantly of hornblende gabbro, gabbro, and olivine gabbro but includes pyroxenite, hornblende pyroxenite, minor peridotite, dunite, and serpentinite
Jtq TONALITE AND QUARTZ DIORITE OF CHETCO RIVER COMPLEX OF HOTZ (1971) (JURASSIC)—Diorite, quartz diorite, and tonalite. K-Ar determinations are 153 and 155 m.y. (Hotz, 1971)
Jmg MUSCOVITE GRANODIORITE (JURASSIC)—Medium-grained equigranular, locally foliated granodiorite composed of plagioclase, quartz, potassium feldspar, muscovite, and biotite. K-Ar determination on muscovite yielded an age of 151±4.5 m.y. (Hotz, 1971)
Jqp QUARTZ PORPHYRY (JURASSIC)—Light-gray porphyritic quartz diorite containing euhedral quartz phenocrysts as large as 2 cm in diameter and euhedral olive-brown hornblende phenocrysts as long as 1 cm in a fine-grained groundmass of subhedral to euhedral plagioclase and quartz
Jhg HORNBLENDE GABBRO (JURASSIC)—Fine- to coarse-grained hornblende gabbro that intruded ultramafic and gabbro units of older ophiolite sequences

METASEDIMENTARY, METAVOLCANIC AND ULTRAMAFIC ROCKS

Jsi SHALE, MUDSTONE, AND SANDSTONE OF THE ILLINOIS VALLEY (JURASSIC)—Black to gray shale, mudstone, and sandstone with local pebbly conglomerate lenses
Jms METASHALE, METAMUDSTONE, AND QUARTZ-RICH METASANDSTONE (JURASSIC)—Predominantly black shales and mudstones, but containing local sandstone beds with shale chips. Metamorphosed to thinly laminated and foliated gray to black schists near contacts with plutons
Jbb BLACK CLAST BRECCIA (JURASSIC)—Green volcanic breccia containing clasts as large as 1 m across composed of hornblende-pyroxene gabbro and subordinate plagioclase-rich flow rocks

HORNBLENDE-BEARING TUFF SEQUENCE

Jts TUFFACEOUS SILTSTONE, SANDSTONE, AND SHALE (JURASSIC)—Predominantly shale interbedded with mudstones and sandstones with local conglomerate beds. Pyritized tuffaceous siltstone abundant toward base
Jbs BASALT IN SHALE (JURASSIC)—Foliated greenstone which is in part conformable on Jurassic shale and siltstone (Js) and interpreted to represent thin flows
Js SHALE AND SILTSTONE (JURASSIC)—Thinly bedded black to gray shales with interbedded siltstone and local sandstone. Contacts with volcanic units (Jht and Jbs) are locally conformable
Jht HORNBLENDE-BEARING TUFFS (JURASSIC)—Massively bedded and jointed, fine-grained bedded tuffs and coarse-grained tuffs that are not obviously bedded. Interbedded plagioclase-rich meta flows contain actinolite
Jan AMYGDALOIDAL ANDESITE (JURASSIC)—Amygdaloidal porphyritic plagioclase-rich andesite flows interbedded with glomeroporphyritic nonamygdaloidal andesite flows and flow breccias containing clasts of amygdaloidal andesite and rhyodacite
Jga GLASSY BASALTIC ANDESITE (JURASSIC)—Black, commonly aphanitic, strongly foliated andesite flows locally interbedded with crystal lithic tuffs containing clasts of the andesite flows

