Geologic Map of the Huntington and Part of the Olds Ferry Quadrangles, Baker and Malheur Counties, Oregon

1979

By Howard C. Brooks

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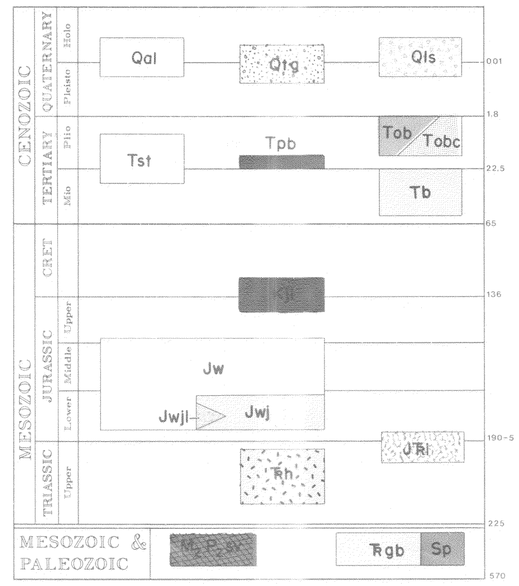
GEOLOGIC TIME ROCK CHART

Age in Millions of Years



EXPLANATION

Qal — **Alluvium:** *Mainly valley fill and recent stream-channel deposits consisting of unconsolidated silt, sand, and gravel*

Qls — **Landslide debris:** *Bedrock failure on oversteepened slopes; typified by hummocky topography*

Qtg — **Terrace and fan deposits:** *Unconsolidated, generally nonbedded and poorly sorted deposits of gravel, cobbles, boulders, clay, silt, and sand occurring topographically above the present flood plains*

Tob — **Basalt:** *Mostly thin, gently dipping flows of olivine-bearing gray to black basalt and basaltic andesite*

Tobc — **Small mafic volcanic centers:** *Probably the source of* **Tob** *flows*

Tpb — **Basalt:** *Mostly basalt flows. Locally includes water-laid basaltic tuff and breccia, mudflow deposits, and tuffaceous sedimentary rocks. Platy flow structure is a common feature of most of the basalt. Some of the basalt, especially in secs. 34 and 35, T. 12 S., R. 44 E., and secs. 2 and 3, T. 13 S., R. 44 E., is very fine grained and exhibits a peculiar spheroidal jointing. Rocks of this unit interfinger with sedimentary rocks of unit* **Tst**

Tst — **Tuffaceous lake and stream deposits:** *Poorly to moderately well-consolidated, bedded deposits of clay, silt, and sand with intermixed and interbedded silicic ash and pumice. Locally contains gravel deposits; silicic welded and nonwelded ash-flow tuff; palagonite tuff; and minor rhyolite flows, basalt flows, and mudflow deposits. Silicic glass commonly is altered to secondary silica minerals, alkali feldspar, zeolites, and clay minerals. Vertebrate and plant fossils found in correlative rocks elsewhere indicate the unit is mostly early Pliocene (Clarendonian) age, but some rocks of late Miocene (Barstovian) age are included. Overlies basalt flows of unit* **Tb** *in most places but interfingers with* **Tb** *locally*

Tb — **Basalt:** *Dark-gray to black, locally reddish- and dark greenish-gray, chiefly flow-on-flow basalt. Includes thin interbeds of poorly to semiconsolidated tuffaceous sedimentary rocks including gravel rich in rounded fragments of pre-Cenozoic rocks. Flows range from 3 to 25 m in thickness; flow tops commonly are scoriaceous; platy jointing and columnar jointing are prominent features locally. Clay minerals, zeolites, calcite, common opal, and chalcedony are alteration products in fractures and open spaces. Miocene age based on stratigraphic position and lithologic similarity to basalt flows of the Columbia River Basalt Group elsewhere*

Rgb — **Intrusive rocks:** *Light-colored, medium-grained hornblende and biotite quartz diorite and granodiorite. The rocks postdate regional metamorphism of the Weatherby Formation and older rocks in the region and are related to the Bald Mountain and Wallowa Batholiths, which have been dated radiogenically as Late Jurassic-Early Cretaceous age*

