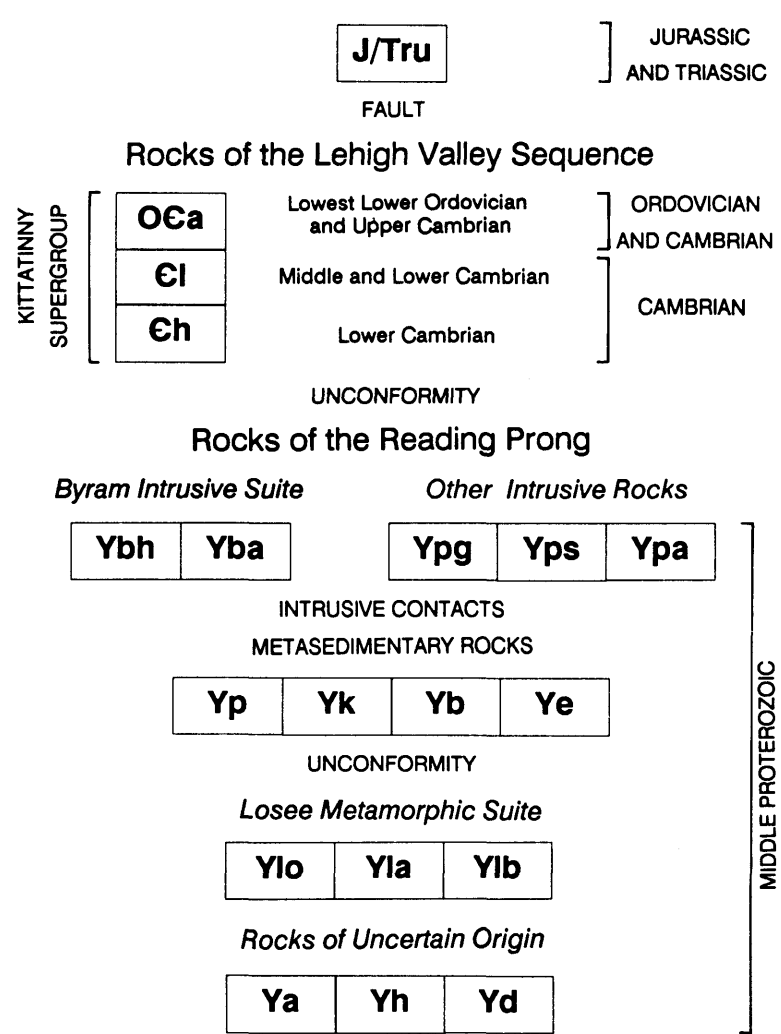


CORRELATION OF MAP UNITS

Rocks of the Newark Basin



DESCRIPTION OF MAP UNITS

db Diabase Dikes - Dark gray, fine-grained to aphanitic dikes which intrude Middle Proterozoic rocks. Age uncertain.

Rocks of the Newark Basin

J/Tru Newark Supergroup (undifferentiated) - Sandstone, siltstone, and mudstone of the Passaic and Fallville Formations, basalt of the Orange Mountain and Freshness Formations of Olsen (1980); diabase, and limestone and quartz pebble conglomerates adjacent to the Flemington Fault.

Rocks of the Lehigh Valley Sequence

OCa Allentown Dolomite - Light- to dark-gray, fine- to medium-crystalline, thin- to medium-bedded, rhythmically bedded dolomitic mudstone, oolitic grainstone and dolomite containing ripple marks, algal stromatolites, cross-beds, mud cracks, and chip conglomerates.

Cl Leithville Formation - Light- to dark-gray weathering, fine- to medium-crystalline, thin- to medium-bedded dolomite interbedded with thin dolomitic shale and dolomitic sandstone.

Ch Hardyston Quartzite - Medium- to light-gray, fine-grained quartzite, arkosic sandstone, monomictic to polymictic pebble conglomerate and dolomitic shale.

Rocks of the Reading Prong

Byram Intrusive Suite

Ybh Hornblende granite - Medium- to coarse-grained, pink to buff, gneissoid to indistinctly foliated granite and lesser granite gneiss composed principally of microcline microperthite, quartz, oligoclase, and hornblende. Unit contains sparse clinopyroxene in the Hell Mountain area and trace amounts of graphite east of Lower Fairmount. Includes small bodies of amphibolite and pegmatite not shown on map.

Yba Microperthite alaskite - Medium- to coarse-grained, pink to buff, gneissoid to indistinctly foliated granite composed of microcline microperthite, quartz, and oligoclase. Includes small bodies of amphibolite not shown on map.

Other Intrusive Rocks

Ypg Pyroxene granite - Medium- to coarse-grained, gray to buff or white-weathering, greenish-gray, massive gneissoid to indistinctly foliated granite composed of mesoperthite to microantiperthite, quartz, oligoclase, and clinopyroxene. Common accessories include sphene, magnetite, apatite, and trace sulfide. Some phases of this unit are quartz monzonite, quartz syenite, quartz monzodiorite, or granodiorite. Locally includes small bodies of amphibolite not shown on map.