ROCKS BETWEEN SUNNY VALLEY AND THE ILLINOIS RIVER VALLEY

Jss SHALE OF SUNNY VALLEY (JURASSIC)—Shales, mudstones, and minor amounts of sandstone. May correlate with the shale and siltstone unit (Js)
Jmr METAVOLCANIC ROCKS (JURASSIC)—Foliated tuffs, flows, and fragmental volcanic rocks
Jsg SHALE AND MUDSTONE OF GRAVE CREEK (JURASSIC)—Thinly laminated shales and blocky mudstones. Tuff beds well developed at the confluence of Tom East Creek and Grave Creek, but rare throughout rest of sequence. Quartz veining and pyritization common throughout the sequence
Jaw ANDESITIC WATERWORKED TUFFS AND AGGLOMERATES (JURASSIC)—Water-laid and water-reworked tuff beds and massive agglomerates with clasts typically 1 mm to 3 cm long but are as large as 10 cm. Locally includes:
Jaws Shale and mudstone interbedded with andesitic water-worked tuffs—Finely laminated interbedded tuffaceous siltstone, shale, and mudstone
Jg GALICE FORMATION (JURASSIC)—Thinly layered mudstones and shales which are locally fossiliferous containing Buchia concentria (Sowerby)
Jv METAVOLCANIC ROCKS WITH INTERBEDDED SHALE (JURASSIC)—Basaltic to andesitic amygdaloidal flows and ophitic flows with tuff, tuff breccia, and volcaniclastic rocks. Locally contains interbedded black shale and mudstone units as thick as 100 m and local chert beds
Jmv METAVOLCANIC ROCKS, UNDIFFERENTIATED (JURASSIC)—Highly altered, sheared, and locally phyllonitic and schistose rocks of uncertain correlation

PYROXENE-BEARING TUFF SEQUENCE

Jprh RHYOLITIC FLOWS AND OBSIDIAN (JURASSIC)—Rhyolitic flows, flow breccias, and rare devitrified perlitic obsidian
Jpvb VOLCANIC TUFF BRECCIA (JURASSIC)—Coarse andesitic volcanic tuff breccia with blocks as large as 1 m across but averaging less than 20 cm set in a pyroxene-bearing tuffaceous matrix. Dacite porphyry flows and rhyodacite flows and plugs occur locally
Jpta PYROXENE-BEARING TUFF, AGGLOMERATE, AND FLOWS (JURASSIC)—Andesitic to dacitic thin-bedded and massive tuff, tuff breccia, agglomerate, waterworked tuff, breccia, and wacke, including local interbedded black and red shales
Jpag PYROXENE-BEARING AGGLOMERATE (JURASSIC)—Andesitic volcanic agglomerate containing distinctive green clinopyroxene xenocrysts as large as 1 cm in diameter. Unit includes interbedded flows and dikes
Jprb RHYODACITE FLOWS AND BEDDED TUFFS (JURASSIC)—Predominantly rhyodacite flows and very fine grained bedded porcelaneous tuffs with local agglomerate, andesite, and basalt flows

VOLCANIC ROCKS OF THE WILD ROGUE WILDERNESS AND GREENBACK MOUNTAIN

Jpf PORPHYRITIC ANDESITIC AND DACITIC FLOWS (JURASSIC)—Predominantly plagioclase porphyritic andesitic flows but includes dacitic to andesitic flows, tuffs, and agglomerates

JOSEPHINE OPHIOLITE OF HARPER (1980)

Jjdv DIKE COMPLEXES AND MAFIC VOLCANIC ROCKS (JURASSIC)—Pillow basalt, and minor buff-colored keratophyres with sparse diabase dikes compose the stratigraphic top of the unit; complexes of subophitic-textured diabase form the base of the unit. Metamporphosed to zeolite and greenschist facies. Exposed near southwest corner of quadrangle
Jjgb GABBROIC ROCKS (JURASSIC)—Hornblende gabbro, tonalite, and quartz diorite, and cumulus clinopyroxene that contains subordinate cumulus norite
Jjcu CUMULATE ULTRAMAFIC ROCKS (JURASSIC)—Repetitive interlayered sequences of cumulus wehrlite and dunite, with minor clinopyroxenite and harzburgite
Jjp JOSEPHINE PERIDOTITE (JURASSIC)—Harzburgite and dunite with tectonite fabric containing minor pyroxenite layers, dikes, and dikelets