Jw — **Weatherby Formation**[1]**:** *Mostly wacke, siltstone, and argillite, with less abundant phyllite, slate, conglomerate, arkosic sandstone, tuff, limestone, gypsum, and anhydrite. Typical colors are tan, light gray, and olive green. Pervasive shear cleavage generally trends northeast and dips steeply, obscuring bedding features in most exposures. Fossil ammonites identified by Ralph Imlay (written communication, April 25, 1974) indicate Early and Middle Jurassic (early Sinemurian to late Bajocian) age in the map area. Beds of early Callovian age occur near Mineral, Idaho, 6 mi east of the Snake River*

Jwj / Jwjl — **Jet Creek Member of Weatherby Formation**[1]**:** *Red and green pebble and cobble conglomerate, wacke, and siltstone; also massive and thin-bedded limestone, calcareous siltstone, arkosic sandstone, and minor gypsum and anhydrite. Some of the limestone bodies are separately mapped (***Jwjl***). Fossil ammonites indicate Early Jurassic (early Sinemurian to late Pliensbachian) age (Ralph Imlay, written communication, April 25, 1974)*

Rh — **Huntington Formation**[1]**:** *Predominantly volcanic agglomerate, tuff, and flows intercalated with coarse volcaniclastic breccia and conglomerate. Also volcanic graywacke, volcanic arenite, water-laid tuff, volcanic siltstone, and minor limestone. The volcanic rocks range in composition from basalt to rhyolite; andesite is most abundant. The fine-grained sedimentary rocks typically form bedded sequences ranging from a few meters to a few hundred meters thick. The assemblage includes dikes, sills, and irregular shallow intrusive bodies that are difficult to distinguish from flow rocks. The rocks have been metamorphosed to the zeolite and greenschist facies of regional metamorphism. Fossil ammonites and Halobia indicate late Karnian to late middle Norian (Late Triassic) age (N. J. Silberling, written communication, 1968)*

JTri — **Intrusive rocks:** *Two small plutons are represented, one in the SW ¼ of T. 13 S., R. 45 E., the other in the SW ¼ of T. 14 S., R. 44 E. The pluton in the SW ¼ of T. 13 S., R. 45 E., is made up mostly of light-colored, medium- to coarse-grained, equigranular quartz diorite. Hornblende and biotite are altered to chlorite. Some rocks are porphyritic, and some contain very little quartz. The pluton is cut by a multitude of andesitic sills and dikes ranging up to about 5 m in thickness. Rounded fragments of this or a similar pluton occur in Early Jurassic (Pliensbachian) conglomerate in the SW ¼ sec. 30, T. 13 S., R. 45 E. The pluton in the SW ¼ of T. 14 S., R. 44 E., is mostly quartz monzonite. Major constituents are orthoclase, oligoclase, and quartz. Chloritized hornblende and biotite are present locally. Generally the orthoclase is pink. Large areas of the body are hydrothermally altered: the orthoclase and oligoclase are sericitized; ferromagnesian minerals are altered to clay and iron oxide minerals. Both plutons may correlate with intrusives in the Cuddy Mountain area in Idaho from which radiometric ages of 190 to 215 m.y. have been reported*

MzPzsv — **Foliated sedimentary and volcanic rocks:** *Phyllite, metachert, greenstone, greenschist, and minor slate, conglomerate, and marble. Similar rocks in the Burnt River Schist and Elkhorn Ridge Argillite in the Baker and Sumpter quadrangles probably are mostly Permian in age*

Rgb Sp — **Mafic and ultramafic rocks:** *Chiefly gabbro which has been altered to the greenschist and amphibolite facies of regional metamorphism. Some serpentinized ultramafic rocks are separately mapped (***Sp***). Generally, the rocks have been sheared, and most external contacts are faults. The rocks are related to the Canyon Mountain Complex of pre-Late Triassic, possibly pre-Permian, age. Bodies enclosed in younger rocks have been emplaced by faulting or gravitational sliding*

