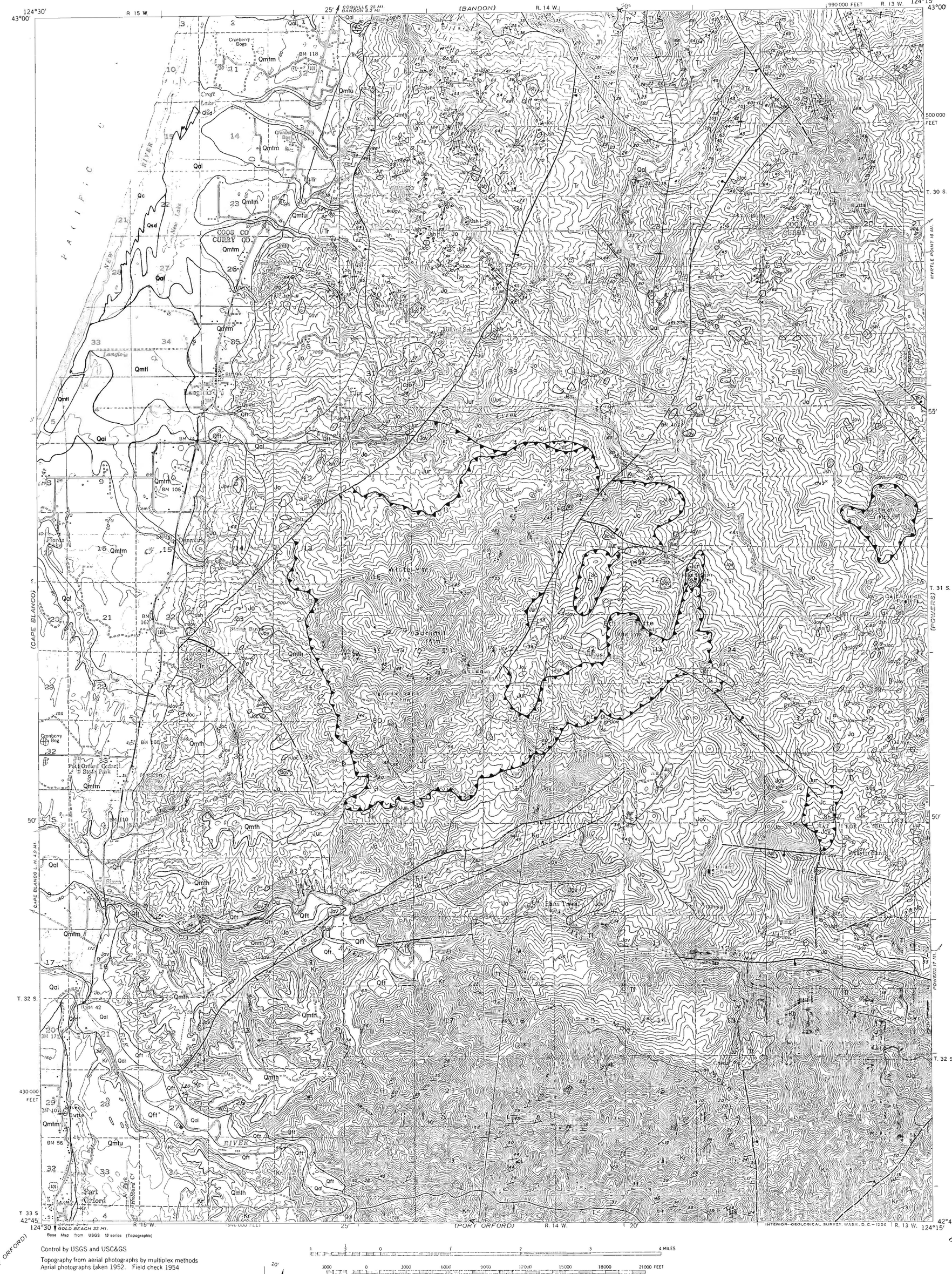
STATE OF OREGON
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
DONALD A. HULL, STATE GEOLOGIST

