Department of the Interior
U. S. Geological Survey

Open-File Report 81-658
SHEET 1 OF 2

## DESCRIPTION OF MAP UNITS

Qa ALLUVIUM (HOLOCENE)--Poorly sorted and unconsolidated conglomerate, gravel, and sand; deposited as alluvial fans, and in active streams and dry washes.

Qts TALUS AND SLOPEWASH (HOLOCENE)--Deposits on steep talus slopes composed primarily of quartzite blocks, and unsorted slopewash ~~primarily~~ on lower slopes of the range.

Qls LANDSLIDE DEPOSITS (HOLOCENE AND PLEISTOCENE)--Disaggregated material forming hummocky terrane, generally at low elevations along the range fronts.

Qb GRAVEL BEACHES AND BARS (HOLOCENE AND PLEISTOCENE)--Beach and bar complexes formed in Lake Bonneville; well sorted, rounded, cobble and pebble conglomerate with no matrix material.

Ql BONNEVILLE LAKE DEPOSITS (HOLOCENE AND PLEISTOCENE)--Tan sand and silt, and white calcareous clay; forms veneers over older alluvial surfaces.

Qoa OLDER ALLUVIUM (PLEISTOCENE)--Poorly sorted sand and conglomerate, commonly with white quartzite boulders at the surface. Forms terraces and pediment surfaces.

Tqp QUARTZ PORPHYRY (MIOCENE OR OLIGOCENE)--Dikes containing subhedral quartz, plagioclase, and potassium feldspar phenocrysts in aphanitic, pale-gray groundmass.

Kgb GRANODIORITE OF BETTRIDGE CREEK AREA (CRETACEOUS(?))--Light-gray, medium-grained, biotite-hornblende granodiorite. Weakly foliated. Radiometric age of 91 m.y. on hornblende (K-Ar) is minimum age of pluton (Hoggatt and Miller, in press).

Kg GRANODIORITE DIKES (CRETACEOUS(?))--Biotite ± hornblende granodiorite, commonly with dark-gray aphanitic groundmass. Dikes are widespread in the metamorphic rocks and closely resemble satellitic dikes of the granodiorite of Bettridge Creek area.

Jg MUSCOVITE SYENOGRANITE (JURASSIC(?))--White, muscovite-biotite syenogranite and pegmatite. Recrystallized and foliated, and forms dikes nearly concordant with foliation in enclosing metamorphic rocks. Minimum age of 56 m.y. on the basis of K-Ar on muscovite (Hoggatt and Miller, in press).

IPe ELY LIMESTONE (MIDDLE AND LOWER(?) PENNSYLVANIAN)--Brown and gray, medium- to thick-bedded, fossiliferous, calcareous rocks, such as argillaceous, sandy, dolomitic, cherty, and bioclastic limestone, and dolomite.

Mcd CHAINMAN AND DIAMOND PEAK FORMATIONS, UNDIFFERENTIATED (MISSISSIPPIAN)--Interbedded dark-gray or black shale, impure limestone, sandstone, and conglomerate. Conglomerate clasts are quartzite and chert, as much as 8 cm in diameter, and are supported in an arkosic matrix.

Dg GUILMETTE FORMATION (UPPER AND MIDDLE DEVONIAN)--Light- to medium-gray, thick-bedded and laminated, cliff-forming limestone.

Ds SIMONSON DOLOMITE(?) (MIDDLE DEVONIAN)--Thick, alternating light and dark units of carbonate rock consisting mainly of dark-gray limestone, silty limestone, and dolomite. Fossiliferous and cherty.

Ofh FISH HAVEN DOLOMITE (UPPER ORDOVICIAN)--Massive, black to medium-gray, crystalline dolomite. Generally highly fractured.

Oe EUREKA QUARTZITE (UPPER AND MIDDLE ORDOVICIAN)--White to bluish gray or charcoal-gray, well-sorted, pure quartzite. Highly fractured in most exposures.

Ol LEHMAN FORMATION (MIDDLE ORDOVICIAN)--Brown and gray, sandy and silty limestone with interbeds of dark dolomite.

Ok KANOSH SHALE (MIDDLE ORDOVICIAN)--Green and brown, calcareous shale, with thin interbeds of gray limestone.

