COMMONWEALTH OF VIRGINIA
DEPARTMENT OF MINES, MINERALS AND ENERGY
DIVISION OF MINERAL RESOURCES

PUBLICATION 90 PART B
PENHOOK AND MOUNTAIN VALLEY QUADRANGLES, VIRGINIA

GEOLOGIC MAP OF THE PENHOOK AND MOUNTAIN VALLEY QUADRANGLES, VIRGINIA

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The Pikes Peak Lithographing Co.

Base map from U.S. Geological Survey, Penhook and Mountain Valley, Virginia quadrangles, 1965, 7½ minute series.

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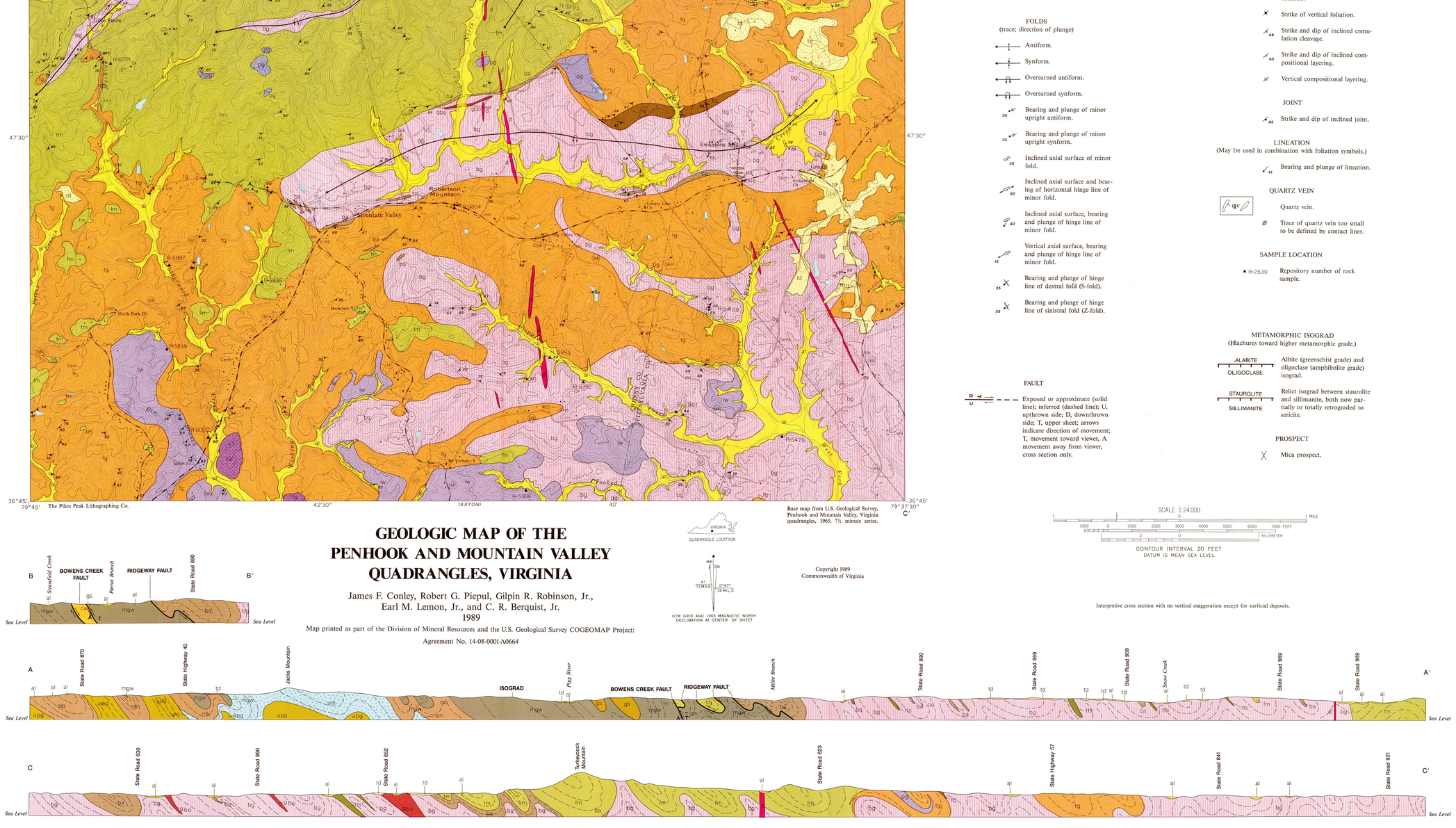
QUADRANGLE LOCATION