GEOLOGIC MAP of the LANGLOIS QUADRANGLE, OREGON



Base Map from USGS 15 series (Topographic)

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1952. Fieid check 1954

Polyconic projection. 1927 North American datum
10,000-foot grid based on Oregon coordinate system, south zone

Dashed land lines indicate approximate locations

Unchecked elevations are shown in brown

PREPARED AND PUBLISHED BY THE CARTOGRAPHIC SECTION
OF THE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
CHIEF CARTOGRAPHER, C. A. SCHUMACHER

APPROXIMATE MEAN DECLINATION, 1954
TRUE NORTH
MAGNETIC NORTH
20°

1 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET
1 5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 80 FEET
DOTTED LINES REPRESENT HALF-INTERVAL CONTOURS
DATUM IS MEAN SEA LEVEL
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE AVERAGE RANGE OF TIDE IS APPROXIMATELY 5 FEET

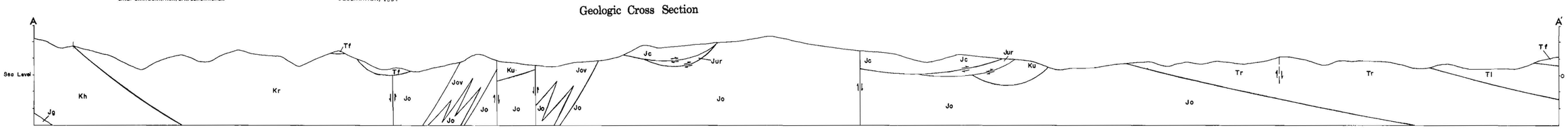
OREGON
QUADRANGLE LOCATION

INTERIOR—GEOLOGICAL SURVEY, WASH., D. C.—1956

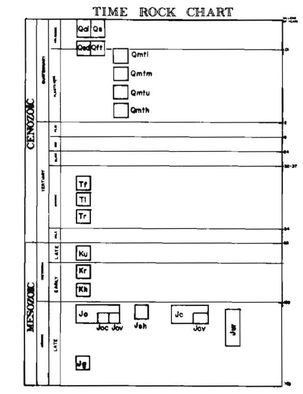
1982

Field work by R.L. Phillips, 1965-66:
R.L. Lent, 1965-1967; M.E., Brownfield, 1968, 1970-1971

Geologic Cross Section



TIME ROCK CHART



DESCRIPTION OF MAP UNITS

SURFICIAL GEOLOGIC DEPOSITS
(Age ranges of individual units overlap)

Qal — Alluvium (Holocene): Unconsolidated sand, gravel, silt, and clay in stream beds and flood plains of major drainages

Qs — Beach sand and active dune deposits (Holocene): Thin, fine- to medium-grained unconsolidated sand along the coastline; active foredunes occurring above high-water level

Qsd — Stable dune deposits (Holocene to Pleistocene): Unconsolidated, fine- to medium-grained dune sand stabilized by vegetation

Qft — Fluvial terrace deposits (Holocene to Pleistocene): Unconsolidated to semiconsolidated alluvial deposits of sand, gravel, and silt along major streams; maximum thickness about 25 ft

Qmtl — Lower marine terrace deposits (uppermost Pleistocene): Thin, poorly consolidated sand, silt, and clay occurring from sea level up to 40 ft in elevation; equivalent to Whiskey Run terrace of Griggs (1945); 0 to 30 ft thick

Qmtm — Middle marine terrace deposits (upper Pleistocene): Thin, semiconsolidated sand, silt, gravel, and clay occurring from 40 to 200 ft in elevation; equivalent to the Pioneer terrace of Griggs (1945); 0 to 40 ft thick

Qmtu — Upper marine terrace deposits (middle Pleistocene): Thick, massive, semiconsolidated sand, silt, and gravel occurring from 100 to 900 ft in elevation; possible equivalent to Seven Devils terrace of Griggs (1945); maximum thickness 200 to 300 ft