MELANGE OF THE TAKILMA AREA

Jc CHERT, ARGILLITE, CONGLOMERATE, AND SILTY SANDSTONE (JURASSIC)—Thin-bedded chert, lenses of marble, silty argillite, and conglomerate. Locally interbedded with mafic lava. Chert contains radiolaria of Middle Jurassic age
Jb BASALTIC ROCKS (JURASSIC)—Includes diabase, diabase breccia, gabbro, and basaltic lavas
Jsp SERPENTINITE (JURASSIC)—Completely serpentinized peridotite and dunite

OPHIOLITE OF ONION MOUNTAIN AREA

Jsh SHALE AND MINOR CHERT (JURASSIC)—Shale, thinly bedded siltstone and mudstone with red and white radiolarian-bearing thinly bedded chert
Jba BASALTIC VOLCANIC ROCKS (JURASSIC)—Pillow basalts, pillow breccias, and basaltic-andesitic flows
Jgb GABBROIC ROCKS AND DIKE COMPLEXES (JURASSIC)—Massive gabbroic rocks that locally contain dike complexes of metadiabase
Jum ULTRAMAFIC CUMULATE AND TECTONITE ROCKS (JURASSIC)—Serpentinized peridotite and dunite with tectonite fabrics, chromitite, and locally cumulus dunite, peridotite, and wehrlite

OPHIOLITE OF SEXTON MOUNTAIN AREA

Jsba METAVOLCANIC AND SHALLOW INTRUSIVE ROCKS (JURASSIC)—Pillow basalt and pillow breccia, basalt flows, flow breccia, and agglomerate with gabbro, diabase, and metagabbro dikes and sills
Jsgb GABBRO AND METAGABBRO (JURASSIC)—Layered and massive gabbroic rock
Jssp SERPENTINITE (JURASSIC)—Serpentinized peridotite and dunite with local concentrations of chromite

OPHIOLITE OF PEARSOLL PEAK AREA

Jpsd SHEETED DIKE COMPLEX (JURASSIC)—Thin (1-3 m) multiple parallel dikes
Jpcg CUMULATE GABBRO (JURASSIC)—Two-pyroxene gabbro, locally metamorphosed to hornblende-plagioclase gabbro
Jpp PERIDOTITE (JURASSIC)—Harzburgite and dunite with both tectonite and cumulate fabrics; locally completely serpentinized

ILLINOIS RIVER GABBRO OF JORGENSON (1970)

Jimg METAGABBRO (JURASSIC)—Hornblende-plagioclase gabbro, locally including dioritic and quartz dioritic rocks. Unit has a metamorphic K-Ar age determined from hornblende of 151±5 m.y. (Coleman, 1972)
Jic CUMULATE PERIDOTITE, DUNITE, PYROXENITE, AND WEHRLITE (JURASSIC)

OPHIOLITE OF ROGUE RIVER AND RIDDLE AREAS

Jrsd SHEETED DIABASE DIKES (JURASSIC)—Sheeted dikes with associated porphyritic dikes and gabbroic screen
Jrgb GABBRO (JURASSIC)—Hornblende (after pyroxene)-plagioclase gabbro. Possesses metacumulate foliation where included as sheeted dike screen, other exposures are massive
Jrsp SERPENTINIZED ULTRAMAFIC ROCKS (JURASSIC)—Serpentinized peridotite and dunite; predominantly crops out as slickentite in Rogue River area. Includes minor gabbro, blocks of metavolcanic and metasedimentary rocks in Riddle area

