



DESCRIPTION OF MAP UNITS

ALLUVIAL DEPOSITS--Unconsolidated sand, gravel, and silt in channels and flood plains of present streams

LANDSLIDE DEPOSITS -- Crudely stratified, heterogeneous mixtures of soil, debris, and angular rock fragments ALLUVIAL FAN DEPOSITS--Unstratified, heterogeneous mixtures of subrounded to angular rock fragments with a matrix of sand- to clay-size grains

ALLUVIAL TERRACE DEPOSITS--Unconsolidated sand, gravel, and silt; forms terraces from 0-40 feet above the present stream grade; locally includes tailings and recent flood plain

OLDER TERRACE DEPOSITS--Unconsolidated sand, gravel, and silt forming terraces 40-200 feet above the present

PEARCHED RIVER GRAVELS--Unconsolidated sand and gravel occurring more than 200 feet above the present stream grade; commonly lacking terrace forms

QUARTZ DIORITE--Fine- to medium-grained, granular, deeply weathered, poorly exposed hornblende-pyroxene-biotite quartz diorite. Plagiculase, the dominant phase, is commonly saussuritized; hornblende often replaces pyroxene. Hotz (1971) reported a 136 m.y. K-Ar date on hornblende from the

METAVOLCANIC ROCKS--Fine-grained foliated tuffs or flows in the western half of the quadrangle; light- to dark-green, locally foliated flows, fragmental volcanic and tuffaceous rocks that were presumably deposited upon and preserved in fault blocks generally of andesitic composition to the east. Flows contain remnant plagioclase phenocrysts

SHALE--Black gray-weathering shales possibly with abundant volcanic debris

SHALES AND MUDSTONE-Thinly bedded, black, gray-weathering shale, mudstone, and sandstone with minor amounts of fragmental volcanic rocks and tuff

ANDESITIC VOLCANIC ROCKS--Andesitic flows, tuffs, agglomerates, and breccias with altered plagioclase and clinopyroxene phenocrysts in a fine-grained microlitic, chloritized flow matrix; locally hornblende is a major constituent of some tuffs; actinolite and clinozoisite veins common; previously assigned to the

MUDSTONES AND SHALES--Black to dark-gray mudstones and shales forming lenses in the andesitic volcanic rocks MUDSTONES AND SHALE OF GALICE FORMATION--Dark-gray to black, fine-grained, thinly layered mudstones and shales; some interbeds of sandstone and grit; locally fossiliferous containing <u>Buchia</u> concentria

HORNBLENDE-BEARING TUFFS--Fine- to coarse-grained massively bedded tuffs, breccias, and agglomerates; locally interlayered with altered basalt flows; major mineral constituents are phenocrysts of actinolite after hornblende, and altered plagioclase in a chloritized matrix

MUDSTONES AND SHALES--Black to dark-gray shales and mudstones interbedded in the hornblende-bearing tuffs; may contain a high proportion of volcaniclastic material

RHYODACITE FLOWS AND BRECCIA--Light-gray, frequently foliated rhyodacite flows and breccia composed essentially of altered plagioclase and quartz with accessory chlorite and epidote; rare clinopyroxene phenocrysts that alter to actinolite. Volcanic textures ranging from flow to spherulitic and perlitic

PYROXENE-BEARING VOLCANIC BRECCIAS--Pyroxene-bearing volcanic breccia, tuff breccias containing clasts of andesitic flows; some interlayered basalt and rhyolite flows; poorly exposed along Cow Creek road in northwest corner of the quadrangle; generally altered to low-grade greenschist or prehnite-pumpellite

OPHIOLITE ASSEMBLAGE

METAVOLCANIC AND SHALLOW INTRUSIVE ROCKS--Basalt flows, flow breccias, and agglomerates; contains gabbro, diabase, and metagabbro dikes and sills; rocks are generally deeply weathered and textures and structures rarely preserved; rocks probably of basaltic composition and spatially related to other rocks of the ophiolite assemblage

MAFIC DIKES AND DIKE COMPLEXES -- Ophitic to subophitic rocks with dike- and sill-like characteristics; locally consists of 1- to 2-meter dikes intruding one another with subparallel chilled contacts; symbol used in areas of metavolcanic and shallow intrusive rocks where there are numerous dikes and sills;

GABBRO AND METAGABBRO--Layered and massive gabbroic rocks, predominantly clinopyroxene rich, locally strongly amphibolitized local cataclastic textures; locally includes mafic dikes

SERPENTINITE--Serpentinized peridotite and dunite with local concentrations of chromite; includes some gabbro metagabbro, mafic dikes, and amphibolite derived from mafic dikes

LAYERED AMPHIBOLITE--Foliated amphibole-rich rocks containing amphibole, quartz, plagioclase, garnet, and biotite; isoclinally folded; parent rocks probably andesitic to basaltic volcanic rocks with relatively thin interlayered fine-grained volcaniclastic rocks

Contact--Approximately located or inferred; dashed where based solely on photogeology

Fault--Approximately located, inclined dip; dashed where inferred from photographic interpretation; dotted

Thrust or high-angle reverse fault--Approximately located; inclined dip; dashed where inferred; teeth on

Strike and dip of beds Inclined

Vertical Shear zone

SOURCES OF DATA AND ACKNOWLEDGMENTS

Extensive use was made of geologic mapping by Diller and Kay (1924) and Wells and Peck (1961) to formulate traverses and as background information for mapping. About four man months were spent by Page, Johnson, Gray, Cannon, and Blair in the Glendale quadrangle during the summers of 1974 and 1975. During that time a bedrock geologic map was prepared on the basis of traverses along accessible roads, short foot traverses, and interpretation of aerial photographs and rock samples were collected for geochemical analysis, thin sections, and other laboratory studies. Barry Moring prepared a map of Quaternary units based on aerial photographic interpretation. Users of this report should keep in mind the short time spent in the field.

Diller, J. S., and Kay, G. F., 1924, Riddle folio, Oregon: U.S. Geol. Survey Geol. Atlas Folio 218.

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

Wells, F. G., and Peck, D. L., 1961, Geologic map of Oregon west of the 121st meridian: U.S. Geol. Survey Misc. Geol. Inv. Map I-325, scale 1:500,000.

Wells, F. G., and Walker, George W., 1953, Geologic map of the Galice quadrangle, Oregon: U.S. Geol. Survey Geol. Quad. Map [GQ-25], scale 1:62,500.

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.

PRELIMINARY RECONNAISSANCE GEOLOGIC MAP OF THE GLENDALE QUADRANGLE, OREGON

by