Qmth — Higher marine terrace deposits (lower Pleistocene): Thick, massive, semiconsolidated sand, silt, and gravel occurring from 250 to 1,200 ft in elevation; equivalent to higher terraces of Griggs (1945); maximum thickness 200 ft

BEDROCK GEOLOGIC UNITS

Tf — Flournoy Formation (middle to lower Eocene): Medium-gray to bluish-gray, fine- to medium-grained, fossiliferous, massive-bedded, graded sandstone; medium- to dark-gray siltstone and mudstone; dark-gray to bluish-gray basal conglomerate from 0 to 150 ft thick. Benthonic foraminiferal assemblages were assigned by Thoms (1965, 1975) to the Ulatisian (Mallory, 1959) Stage. Planktonic foraminiferal assemblages were assigned by Miles (1977) to the standard tropical Zone P10 (Blow, 1969; Berggren, 1971; Berggren and Van Couvering, 1974) of the middle Eocene. From 200 to 1,100 ft thick

Tl — Lookingglass Formation (lower Eocene): Bluish-gray, thick-bedded, graded sandstone; dark-gray siltstone and mudstone; fossiliferous calcareous concretions; abundant carbonaceous debris; minor coal; local, thin, pebbly basal conglomerate. Benthonic foraminiferal assemblages were assigned by Thoms (1965, 1975) to the Ulatisian and Penutian (Mallory, 1959) Stages. Planktonic foraminiferal assemblages were assigned by Miles (1977) to the standard tropical Zone P7-8 (Blow, 1969; Berggren, 1971; Berggren and Van Couvering, 1974) of the early Eocene. From 2,500 to 3,000 ft thick

Tr — Roseburg Formation (lower Eocene): Dark-gray, fine- to medium-grained, thin-bedded, graded sandstone; dark-gray graded siltstone and mudstone; locally coarse-grained sandstone and conglomerate. Benthonic foraminiferal assemblages were assigned by Thoms (1965, 1975) to the Penutian (Mallory, 1959) Stage. Planktonic foraminiferal assemblages were assigned by Miles (1977) to the standard tropical Zone P7-8 (Blow, 1969; Berggren, 1971; Berggren and Van Couvering, 1974) of the early Eocene. About 5,000 ft thick

Ku — Upper Cretaceous sedimentary rock (Upper Cretaceous): Light-gray to olive-gray massive sandstone; dark-gray to black graded siltstone and mudstone; minor thin limestone interbeds and nodules. Calcareous nannofossils collected in secs. 2 and 3, T. 30 S., R. 14 W., by G.A. Miles were examined by W.G. Siesser (Miles, 1977) and assigned to the Cretaceous. Unit may be equivalent to the Hunter Cove Formation. From 500 to 1,800 ft thick

Kr — Rocky Point Formation (Lower Cretaceous): Dark-gray to bluish-gray, thin- to thick-bedded, fossiliferous, graded sandstone; dark-gray graded siltstone and mudstone; fine-pebble conglomerate at the base of some graded sandstone beds; locally abundant coalified plant debris. Megafossil assemblages were assigned by D.L. Jones (1967, 1969; Lent, 1969) to the Valanginian and Berriasian Stages of the Early Cretaceous. About 8,000 ft thick

Kh — Humbug Mountain Conglomerate (Lower Cretaceous): Dark-gray, thick- to massive-bedded pebble to cobble basal conglomerate greater than 1,000 ft thick; dark-gray to bluish-gray to black, thick- to massive-bedded graded sandstone; dark-gray to black graded siltstone and mudstone; plant debris and fossils abundant in upper sandstone beds. Megafossil assemblages were assigned by D.L. Jones (1967; Lent, 1969) to the Valanginian Stage of the Early Cretaceous. About 1,200 to 1,500 ft thick in the quadrangle

