# DEPARTMENT OF THE INTERIOR UNITED STATES GEOLOGICAL SURVEY



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by Ellen James Moore and Warren Addicott.





Tillamook, W. Yamhill and Polk

Counties

Tef

Tdb

nconformi

Tas

Taa

Toss

Toms

unconformity

Ttv \_\_\_\_\_

base not exposed

UNCONSOLIDATED DEPOSITS

OF THE TILLAMOOK UPLIFT

Stage of Addicott (1976, 1981). Informal unit of Cooper (1981) and Smith

ASTORIA FORMATION, Angora Peak member (LOWER TO MIDDLE

MIOCENE)-Massive, laminated to cross-bedded, arkosic and volcanic

sandstone, minor pumiceous-volcanic conglomerate, and subordinate

carbonaceous siltstone with thin local coal beds; sandstone contains abundant

shallow-water mollusks assignable to the Pillarian and Newportian Stages of

SCAPPOOSE FORMATION (UPPER OLIGOCENE TO MIDDLE MIOCENE)-

Thick-bedded to cross-bedded yellow to tan arkosic and tuffaceous sandstone

and mudstone, a few thin coal beds; minor basaltic conglomerate and arkosic

sandstone in upper part of formation lie unconformably over lower part and

interfinger with Columbia River Basalts (Kelty, 1981). Principal references:

Predominantly thick-bedded bioturbated tuffaceous claystone and siltstone

with a few graded volcanic sandstone beds, tuffs, and glauconitic sandstone:

(Schenck and Kleinpell, 1936), Zemorrian, and lower Saucesian Stages of

Kleinpell (1938); Mollusks are referred to Galvinian, Matlockian, and Juanian

Stages of Armentrout (1975, 1981). Informal unit of Cressy (1974) and Niem

structureless to laminated beds of arkosic to tuffaceous and glauconitic

sandstone and siltstone; very fine- to medium-grained sandstone beds are

bioturbated, concretionary, and contain thin tuff beds and abundant shallow-

foraminifers are referred to the Refugian Stage of Schenck and Kleinpell

(1936) (Moore, 1976) and coccoliths to the lower Oligocene (Bukry in Nelson, in

light gray tuffaceous claystone and siltstone; minor laminated mudstone and

some glauconitic sandstone; commonly bioturbated with abundant mollusks and

forams. The foraminiferal assemblages are referred to the upper Narizian of

(McDougall, 1975, 1980). Principal references: Schenck (1927), Warren and

Mallory (1959) and lower Refugian Stage of Schenck and Kleinpell (1936)

Rhythmically interbedded dark gray to tan mudstone and graded carbonaceous

and micaceous, feldspathic sandstone; fine-grained sandstone is laminated to

hin-bedded; unit contains deep-water foraminifera and coccoliths assigned t

calcareous nannoplankton zone (Poore and Bybell in Olbinski, 1983). Informal

the lower Refugian Stage (McDougall in Olbinski, 1983) and to the NP19-21

prep.). Principal references: Schenck (1927), Weaver (1937), Warren and

marine mollusks referrable to the Galvinian Stage of Armentrout (1975, 1981);

unit contains deep-water foraminiferal assemblages assigned to Refugian

Addicott (1976, 1981). Informal unit of Cooper (1981) and Cressy (1974).

Warren and others (1945), Warren and Norbisrath (1946).

and Van Atta (1973).

Norbisrath (1946).

Norbisrath (1946).

Tow MUDSTONE OF OSWALD WEST (UPPER EOCENE TO LOWER MIOCENE)-

Tpb PITTSBURG BLUFF FORMATION (UPPER EOCENE TO OLIGOCENE)-Thick

Tk KEASEY FORMATION (UPPER EOCENE)—Predominantly thick, structureless,

Tkv KEASEY FORMATION, Vesper Church member (UPPER EOCENE)-

unit of Olbinski (1983) and Nelson (in Prep.)

Exposed on northwest flank of Tillamook highlands.

sands in coastal areas.

