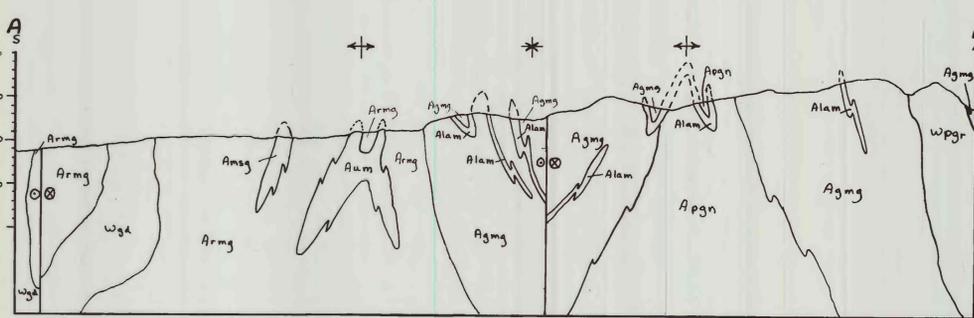
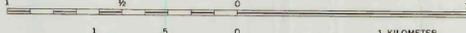


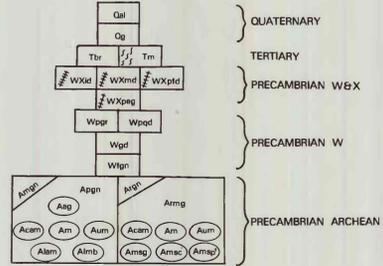
Base from U.S. Geological Survey, 1968

SCALE 1:24 000

Geology mapped in 1961-64



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- (Only thicker surficial deposits are shown; the thin mantle of talus on steep slopes and the felsenmeer on gentle slopes above timberline are not shown.)
- Qa1  
Qg ALLUVIUM (HOLOCENE)—Stream, marsh, and lake deposits  
GLACIAL DEPOSITS (PLEISTOCENE)
  - Tbr  
Tm FAULT BRECCIA (TERTIARY)—Quartzose chloritic cataclastite, potassium feldspar and epidote are common. Locally, the original foliation in the country rock is preserved.  
MYLONITE (TERTIARY)—Ductilely deformed, fine-grained pink to white mylonite. Unit occurs in the canyon of Fall Creek, on the central western boundary of the quadrangle
  - Wfld  
Wfnd  
Wfnd DiORITE DIKES (PRECAMBRIAN X AND W)—Dark brown to black diabase  
DIBASE DIKES (PRECAMBRIAN X AND W)—Coarse-grained dark-brown to black diabase  
Wfnd PORPHYRYTIC FOLIATED DIORITE (PRECAMBRIAN X AND W)—Gray, plagioclase-biotite diorite with flattened plagioclase phenocrysts. Rock appears to be penetratively sheared diorite, similar to but older than the diorite dikes (Wfld). Occurs in two north-trending outcrops on the south side of Roundtop Mountain
  - Wfnd  
Wfnd PORPHYRYTIC DIKE (PRECAMBRIAN X AND W)—Coarse-grained felsic pegmatite, often contains magnetite  
PORPHYRYTIC GRANITE (PRECAMBRIAN W)—Coarse-grained pink to white granite with characteristic alkali feldspar phenocrysts. Phenocrysts are predominantly potassium feldspar, but are locally albite. Principal minerals are quartz, alkali and plagioclase feldspar, and biotite, and locally muscovite and magnetite. This rock type occurs in the pluton of Angel Peak on the northern edge of the quadrangle and in the pluton of Boulder Creek on the southern margin. Isotopic studies of samples from the pluton of Boulder Creek east of the quadrangle and from elsewhere in the Wind River Range yielded ages ranging from 2,504±40 m.y. to 1,575±50 m.y. (Stuckless and others, in press). Sample type from the pluton of Angel Peak north of the quadrangle yielded similar isotopic ages as those of the granodiorite (Wgd)
  - Wpgr  
Wpgr PORPHYRYTIC QUARTZ DIORITE (PRECAMBRIAN W)—More mafic border phase of the pluton of Angel Peak northwest of Tintico Lake, differs from the porphyritic granite (Wpgr) in that it is more white than pink in color, contains hornblende, and has less quartz  
Wgd  
Wgd GRANODIORITE (PRECAMBRIAN W)—Medium-grained, gray, plagioclase-quartz-hornblende-biotite-clinopyroxene-garnetiferous, with potassium feldspar present near the contact with the porphyritic granite (Wpgr). Composes the pluton of Lake Christina in the central to southern part of the quadrangle. Appears to intrude, but may be syntectonic, into rust-colored migmatitic gneiss (Amg) to the north and the infill of gray migmatitic gneiss (Amgn). Intruded by porphyritic granite (Wpgr), contact is gradational, and is marked by the disappearance of pyroxene in the porphyritic granite. Isotopic dating of samples from other parts of the range yielded ages ranging from 2,620±27 m.y. to 2,642±13 m.y. (Stuckless and others, in press)
  - Wgn METAMORPHIC ROCKS  
Wgn FELSIC ORTHOGNEISS (PRECAMBRIAN W)—Light-gray, plagioclase-biotite-potassium feldspar gneiss. Foliation is defined by narrow bands of biotite (10 mm to 2 cm). Locally, in migmatitic portions, mafic pod-shaped segregations of biotite and hornblende from the melanosome with quartz and feldspar-rich leucosome. The protolith was probably a plutonic rock of intermediate composition. This unit locally crosscuts the gray migmatitic gneiss (Amgn) and is marked by the disappearance of pyroxene in the orthogneiss. Isotopic dating of samples from other parts of the range yielded ages ranging from 2,620±27 m.y. to 2,642±13 m.y. (Stuckless and others, in press)
  - Amgn  