Jo — Otter Point Formation (Upper Jurassic): Dark-gray to brown, massive to indistinctly bedded sandstone; minor thin- to thick-bedded graded sandstone, siltstone, and mudstone; rare conglomerate; locally extensive areas of sheared sediments. Isolated tectonic blocks of bedded chert, blueschist, and metavolcanic rock are mixed with the sedimentary rocks in a mélange terrain. Megafossil assemblages were assigned by Imlay (Koch, 1966) to the Tithonian Stage of the Late Jurassic. Minimum thickness 10,000 ft

Jov — Otter Point Formation volcanic rocks: Dark-gray to dark-green porphyritic marine basalts, keratophyres, spilites, spilitic diabases, and propylite; dark-green to brown volcanic breccia containing clasts of diorite, dacite, and diabase; gray to reddish-brown, deeply weathered tuffs and tuffaceous sediments

Joc — Otter Point Formation chert: Red, green, black, gray, and white, lenticular to spheroidal masses of chert consisting of thin rhythmic chert beds ranging in thickness from less than 1 in. to more than 5 in. are interbedded with black mudstone; locally multicolored chert breccia. Chert masses have been strongly folded. Bedded cherts contain numerous radiolaria

Jsh — Glaucophane schist and related rocks (Upper Jurassic): Isolated, resistant, tectonic blocks occurring in the Otter Point Formation mélange terrain and consisting of blue glaucophane, garnet, mica, and quartz-mica schist; locally almandine-amphibolite, greenschist amphibolite, garnet-pyroxene (eclogite), and magnesian schist occur; actinolite schist found as a rind around blueschist blocks. Many tectonic blocks that were found were too small to show at the map scale. Two periods of metamorphism are represented in the tectonic blocks (Coleman and Lanphere, 1971; Coleman, 1972). The high-temperature blueschist, amphibolites, and eclogites were metamorphosed 150 m.y. B.P. and later retrograded to low temperature during tectonic transport. Low-temperature blueschist was metamorphosed about 125 to 130 m.y. B.P. during Colebrooke Schist metamorphism. Age of two glaucophane schists in the Langlois quadrangle (Coleman and Lanphere, 1971) is 132 m.y. The age of the precursor of the metamorphosed tectonic blocks is unknown

Jc — Colebrooke Schist (Upper Jurassic): Shiny-black to silky-white, quartz-mica phyllite and schist; well-foliated sandstone and stretch-pebble conglomerate; minor metavolcanic rock. Derived from a Galice Formation-like sediment. The date of metamorphism is about 128 m.y. B.P. (Coleman, 1972), occurring during the Early Cretaceous with a Late Cretaceous or later emplacement of the thrust plates. About 1,000 to 2,000 ft thick

Jcv — Colebrooke Schist volcanic rock: Olive-green, isolated monoliths of volcanic rock (greenstone) consisting of flow rock and hypabyssal dike rock

Jur — Ultramafic rocks (Upper Jurassic?): Serpentinite; mixed peridotite and serpentinite. Peridotite is mainly harzburgite. Found as linear tectonic sheets and isolated masses in the Otter Point Formation mélange terrain; also found as soles to overriding thrust faults and along vertical faults

Jg — Galice Formation (Upper Jurassic): Light- to dark-green, highly altered, fine-grained, porphyritic flow rock; light- to dark-green pyroclastic rock. Megafossil assemblages were assigned by Dott (1966, 1971) to the early Kimmeridgian and late Oxfordian Stages of Late Jurassic. About 800 ft thick

GEOLOGIC SYMBOLS

CONTACT--Approximately located or inferred; contacts exposed only along stream beds, major roads, or logging roads

FAULT--Approximately located; dashed where inferred; bar and ball on downthrown side

THRUST FAULT--Approximately located; sawteeth on upper plate

ANTICLINE--Approximately located; showing crestline; dashed where inferred

SYNCLINE--Approximately located; showing troughline; dashed where inferred

STRIKE AND DIP OF BEDS
Inclined
Vertical
Overturned

STRIKE AND DIP OF FOLIATION

SHEAR ZONE--Approximately located

X131m.y. SAMPLE LOCATION--Age of blueschist tectonic blocks given in millions of years (Coleman and Lanphere, 1971)

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