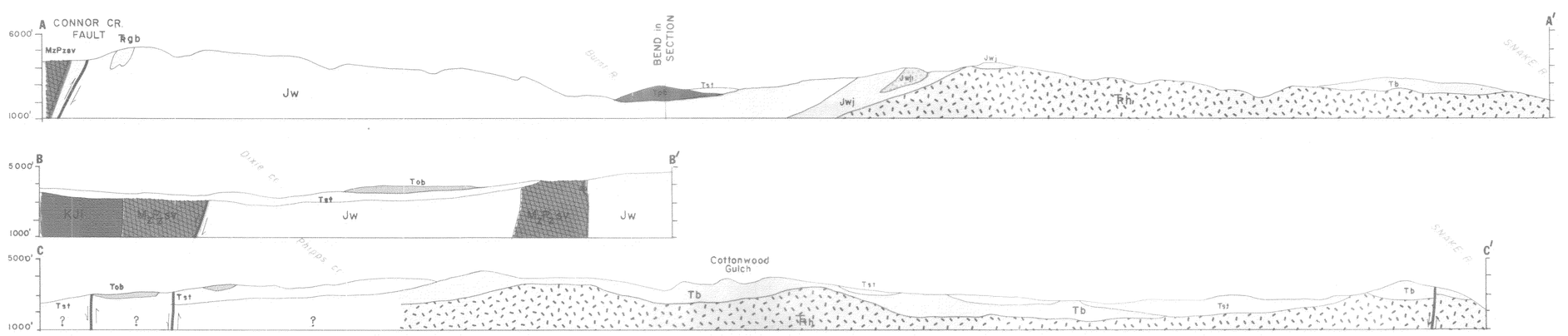
[1]NEW STRATIGRAPHIC NAMES

Weatherby Formation: Named herein for a railroad siding in the canyon of Burnt River in sec. 30, T. 12 S., R. 44 E. Although the formation is well exposed on the slopes of Burnt River near Weatherby, the better exposures along the Snake River road in Tps. 12 and 13 S., R. 45 E., are designated the type section. (The unit is named "Weatherby" because the name "Snake River" is preoccupied as a stratigraphic name.) Thickness of the formation in the map area may possibly be as great as 7,000 m but cannot be estimated with confidence because the lithology does not vary significantly throughout the exposure belt. fossil controls are scarce, and pervasive shear cleavage has obscured evidence of the amount of structural compression the rocks have undergone. The formation is unconformable with the underlying Huntington Formation in the southeastern part of the mapped area and is separated from unnamed Paleozoic and Triassic rocks to the north by the Connor Creek Fault. Exposures of these rocks in the Ironside Mountain quadrangle were called the Rastus Series (Lowry, unpublished), but the name has not been formally adopted

Jet Creek Member of Weatherby Formation: Named herein for typical exposures near the head of Jet Creek in secs. 16, 17, 18, 19, and 20, T. 13 S., R. 45 E., on both sides of the divide between Snake River and Burnt River. Rocks of the member are well exposed, also, in the vicinity of Limestone Butte in sec. 30, T. 14 S., R. 44 E., and upper Phipps Creek in sec. 3, T. 15 S., R. 43 E. The section in the Jet Creek locality has an estimated thickness of about 250 m. Because the upper and lower contacts are obscured by landsliding, exact thickness measurements are not possible. In the Jet Creek and Limestone Butte localities, the Jet Creek Member rests unconformably on upper Triassic volcanic and volcaniclastic rocks of the Huntington Formation and intergrades laterally with the lower part of the Weatherby Formation. The conglomerate is made up largely of volcanic rock fragments which probably came from the underlying Huntington Formation

Huntington Formation: Named herein for the town of Huntington, Oregon, in the east-central part of the Huntington quadrangle. Type locality is along Burnt River and Snake River east and northeast of Huntington in Tps. 13 and 14 S., Rs. 44 and 45 E., where the section probably is not less than 3,000 m and may be more than 6,000 m thick. A closer estimate of thickness is precluded by repetitious lithologies, facies changes, and abundant structural disruptions throughout the section. An angular unconformity separates the Huntington Formation from the overlying Lower Jurassic Jet Creek Member of the Weatherby Formation in the southeastern part of the map area. The base of the Huntington Formation is not exposed

Geologic Cross Sections



GEOLOGIC SYMBOLS

- Contact
- Fault — Dashed where inferred or concealed
- Strike and dip of beds or lava flows
- Strike of vertical beds or lava flows
- Strike and dip of cleavage
- Strike of vertical cleavage
- F — Fossil locality