Ogc GARDEN CITY FORMATION (LOWER ORDOVICIAN)--Cliff-forming, dark-gray and bluish-gray, bedded limestone and brown, shaly limestone; locally bioclastic or chert-bearing.

€l LIMESTONE (UPPER CAMBRIAN(?))--Dark blue-gray and medium-gray, fine- to medium-grained limestone with silt partings and zones of ooids and/or shelly material. Lithologically similar rocks underlie the Upper Cambrian Dunderburg Shale 4 km south of Pilot Peak.

€m MARBLE (MIDDLE CAMBRIAN(?))--White to light-gray and tan, slightly micaceous marble and schistose marble, with uncommon interbedded calcareous schist and quartzite. Coarsely crystalline and foliated. Forms white slopes.

€p PIOCHE FORMATION OF HINTZE AND ROBISON (1975) (MIDDLE AND LOWER CAMBRIAN)--Dark-gray and dark-brown, graphitic schist with interbedded dark-gray limestone marble.

€pq Quartzite member (Middle and Lower(?) Cambrian)--Interbedded impure marble, calcareous schist, and calcareous quartzite. The unit is thin- to medium-bedded; brown, tan, and green; and recrystallized and foliated.

€Zpm PROSPECT MOUNTAIN QUARTZITE (RESTRICTED) OF MISCH AND HAZZARD (1962) (LOWER CAMBRIAN AND PROTEROZOIC Z)--Thick unit of prominently bedded and cross-laminated, white and light-gray metaquartzite. Thin, dark schist beds near top and base. Generally contains a small percentage of feldspar and mica grains.

MCCOY CREEK GROUP OF MISCH AND HAZZARD (1962) (PROTEROZOIC Z)--Definition of Units G to C generally follows Woodward (1967).

Zg UNIT G--Gray and green metasiltstone, calcareous metasiltstone, and calcite marble.

Zgc Conglomerate member--Interbedded phyllite, metasiltstone, and quartzite conglomerate. Conglomerate is poorly sorted and contains quartz pebbles in arkosic matrix.

Zf UNIT F--Cliff-forming, light-gray, well-bedded, generally cross-laminated, quartzite. Poorly bedded and generally conglomeratic near base and top.

Ze UNIT E--Brown, laminated, phyllite and metasiltstone.

Zd UNIT D--Poorly bedded to massive metaquartzite and conglomerate; generally gray, poorly sorted and feldspathic.

Zc UNIT C--Laminated, yellow-green and silvery brown phyllite, slate, and metasiltstone.

Zb UNIT B(?)--White or gray, laminated, coarsely crystalline calcite marble; locally slightly micaceous or quartzose.

Za UNIT A(?)--Interbedded flaggy metaquartzite, conglomerate, schistose quartzite, and schist.

Zas Schist member--Pale-green, crenulated, coarsely crystalline, tremolite/actinolite schist; brown, quartzose schist; and metadiorite(?) gneiss.