APPLEGATE GROUP

TRPzs METASEDIMENTARY ROCKS (TRIASSIC TO PALEOZOIC)
TRPzpp PORPHYRITIC PYROXENE ANDESITE (TRIASSIC TO PALEOZOIC)
TRPzp PORPHYRITIC ANDESITIC FLOWS, TUFFS, AND AGGLOMERATES (TRIASSIC TO PALEOZOIC)—Charactierized by plagioclase phenocrysts in a relict pilotaxitic groundmass in flows and agglomerate clasts
TRPzat ANDESITIC AND DACITIC TUFFS, TUFF BRECCIAS, AND AGGLOMERATES (TRIASSIC TO PALEOZOIC)
TRPzpa PORPHYRITIC ANDESITE (TRIASSIC TO PALEOZOIC)—Andesitic flows and agglomerate, which contain abundant plagioclase phenocrysts, clasts of porphyritic andesite, and local interbedded crystal-rich tuffs
TRPzva VESICULAR ANDESITIC TO BASALTIC FLOWS (TRIASSIC TO PALEOZOIC)—Vesicular basaltic to porphyritic andesitic flows. Pillow breccias and pillow basalts occur locally near top of unit. Impure marbles containing volcaniclastic waterworked debris occur locally
TRPzhp PORPHYRITIC HORNBLENDE ANDESITE (TRIASSIC TO PALEOZOIC)—Predominantly flows, but unit includes minor amounts of pyroclastic rocks, local amygdaloidal flows, and porphyritic dacites that contain quartz and plagioclase phenocrysts
TRPzh PORPHYRITIC HORNBLENDE ANDESITE AND ARGILLITE (TRIASSIC TO PALEOZOIC)—Predominantly porphyritic hornblende andesitic flows interbedded with agillites (T P ar), but also contains andesitic pyroclastic rocks interbedded with andesitic to dacitic and rhyodacitic flows and agglomerates. Locally includes:
TRPzar Argillite—Aphanitic bedded tuff, volcaniclastic mudstones, and sandstones
TRPzap PORPHYRITIC AUGITE ANDESITE AND ANDESITIC BASALT (TRIASSIC TO PALEOZOIC)—Porphyritic andesite to basalt flows and subordinate interbedded agglomerates and breccias, minor andesitic tuff breccias, dacitic to rhyodacitic breccias, tuffs, and porphyritic flows, porphyritic basalts, and basaltic intrusives. Locally includes:
TRPzms Metasedimentary rocks—Shale, mudstone, volcaniclastic sandstones, graywacke, lithic wacke, conglomerate, waterworked cherty tuffs, minor radiolarian, recrystallized banded chert and marble

ROCKS OF SEIAD VALLEY

TRPzq QUARTZITE, METASEDIMENTARY ROCKS, MARBLES, AND INTERMEDIATE TO SILICEOUS METAVOLCANIC ROCKS (TRIASSIC TO PALEOZOIC)
TRPzv DACITIC TO ANDESITIC METAVOLCANIC ROCKS (TRIASSIC TO PALEOZOIC)—Massive to foliated, regionally metamorphosed dacitic to andesitic flows, flow breccias, agglomerate, tuffs and tuff breccia, interlayered with metasedimentary rocks, similar to T P q
TRPzu ULTRAMAFIC ROCKS (TRIASSIC TO PALEOZOIC)—Serpentinized and partially serpentinized peridotite and dunite occurring in fault zones

MELANGE OF DUTCHMANS PEAK

TRPza AMPHIBOLITE (TRIASSIC TO PALEOZOIC)—Interlayered metasedimentary and metavolcanic rocks metamorphosed to upper greenschist almandine-amphibolite facies
TRPzsp SERPENTINITE (TRIASSIC TO PALEOZOIC)—Serpentinized peridotite and dunite, local chromitite pods, lenses, and disseminations
TRPzgb GABBRO AND METAGABBRO (TRIASSIC TO PALEOZOIC)—Quartz-bearing hornblende gabbro

INTERMEDIATE AND HIGH GRADE METAMORPHIC ROCKS

CONDREY MOUNTAIN FORMATION (TRIASSIC TO PALEOZOIC)—Divided into:
TRPzcm Muscovite-quartz schist—Muscovite-quartz schist with subordinate quartz-graphite muscovite schists and rare thin layers of metachert
TRPzcc Chlorite schist—Quartz-actinolite-epidote-chlorite schist
TRPzcs Metaserpentinite—Predominantly antigorite-magnetite-brucite rocks with minor talc-magnesite schist and clinozoisite-actinolite-albite-garnet metagabbro
MAY CREEK FORMATION (PALEOZOIC)—Divided into:
Pzs Schist and quartzite—Schistose and locally gneissose rocks. Exposed in central part of the quadrangle
Pza Layered amphibolite—Foliated amphibole-rich granofels, schist, and gneiss
a AMPHIBOLITE (AGE UNKNOWN)—Composed of structurally complex amphibole schist and quartz-rich hornblende gneiss with local impure quartzite. Exposed near southwest corner of the quadrangle
bc BRIGGS CREEK AMPHIBOLITE OF COLEMAN AND OTHERS (1976) (AGE UNKNOWN)—Amphibolite, micaceous quartzite, quartz schist, and recrystallized manganiferous chert