UTM GRID AND 1965 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

Interpretive cross section with no vertical exaggeration except for surficial deposits.



EXPLANATION

CENOZOIC — QUATERNARY

al — Alluvium
Gray and brown silt and sand containing cobbles at the base, locally contains lenses of clay and organic-rich clay.

td — Terrace deposit
Rounded cobbles and boulders in a moderate red silt and sand matrix, locally contains bleached white clay layers; older terraces oxidized and very dark red; interfluves generally capped by thin sandy soils that contain etched and rounded quartz pebbles.

cd — Colluvial deposit
Angular quartz and lithic cobbles and boulders in a moderate red silt and sand matrix; occurs on hill slopes and at the base of slopes.

MESOZOIC — TRIASSIC–JURASSIC

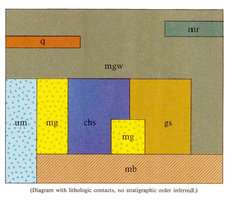
d — Diabase dike
Medium-gray to black, generally fine-grained dikes with diabasic texture; composed of calcic plagioclase and augite; olivine may be present.

PRECAMBRIAN TO MIDDLE TO LATE PALEOZOIC — EARLY PALEOZOIC

cs — cataclastic schist

ca — Candler Formation
Medium- to dark-gray and greenish-gray, sericite-chlorite phyllite, weathers to a moderate-pink and pale reddish-purple saprolite; contains quartzite layers; magnetite and chlorite porphyroblasts occur locally, some have grown across cleavage planes.

PRECAMBRIAN — LYNCHBURG GROUP



(Diagram with lithologic contacts, no stratigraphic order inferred.)

mgw, mr, q, um, mg, chs, gs, mg, mb — Alligator Back Formation
mgw, gray, gneissic fine- to coarse-grained metagraywacke, may show graded bedding, composed of quartz, microcline, perthite, plagioclase, muscovite, and biotite; mr, white and gray, fine- to coarse-grained, generally finely laminated marble; q, grayish yellow and light olive-brown, iron stained, fine- to medium-grained quartzite, magnetite-rich quartzite, and conglomeratic quartzite; um, gray and greenish-gray ultramafic rocks, in part metapyroxenite, altered to serpentine, talc, chlorite, actinolite, contains minor relict olivine and augite; mg, greenish-gray, locally layered, coarse-grained metagabbro composed of actinolite, uralite, albite, epidote, chlorite, and relict augite and calcic plagioclase; chs, fine- to medium-grained chlorite schist containing variable amounts of chlorite, muscovite, and quartz; gs, gray- to greenish-gray graphite schist and quartz graphite schist composed of variable amounts of graphite, muscovite, chlorite, and quartz; mb, dark greenish-black, foliated, fine-grained metabasalt, composed of nematoblasts of actinolite and variable amounts of epidote, chlorite, albite, and quartz, may contain interbeds of metasedimentary rocks.

apg — Ashe Formation
Medium- to coarse-grained, massive to coarsely segregation banded gneiss, composed of quartz, plagioclase, biotite, and muscovite; locally a porphyroblastic gneiss.