## REFERENCES

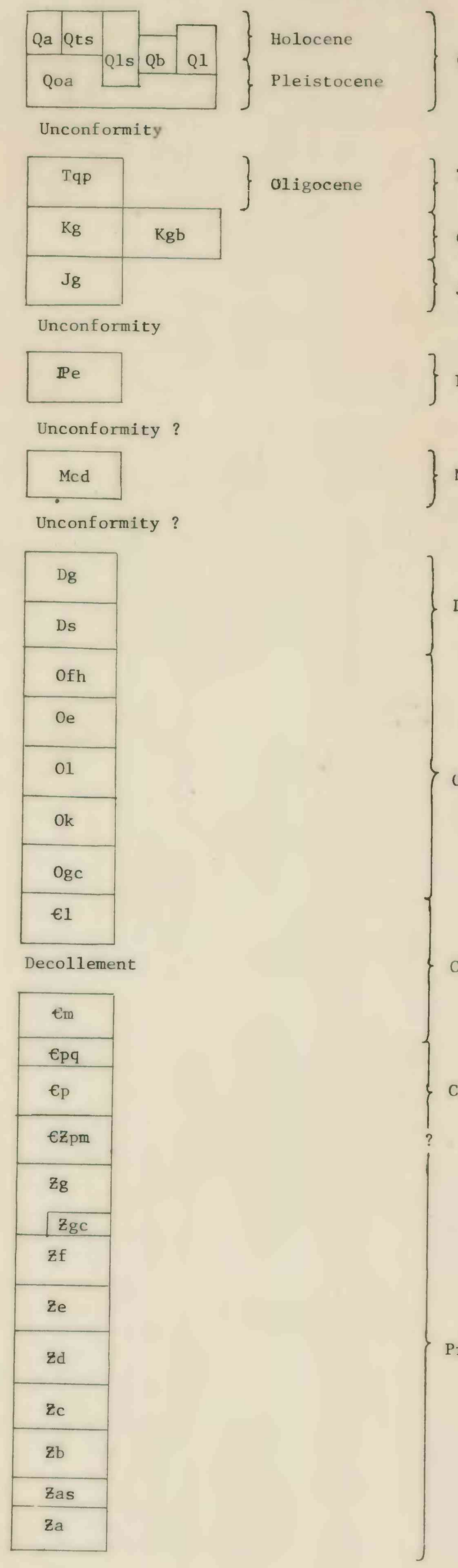
Hintze, L. F., and Robison, R. A., 1975, Middle Cambrian stratigraphy of the House, Wah Wah, and adjacent ranges in western Utah: Geol. Soc. America Bull., v. 86, p. 881-891.

Hoggatt, W. C., and Miller, D. M., in press, K-Ar ages of intrusive rocks of the Pilot Range, Nevada and Utah: Isochron/West.

Misch, P., and Hazzard, J. C., 1962, Stratigraphy and metamorphism of Late Precambrian rocks in central northwestern Nevada and adjacent Utah: Am. Assoc. Petroleum Geologists Bull., v. 46, p. 289-343.

Woodward, L. A., 1967, Stratigraphy and correlation of Late Precambrian rocks of Pilot Range, Elko County, Nevada, and Box Elder County, Utah: Am. Assoc. Petroleum Geologists Bull., v. 51, p. 235-243.

## CORRELATION OF MAP UNITS




CONTACTS--Dotted where covered

HIGH-ANGLE FAULTS--Dashed where location inferred; dotted where covered

Normal fault; bar and ball on downthrown side

Strike-slip fault; arrows show sense of separation

LOW-ANGLE FAULTS--Dashed where location inferred, dotted where covered. Barbs on upper plate.

Bedding-plane fault

Fault in hinge of tight fold

Pinnacle Fault system

GRAVITY SLIDE BLOCK--Tertiary or Quaternary age; dashed where location inferred, dotted where covered

ORIENTATION OF BEDDING

19 Inclined

Horizontal

42 Overturned

Vertical

13 Approximate

ORIENTATION OF FOLIATION

32 Inclined

Horizontal

Vertical, with lineation

13 80 ORIENTATION OF BEDDING AND FOLIATION--Measured at same outcrop; junction of two symbols is outcrop location

