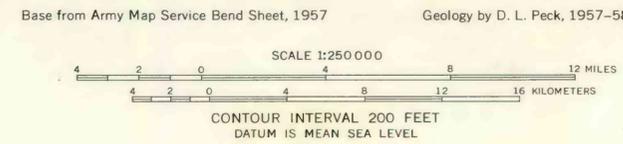


- BEDED ROCKS**
- Qal Alluvium
  - Ql Loess
  - QTb, QTp, QTs Basalt
  - Td Dalles Formation
  - Tcr Columbia River Basalt
- QUATERNARY**
- TERTIARY OR QUATERNARY**
- TERTIARY**
- Eocene**

- EXPLANATION**
- John Day Formation**
- Tj, tuff, lapilli tuff, and rhyolitic ash-flow sheets
  - Tji, member I, tuff overlying weakly welded rhyolite ash-flow sheet that contains abundant dark angular lapilli in a "salt-and-pepper" matrix
  - Tjh, member H, tuff overlying moderately welded porous-textured rhyolite ash-flow sheet
  - Tjg, member G, tuff overlying strongly welded rhyolite ash-flow sheet that contains 10 to 20 percent phenocrysts, mostly of sanidine and quartz
  - Tjf, member F, tuff and overlying thin weakly welded rhyolite ash-flow that contains abundant chalcedony-filled spherulites (thunder-eggs)
  - Tje, member E, strongly welded rhyolite ash-flow sheet that contains abundant lithophysae and traces of phenocrysts
  - Tjd, member D, tuff
  - Tjc, member C, rhyolitic flows and domes; rhyolite contains about 2 percent phenocrysts that weather to give the rock a spotted appearance
  - Tjb, member B, trachyandesite flows
  - Tja, member A, strongly welded rhyolite ash-flow sheets and tuff; rhyolite of basal sheet contains about 5 percent phenocrysts, chiefly quartz, sanidine, and oligoclase
- Units Tja, Tjd, Tje, Tjf, Tjg, Tjh, Tji, shown only on inset map**
- Clarno Formation**
- Tcl Tuff, volcanic breccia, and flows; mostly of andesitic composition; a thin layer of red-hued saprolite typically occurs at the top of the formation

- PRE-TERTIARY**
- pT Metamorphic rocks
  - Slate and less abundant graywacke, chert-granule conglomerate, and meta-andesite
- TERTIARY**
- Tt Trachyandesite plug
  - Tr Rhyolite plugs
- CONTACTS**
- Contact
  - Fault
  - Axis of anticline, showing plunge
  - Axis of syncline, showing plunge
- SYMBOLS**
- Strike and dip of beds
  - Horizontal beds
  - Strike and dip of cleavage
  - Location of chemically analyzed samples
  - Fossil plant locality
  - Fossil vertebrate locality



RECONNAISSANCE GEOLOGIC MAP OF THE ANTELOPE-ASHWOOD AREA, AND GEOLOGIC MAP AND SECTION OF THE AREA BETWEEN WILLOWDALE AND ASHWOOD, NORTH-CENTRAL OREGON