

UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

Preliminary Geologic Map of the Bergen Park Area, Jefferson  
and Clear Creek Counties, Colorado

By

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Open-file report

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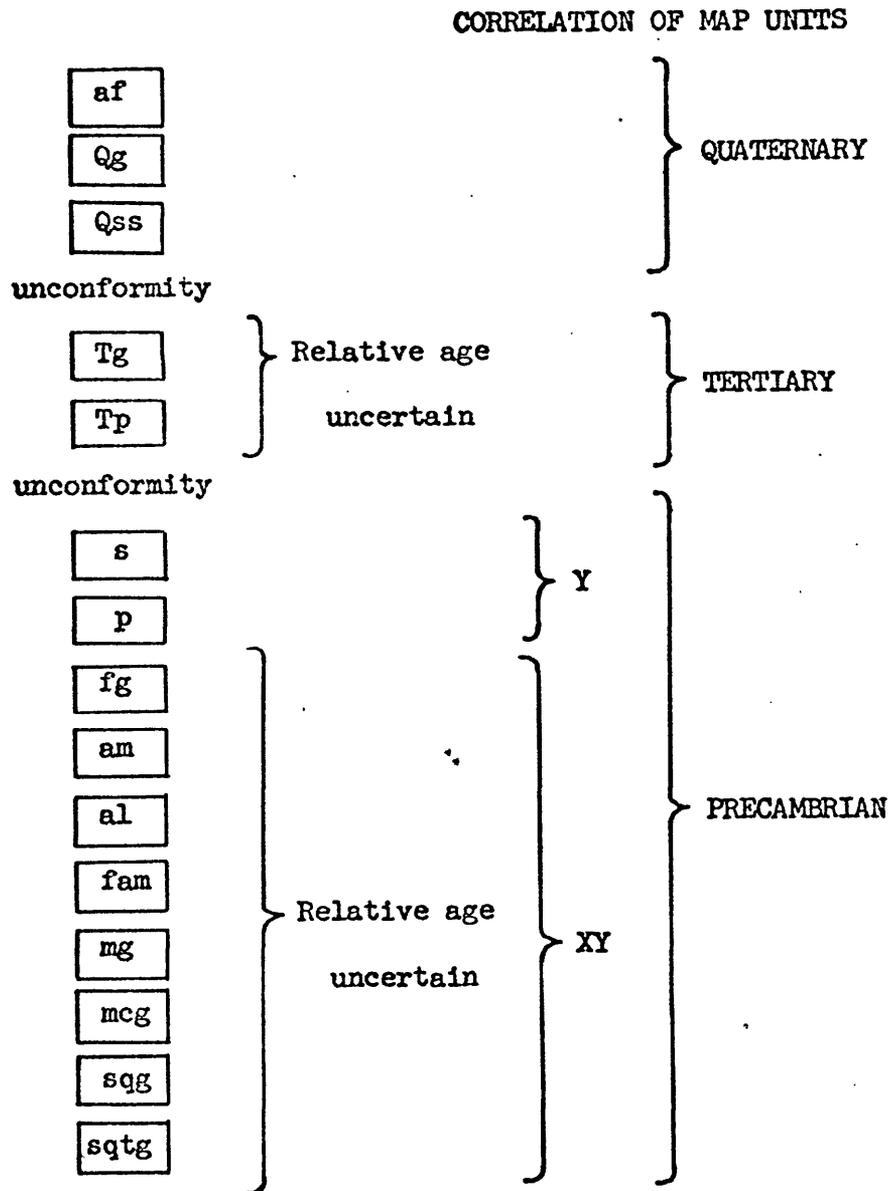
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This report is preliminary and has not  
been edited or reviewed for conformity  
with U.S. Geological Survey standards  
or nomenclature.

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EXPLANATION



## DESCRIPTION OF MAP UNITS

### SURFICIAL DEPOSITS

-  ARTIFICIAL FILL--mapped only along Interstate Highway 70
- ALLUVIUM
-  Sand, gravel, and silt on modern flood plains, commonly covered by floods every few years. Not mapped where less than 100 feet wide
-  Dark silt and sand, commonly with gravel near base, underlying upland meadows and terraces as much as 20 feet above modern streams. In uplands commonly cut by narrow gullies
-  GRAVEL--rounded to subangular pebbles, cobbles, and boulders as much as 15 feet in diameter in sandy matrix. Pebbles and cobbles are quartz, locally derived metamorphic rocks, and hard fine-grained igneous rocks; boulders are chiefly medium- to coarse-grained granitic rocks

### BEDROCK UNITS

-  PORPHYRY--purplish to gray, very fine grained rock studded with rectangular crystals of white feldspar as much as one-fourth inch long. Forms dikes a few feet to as much as 40 feet thick. Crops out only on steep slopes along Beaver Brook. Elsewhere mapped only from float and exposures in prospect pits
-  SYENITE--fine-grained pink rock forming dikes as much as 10 feet thick. Outcrops rare. Mapped largely from float

fp

PEGMATITE--coarse-grained white to pink rock commonly as very prominent knobs and ridges and large residual boulders.