Contact—Dotted where concealed
Fault—Dashed where inferred, dotted where concealed. Ball and bar on downthrown side
Thrust or high-angle reverse fault—Dashed where inferred, dotted where concealed. Sawteeth on upper plate
Boundary between individual coalescing volcanoes composed of rocks of the same map unit
\+ Approximate location of major volcanic vents
* Vents of cinder cones

REFERENCES

Baldwin, E. M., 1974, Eocene stratigraphy of southwest Oregon: Oregon Department of Geology and Mineral Industries Bulletin 80, 40 p.

Coleman, R. G., 1972, The Colebrooke Schist of southwestern Oregon and its relation to the tectonic evolution of the region: U.S. Geological Survey Bulletin 1339, 61 p.

Coleman, R. G., Garcia, M., and Anglin, C., 1976, The amphibolite of Briggs Creek: a tectonic slice of metamorphosed oceanic crust in southwestern Oregon?: Geological Society of America Abstracts with Program, v. 8, no. 3, p. 363.

Harper, G. D., 1980, Structure and petrology of the Josephine Ophiolite and overlying metasedimentary rocks, northwestern California: Berkeley, University of California, Ph.D. Thesis, 281 p.

Hotz, P. E., 1971, Plutonic rocks of the Klamath Mountains, California and Oregon: U.S. Geological Survey Professional Paper 684B, 20 p.

Imlay, R. W., Dole, H. M., Wells, F. G., and Peck, Dallas, 1959, Relations of certain Jurassic and Lower Cretaceous formations in southwestern Oregon: American Association of Petroleum Geologists Bulletin, v. 43, no. 12, p. 2770-2785.

Jones, D. L., 1960, Lower Cretaceous (Albian) fossils from southwestern Oregon and their paleogeographic significance: Journal of Paleontology, v. 34, p. 152-160, pl. 29, figs. 1-2.

___1969, Buchia zonation in the Myrtle Group, southwestern Oregon abs.: Geological Society of America Abstracts with Programs, Cordilleran Section Meeting, 65th, Eugene, Oreg., 1969, pt. 3, p. 31-32.

Jorgenson, D. B., 1970, Petrology and origin of the Illinois River gabbro, a part of the Josephine peridotite-gabbro complex (Upper Jurassic), Klamath Mountains, southwestern Oregon: Santa Barbara, University of California, Ph. D. Thesis, 226 p.

Koch, J. G., 1966, Late Mesozoic stratigraphy and tectonic history, Port Orford-Gold Bearch area, southwestern Oregon coast: American Association of Petroleum Geologists Bulletin, v. 50, no. 1, p. 25-71.

Page, N. J, Blair, W. N., Gray, Floyd, Cannon, J. K., Grimes, D. J., and Leinz, R. W., 1977, Preliminary reconnaissance geologic map of the Wimer quadrangle, Oregon: U.S. Geological Survey Miscellaneous Field Studies Map MF-848, scale 1:62,500.

Peck, D. L., Imlay, R. W., and Popenoe, W. P., 1956, Upper Cretaceous rocks of parts of southwestern Oregon and northern California: American Association of Petroleum Geologists Bulletin, v. 40, no. 18, p. 1968-1984.

Smedes, H. W., and Prostka, H. J., 1972, Stratigraphic framework of the Absaroka volcanic supergroup in the Yellowstone National Park Region: U.S. Geological Survey Professional Paper 729-C, 33 p.

Smith, J. G., Sawlan, M. G., and Katcher, A. C., 1980, An important lower Oligocene welded-tuff marker bed in the Western Cascade Range of southern Oregon abs.: Geological Society of America Abstracts with Programs, v. 12 p. 153.