Amgn GRAY MIGMATITIC GNEISS (ARCHEAN)—Includes any gray gneiss with segregations of mafic segregations visible at any one location. Unit is highly variable, ranging from intermediate to felsic in composition, and from highly migmatitic, with as much as 30 percent melanosome, to sparsely migmatitic, where it is transitional to the felsic orthogneiss (Wgn). The rock is composed of plagioclase, biotite, quartz, potassium feldspar, hornblende, and locally augite. Unit forms the country rock for the laminated amphibolite (Alam) as well as some ultramafic pods (Aum) and metasedimentary pods (Amsp)
  - Apgr  
Apgr PORPHYRYTIC GRAY MIGMATITIC GNEISS (ARCHEAN)—Gray migmatitic gneiss with porphyroblasts of potassium feldspar. This unit crops out north and west of Hat Pass and near the Pluton of Angel Peak north of the quadrangle. Both occurrences may have formed by metasomatic alteration of rocks similar to the gray migmatitic gneiss (Amgn) by potassium-rich fluids derived from a cooling granitic magmatic body
  - Amg  
Amg RUST-COLORED MIGMATITIC GNEISS (ARCHEAN)—Unit consists of pyroxene-bearing migmatitic gneiss that has weathered to a rust color. Mineralogy includes plagioclase, biotite, quartz, clinopyroxene, and orthopyroxene. The unit contains inclusions of mafic rock (Am), coarse-grained amphibolite (Acam), ultramafic rock (Aum), and metasediments (Amsg, Amp, and Amsp). This rock has been metamorphosed to granulite facies with no signs of retrogression, except near the gradational contacts with the gray migmatitic gneiss (Amgn) to the north and the granodiorite (Wgd) to the south. Zircon from a hypersthene-hornblende-plagioclase gneiss of this unit from approximately 1 mi west-northwest of Roundtop Lake yield a U-Pb age of 3,350±30 m.y. (J. N. Aleinikoff, written commun., 1984)
  - Argn  
Argn RUST-COLORED GNEISS (ARCHEAN)—Medium-grained two pyroxene-plagioclase-quartz gneiss. Locally has 1-cm-thick veinlets of biotite. This unit is exposed only south and west of Spruce Lake, where it forms rounded bald knobs in a northwest-trending band that extends out of the area. Contact with the pyroxene-free gray migmatitic gneiss (Amgn) can be located within a few meters. This unit may represent a pluton of intermediate composition metamorphosed to granulite facies
  - PODS AND BANDS IN GNEISS
  - Aag  
Aag ANGIOMATITIC MIGMATITE (ARCHEAN)—Angular blocks of amphibolite in a felsic matrix
  - Acam  
Acam COARSE-GRAINED AMPHIBOLITE (ARCHEAN)—Coarse-grained equigranular plagioclase-hornblende rock, probably metagabbro
  - Am  
Am MAFIC PODS (ARCHEAN)—Medium-grained pods of mafic composition, mainly metadiabase and metagabbro. Some are gradational to pyroxenitic ultramafic pods
  - Aum  
Aum ULTRAMAFIC PODS (ARCHEAN)—Medium- to coarse-grained ultramafic pods composed of orthopyroxene (bronzite), clinopyroxene (augite), phlogopite, and plagioclase. Pods range from 1 to 100 m in diameter and occur in a zone extending from Lake Victor west to north of Horseshoe Lake. Composition varies between clinopyroxene, websterite, norite, and orthopyroxenite
  - Alam  
Alam LAMINATED AMPHIBOLITE (ARCHEAN)—Fine-grained, plagioclase-hornblende amphibolite with characteristic wavy-scale biotite and hornblende laminations. The lithosome occurs in belts, up to 0.5 km wide and several km long across the central part of the quadrangle, which strike parallel to the foliation in the enclosing gray migmatitic gneiss (Amgn). Near Hat Pass contains plagioclase (An 30), augite, hypersthene, scapolite, and andradite garnet and is intercalated on a scale of tens of meters with spotted gray orthogneiss that contains clots of clinopyroxene with hornblende rims, and a banded hornblende-biotite-garnet paragneiss
  - Almb  
Almb LAMINATED AMPHIBOLITE BRECCIA (ARCHEAN)—Angular blocks of laminated amphibolite (Alam) in felsic matrix. Occurs in a west-trending band on the west edge of Lake Sequa
  - Amsg  
Amsg METASEDIMENTS (ARCHEAN)—Aluminous quartzofeldspathic metasedimentary rocks contain almandine garnet (Amsg). Less aluminous phases are cordierite sillimanite spinel-bearing (Amsc) and fine-grained quartz-plagioclase (An 30)-augite-biotite psammites (Amsp)