Tertiary mudstone units.

Tfs

Taa

# PRELIMINARY GEOLOGIC MAP OF THE WEST HALF OF THE VANCOUVER (WA.-ORE.) $1^{\circ} \times 2^{\circ}$ QUADRANGLE, OREGON

R.E. Wells, A.R. Niem, N.S. MacLeod, P.D. Snavely, Jr., and W.A. Niem

1983

### CORRELATION OF ROCK UNITS

of Snavely and others, (1973).

Stages of Kleinpell (1938).

arkosic sandstone.

written communication (1956).

laterally with upper Eocene Nestucca Formation.

basalt flows; see previous detailed description of unit.

fine sandstone; see previous detailed description of unit.

Toem MARINE SEDIMENTARY ROCKS (OLIGOCENE AND UPPER EOCENE)-

Toms SANDSTONE AND CONGLOMERATE (MIOCENE OR OLIGOCENE)-Thick-

Massive to thin-bedded tuffaceous siltstone; interbeds of arkosic fine-grained

sandstone and minor glauconitic sandstone primarily near base of unit:

foraminiferal assemblages are assigned to Zemorrian and upper Refugian

TURBIDITE SANDSTONE (OLIGOCENE)-massive micaceous, tuffaceous

micaceous, carbonaceous arkosic sandstone in middle part of Toem sequence

arkosic sandstone and medium-bedded, flaggy, graded beds (turbidite) of

foraminifers are assigned to the lower Zemorrian stage of Kleinpell (1938) (W.

bedded to massive, fine to coarse-grained arkosic, lithic sandstone and

pumiceous pebble-bearing arkosic conglomerate north of Garibaldi; includes

some massive to thin-bedded tuffaceous siltstone and rhythmically bedded

BASALTIC SANDSTONE OF PACIFIC CITY (UPPER EOCENE)-Massive to

thick-bedded, gritty to coarse-grained basaltic sandstone, contains interbeds of

siltstone and tuff; in places cobble and boulder conglomerate derived from

basalt of Casade Head occur at base of sandstone unit: foraminifers are

assigned to the Refugian Stage of Schenck and Kleinpell (1936), W. W. Rau,

BASALT OF CASCADE HEAD (UPPER EOCENE)-Subaerial porphyritic fine-

grained basalt and flow breccia, basaltic andesite and rare biotite dacite flows

(M. Barnes, 1981); near vent breccias with basalt splatter accumulations and

bombs occur locally: extrusive breccia with abundant clasts of siltstone and calcareous nodules derived from underlying Nestucca Formation occur at base

of unit; thin-bedded tuff and lapilli-tuff interbedded with some flows,

numerous basalt feeder dikes cut sequence; volcanic sequence intertongues

see previous detailed description of unit.

W. Rau, written communication 1968).



contain a foraminiferal fauna referred to the Ulatisian Stage of Mallory 1959); nannofossils from thick siltstone interbed are assigned a lower middle Eocene age by Bukry (personal communication, 1983). Tdb DEPOE BAY BASALT (MIDDLE MIOCENE)—Submarine and subaerial tholeiitic YAMHILL-TYEE FORMATION, UNDIVIDED (MIDDLE EOCENE)-Interfingering tuffaceous siltstone and arkosic turbidite sandstone. ASTORIA FORMATION, Silver Point member of Cooper (1981) (MIDDLE MIOCENE)-Thin-bedded, laminated, micaceous, carbonaceous siltstone and SILETZ RIVER VOLCANICS (LOWER AND MIDDLE EOCENE)-Pillow flows, tuff-breccias, massive flows and sills of tholeiitic and alkalic basalt; unit pervasively zeolitized and veined with calcite; upper part of sequence contain ASTORIA FORMATION, Angora Peak member of Cooper (1981) (MIDDLE MIOCENE)-Marine arkosic to volcanic micaceous, carbonaceous sandstone; numerous interbeds of basaltic siltstone, sandstone, and locally derived basalt conglomerate, thick beds of basaltic tuff, and rare fossiliferous, calcareousrich beds; these accumulations of volcanic rocks are interpreted as volcanic