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PALEOZOIC — ORDOVICIAN

lw, pg — Leatherwood Granite
lw, leucocratic, coarse-grained, porphyritic rapakivi granite, composed of microcline, oligoclase, quartz (including blue quartz), biotite, and muscovite; pg, leucocratic coarse- to very coarse-grained pegmatitic granite dikes and sills, composed of muscovite, biotite, quartz, and microcline.

qc — Rich Acres Formation
Medium-grained, dark greenish-gray rock intermediate between gabbro and diorite, subophitic to ophitic texture; composed of plagioclase, green hornblende, reddish-brown biotite, pale-green clinopyroxene, and uralite.

PRECAMBRIAN TO EARLY PALEOZOIC

fm, fg, fq — Fork Mountain Formation
fm, light- to medium-gray quartz-mica schist composed of muscovite, quartz, garnet, high-alumina minerals, magnetite, ilmenite, and biotite; biotite partially to totally altered to chlorite; fg, compositionally banded biotite gneiss, composed of quartz (in part blue quartz), plagioclase, biotite, muscovite, microcline, garnet, and high alumina minerals, locally contains epidote-quartz boudins and lithic conglomerates; fq, thin layers of quartzite composed of quartz and epidote.

ba, gbo, tts, bg, bq — Bassett Formation
ba, dark greenish-black, foliated, medium- to coarse-grained amphibolite, composed of hornblende and plagioclase, exhibits a nematoblastic texture; tts, altered podiform masses of ultramafic rock composed of talc, tremolite, chlorite, serpentine, anthophyllite, opaque minerals, and vermiculite, may contain the relict minerals olivine and augite, some masses are partially to totally altered to vermiculite; gbo, elongate concordant bodies of metagabbro, composed of clinopyroxene, orthopyroxene, garnet, hornblende, and plagioclase; bg, homogeneous, equigranular, medium-grained, light- to medium-gray biotite gneiss, composed of quartz, oligoclase, biotite, and microcline, medium- to fine-banding outlined by alternating quartzo-feldspathic and biotite-rich quartzo-feldspathic layers; bq, thin, discontinuous layers of quartzite containing epidote and calcium-rich garnet.

KEY

CONTACTS
Dashed where covered or inferred.

FOLDS
(trace; direction of plunge)
- Antiform.
- Synform.
- Overturned antiform.
- Overturned synform.
- Bearing and plunge of minor upright antiform.
- Bearing and plunge of minor upright synform.
- Inclined axial surface of minor fold.
- Inclined axial surface and bearing of horizontal hinge line of minor fold.
- Inclined axial surface, bearing and plunge of hinge line of minor fold.
- Vertical axial surface, bearing and plunge of hinge line of minor fold.
- Bearing and plunge of hinge line of dextral fold (S-fold).
- Bearing and plunge of hinge line of sinistral fold (Z-fold).

FAULT
Exposed or approximate (solid line); inferred (dashed line); U, upthrown side; D, downthrown side; T, upper sheet; arrows indicate direction of movement; T, movement toward viewer, A movement away from viewer, cross section only.

ATTITUDE OF FOLIATION
- Strike and dip of inclined folation.
- Strike of vertical foliation.
- Strike and dip of inclined crenulation cleavage.
- Strike and dip of inclined compositional layering.
- Vertical compositional layering.

JOINT
- Strike and dip of inclined joint.

LINEATION
(May be used in combination with foliation symbols.)
- Bearing and plunge of lineation.

QUARTZ VEIN
- Quartz vein.
- Trace of quartz vein too small to be defined by contact lines.

SAMPLE LOCATION
- ▲ R-2530 — Repository number of rock sample.

METAMORPHIC ISOGRAD
(Hachures toward higher metamorphic grade.)
- ALABITE / OLIGOCLASE — Albite (greenschist grade) and oligoclase (amphibolite grade) isograd.
- STAUROLITE / SILLIMANITE — Relict isograd between staurolite and sillimanite, both now partially to totally retrograded to sericite.

PROSPECT
- Mica prospect.