REFERENCES

Stuckless, J. S., Hedge, C. E., Worl, R. G., Simmons, R. R., Nkonya, I. T., and Wenner, D. B., In press, Isotopic studies of Late Archaean plutonic rocks of the Wind River Range, Wyoming; Geological Society of America Bulletin.  
Worl, R. G., Koesterer, M. E., and Hulsebosch, T. P., In press, Geologic map of the Bridger Wilderness and Green-Sweetwater Roadless Area, Sublette and French Counties, Wyoming; U.S. Geological Survey Miscellaneous Field Studies Map MF-1636-B.

SYMBOLS

- CONTACT—Dashed where approximately located
- FAULT—Dotted where concealed
- +++ DIKE
- STRIKE AND DIP OF FOLIATION
- ± Inclined
- ⊥ Vertical
- ⊙ MOVEMENT TOWARD READER
- ⊙ MOVEMENT AWAY FROM READER
- ⊥ AXIAL TRACE OF INFERRED ANTIFORM
- ⊥ AXIAL TRACE OF INFERRED SYNFORM
- ⊥ LINE OF CROSS SECTION

GEOLOGIC MAP OF THE HORSESHOE LAKE QUADRANGLE, SUBLETTE COUNTY, WYOMING

By

By PK. Link, IC. Anderson, J.V. Hengesh, and R.G. Worl

1985

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.