ORIENTATION OF LINEATION

69 82 In bedding

9 In foliation

14 Horizontal

ORIENTATION OF SMALL FOLDS

10 Individual folds

19 42 31 27 Folds in bedding

Folds in foliation

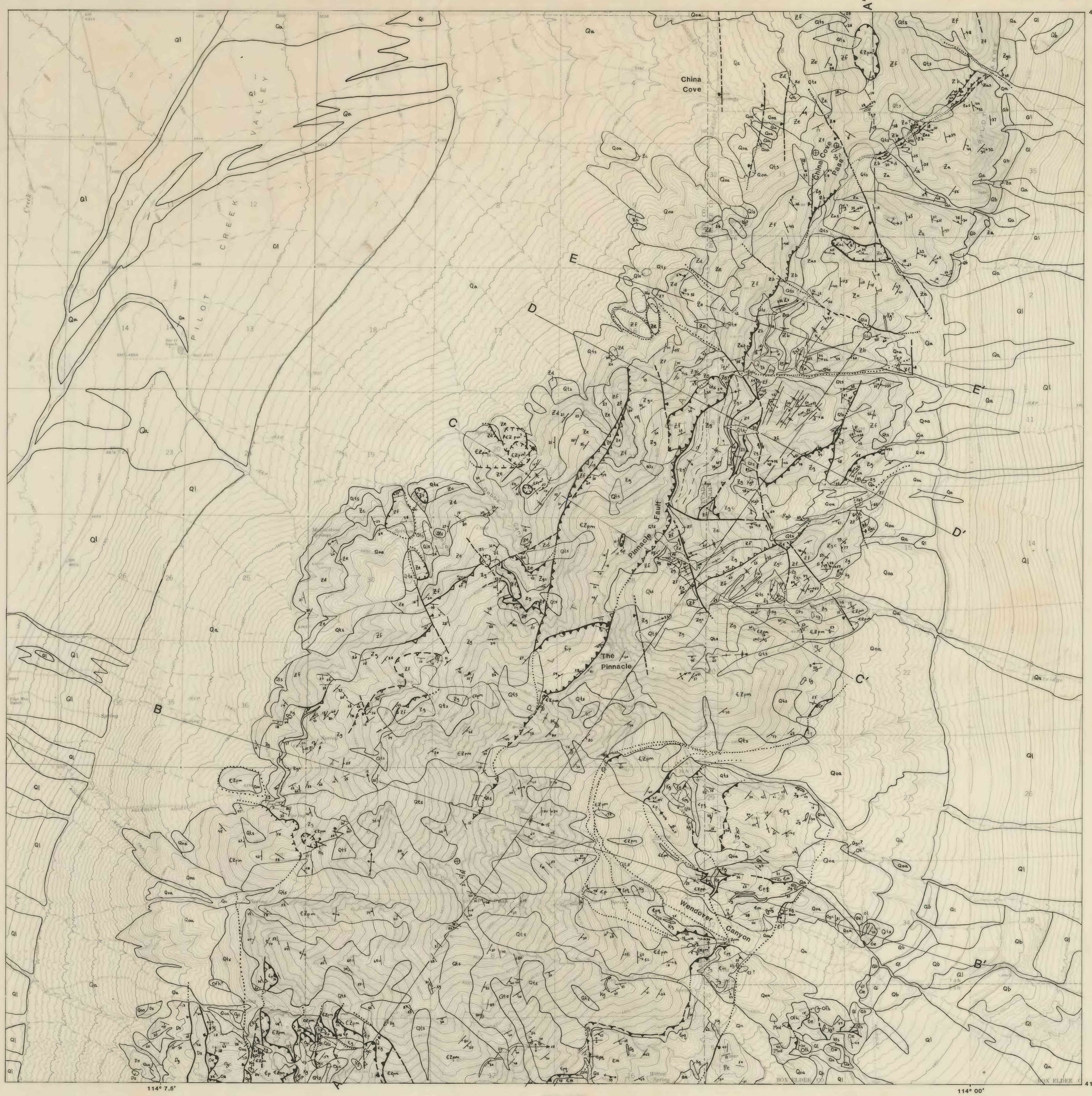
TRACE OF AXIAL PLANE OF LARGE FOLD--Dashed where location approximate

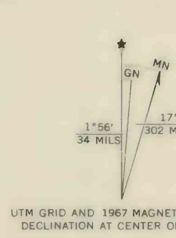
Plunging syncline

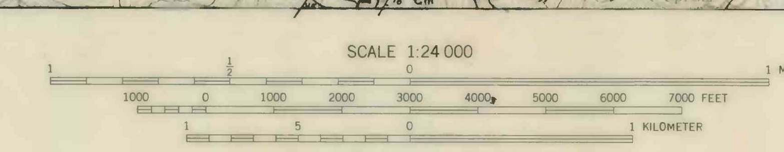
Horizontal anticline

Doubly plunging anticline

Monocline




CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929


Geology mapped by David M. Miller and Andrew P. Lush, 1979; and David M. Miller, 1980. Assisted by Martha A. Pernokas, 1980.

# GEOLOGIC MAP OF THE PILOT PEAK AND ADJACENT QUADRANGLES, ELKO COUNTY, NEVADA, AND BOX ELDER COUNTY, UTAH

By
David M. Miller and Andrew P. Lush
1981