Locally mined for feldspar, scrap mica, and beryl

fg

FELDSPAR-RICH GNEISS--fine- to medium-grained light-gray to pink rock, generally foliated but only rudely layered. Breaks into irregular blocks or thin slabs. Commonly makes prominent outcrops and relatively thin sandy residual soils. Locally contains abundant lenses and layers of amphibolite and hornblende gneiss similar to those described below, but these bodies are not continuous for more than a few hundred feet and comprise less than 25 percent of the rock exposed over areas greater than a few acres

#### AMPHIBOLITE, HORNBLLENDE GNEISS, AND ASSOCIATED ROCKS

am

Predominantly massive fine- to medium-grained dark-green to black amphibolite and medium- to dark-gray-green hornblende gneiss, commonly in layers several feet to several tens of feet thick. Contains some layers of feldspar-rich gneiss similar to unit described above (fg). Generally makes small irregular outcrops and breaks into rudely rectangular blocks. Weathers to dark clayey soil with abundant rock debris

a1

Amphibolite and hornblende gneiss similar to unit described above (am) interlayered with fine-grained light-green calcium silicate-rich gneiss, medium- to dark-gray mica gneiss, and impure gray marble. Contains some layers of feldspar-rich gneiss. Generally thinly layered, although unit includes some thick layers of amphibolite. Outcrops generally smaller and less abundant than those of the "am" unit. Soils generally similar

fam

INTERLAYERED FELDSPAR-RICH GNEISS, AMPHIBOLITE, AND HORNBLLENDE GNEISS--feldspar-rich gneiss, amphibolite, and hornblende gneiss interlayered on a scale of a few inches to several tens of feet in thickness. Unit locally includes abundant dark strongly foliated mica gneiss. The various rock types generally occur in subequal proportions, but one or another locally predominates over areas of several acres. Outcrop characteristics and soils similar to "fg" and "am" units described above

## MICA GNEISSES AND ASSOCIATED ROCKS

mg

Fine- to medium-grained strongly foliated light- to medium-gray mica-rich gneiss, containing aggregates of fibrous white sillimanite. Rude layers a few inches to several tens of feet thick reflect differences in amount of sillimanite and mica. Locally contains layers of feldspar-rich gneiss a few feet to several tens of feet thick. Forms fairly abundant angular outcrops. Breaks into irregular plates and slabs. Forms moderately thick residual soils rich in mica

mcg

Mica gneiss similar to unit described above (mg) containing layers a few feet to several tens of feet thick of darker gray conspicuously layered cordierite-bearing gneiss and layers of similar thickness of garnet-bearing gneiss. Garnets range from 0.1 inch to 2 inches in diameter. Locally contains lenses of coarse-grained reddish-black cordierite-anthophyllite-garnet gneiss, and lenses of sillimanite quartz gneiss described below. Outcrop characteristics and soils similar to "mg" unit described above

sqg

Fine-grained white sillimanite-quartz gneiss containing interlayers of mica gneiss containing as much as 30 percent sillimanite. Forms prominent outcrops. Breaks into rectangular blocks and slabs

sqtg

Sillimanite-quartz gneiss similar to above, but containing as much as 67 percent topaz and 4 percent rutile. Forms elongate lens as much as 85 feet thick interlayered with amphibolite and hornblende gneiss southeast of Beaver Brook Lodge. Described in detail by Sheridan and others (1968). Outcrops similar to "sqg" unit .

CONTACT

Generally inferred or approximately located.  
Dotted where concealed



FAULT

Dashed where approximately located, dotted where concealed, queried where inferred. Cross hatched pattern indicates broad area or sheared or brecciated rock

<sup>85</sup>  
inclined                      vertical

Strike and dip of foliation or layering

x                      x                      □                      >  
prospect              open pit              shaft              adit  
pit                      mine

MINES AND PROSPECTS



TOP OF LARGE ROADCUT

Shown only along Interstate Highway 70.  
Teeth point downslope

NOTE

As of date of compilation (November 1971), Interstate Highway 70 is under construction east of a point near the center of section 7 and is planned west of that point. Cuts and fills were plotted from drawings furnished by the Colorado Division of Highways

REFERENCE CITED

Sheridan, D. M., Taylor, R. B., and Marsh, S. P., 1968, Rutile and topaz in Precambrian gneiss, Jefferson and Clear Creek counties, Colorado: U.S. Geol. Survey Circ. 567, 7 p.