islands or seamounts that rest on oceanic crust (Snavely and others, 1968); foraminiferal assemblages are referred to the Ulatisian and Penutian Stages of Mallory (1959); K-Ar ages from the Siletz River Volcanics in the map area range from 51.7 ± 1.0 m.y. to 56.0 ± 1.5 m.y. (Duncan, 1982). SUBMARINE BASALT (EOCENE)-Pillow basalt and submarine basalt breccia and lapilli breccia and intrusive rock, fresh to altered, aphyric to plagioclasephyric; exposed beneath Nestucca Formation in southern part of map area; i places fresh black basalt looks like submarine facies of Tillamook Volcanics; in other places basalt is sheared, altered, zeolitized, and veined with calcite similar to Siletz River Volcanics. INTRUSIVE ROCKS Ticf INTRUSIVE CAPE FOULWEATHER BASALT (MIDDLE MIOCENE)-Sparselv to abundantly plagioclase phyric tholeiitic basaltic sills and dikes: magnetic

polarity is normal and chemistry is equivalent to the Frenchman Springs flows of the Columbia River Plateau (Snavely and others, 1973; Swanson and others, Tidb INTRUSIVE DEPOE BAY BASALT (MIDDLE MIOCENE)-Aphanitic to microphyric tholeiitic basaltic sills and dikes; some gabbroic and peperitic basaltic intrusions: normal and reverse polarities: high-Mg and low-Mg chemical varieties are similar to Grande Ronde flows of the Columbia River Plateau (Snavely and others, 1973: Swanson and others, 1979): K-Ar dates range from 14 ± 2.7 m.y. (Turner, 1970) to 15.9 ± 0.3 m.y. (Niem and Cressy, Tig GRANOPHYRIC GABBRO (OLIGOCENE)-Sills and dikes of massive gabbro composed largely of plagioclase, ferroaugite, iron-rich olivine and quartzalkali feldspar intergrowths; in places strongly different-iated, forming pegmatitic gabbro and granophyre.

intrusive bodies of barkevikite, augite, or biotite camptonite, commonly porphyritic but may be aphyric; K-Ar ages of 32.6 ± 1 m.y. and 33.6 ± 1.7 m.y. reported for intrusions in Euchre Mt. quadrangle to south (Snavely and others, Ticm INTRUSIVE BASALT OF COUGAR MOUNTAIN (LATE EOCENE OR OLIGOCENE?)-Thick sills and dikes of altered vesicular, amygdaloidal, and plagioclase phyric basalt; locally pillowed and brecciated at base; secondary chert and quartz fill interstices between pillows; may include some flows.

Tic CAMPTONITE INTRUSIVE ROCK (LOWER OLIGOCENE)-dikes and irregular

Informal unit of Rarev (in Prep.) and Mumford (in Prep.).

Ti TERTIARY INTRUSIVE ROCKS (EOCENE TO MIOCENE)-Primarily sills and dikes of aphanitic to coarse-grained, aphyric to augite and plagioclase-phyric basalt; includes intrusions in the upper part of the Siletz River Volcanics of middle to late Eocene age and intrusions of late Eocene, Oligocene and middle Miocene age, mostly in the marine sedimentary sequence.

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---- contact approximately located, queried where uncertain, \_\_\_\_\_ on down thrown side 

Fault approximately located queried where uncertain, ball Fault with observed strike slip displacement, arrows show Folds showing inferred trace of axial plane and direction of plunge 

The Oregon Department of Geology and Mineral Industries is publishing this map because the subject matter is consistent. with the mission of the Department. To facilitate timely distribution of information, camera-ready copy submitted by the authors has not been edited by the staff of the Oregon Department of Geology and Mineral Irdustries.

> This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade names is for descriptive purposes only and does not imply

endorsement by the USGS.