Yps Pyroxene syenite - Medium- to coarse-grained, gray to buff or tan-weathering, greenish-gray, massive, moderately to indistinctly foliated rock composed of mesoperthite to microantiperthite, oligoclase, and clinopyroxene. Contains sparse accessory quartz, sphene, magnetite, and trace sulfide.

Ypa Pyroxene alaskite - Medium- to coarse-grained, greenish-buff to pale-pinkish-gray, massive, moderately foliated granite containing mesoperthite to microantiperthite, oligoclase, and quartz. Common accessories are clinopyroxene, sphene, and magnetite. Locally includes small bodies of amphibolite not shown on map. Relative age and relationship of Ypg, Yps, and Ypa to rocks of the Byram Intrusive Suite unknown.

Metasedimentary Rocks

Yp Pyroxene gneiss - Medium-fine- to medium-grained, greenish-gray, white to tan-weathering, well-layered gneiss composed of oligoclase, clinopyroxene, variable amounts of quartz, and trace amounts of opaque minerals and sphene.

Yk Potassic feldspar gneiss - Medium-fine- to medium-grained, pinkish-white to pinkish-gray or buff, moderately foliated gneiss and lesser granofels containing quartz, potassic feldspar, and oligoclase with local accessory biotite, hornblende, and opaque minerals.

Yb Biotite-quartz-feldspar gneiss - Medium-fine- to medium-coarse-grained, gray to tan, commonly rusty-weathering, moderately layered and foliated gneiss which is variable in texture and composition. Rock is composed of oligoclase, microcline microperthite, quartz, and biotite. Locally contains garnet, graphite, and sillimanite.

Ye Epidote gneiss - Medium-fine- to medium-grained, pinkish-gray, moderately layered and foliated gneiss composed principally of quartz, potassic feldspar, and epidote. Unit probably is petrogenetically related to the potassic feldspar gneiss.

Loosee Metamorphic Suite

Ylo Quartz-oligoclase gneiss - Medium- to medium-coarse-grained, white to light-greenish-gray, indistinctly foliated gneiss and lesser granofels containing quartz and oligoclase or andesine and local biotite, hornblende, and/or clinopyroxene. Contains thin amphibolite layers.

Yla Albite-oligoclase granite - Medium- to coarse-grained, white to light-greenish-gray gneissoid granite composed of albite or oligoclase, quartz, and sparse accessory hornblende or clinopyroxene. Differs from Ylo in having a more granulitic texture, although the two units probably are petrogenetically related.

Ylb Biotite-quartz-oligoclase gneiss - Medium-fine- to medium-coarse-grained, light- to medium-gray or greenish-gray, massive, moderately layered and foliated gneiss containing oligoclase or andesine, quartz, biotite, and local garnet. Commonly interlayered with amphibolite.

Rocks of Uncertain Origin

Ya Amphibolite - Medium-grained, gray to grayish-black rock composed of hornblende and andesine. Some phases contain biotite or pyroxene. Ubiquitous and found in association with almost all other Middle Proterozoic rocks in map area.

Yh Hypersthene-quartz-andesine gneiss - Medium-grained, moderately layered and foliated, greenish-gray to greenish-brown, greasy-lustered gneiss of charnockitic affinity composed of andesine or oligoclase, quartz, clinopyroxene, hornblende, hypersthene, and sparse biotite and magnetite. Commonly interlayered with amphibolite.

Yd Diorite - Medium- to medium-coarse-grained, greenish-gray to brownish-gray, greasy-lustered, massive, moderately foliated diorite to quartz diorite containing andesine or oligoclase, clinopyroxene, hornblende, hypersthene, sparse biotite and quartz. Amphibolite and mafic-rich quartz-plagioclase gneiss layers are common. Unit may be related to other rocks of the Loosee Metamorphic Suite and possibly hypersthene-quartz-andesine gneiss, but evidence is equivocal.

DESCRIPTION OF MAP SYMBOLS

--- Contact - Dotted where concealed.

--- Faults - Dashed where approximate; dotted where concealed; queried where doubtful.

U D = * ? High angle fault - U, upthrown side; D, downthrown side.

■ ▽ = * ? Inclined thrust fault - Sawteeth on upper plate.

Folds

Antiform - Showing crest line and direction of plunge.

Synform - Showing trough line and direction of plunge.

Overturned antiform - Showing trace of axial surface, direction of dip of limbs and plunge.

Overturned synform - Showing trace of axial surface, direction of dip of limbs and plunge.

10 -FA Bearing and plunge of minor fold in bedding.

Planar Features

Strike and dip of bedding.

Strike and dip of crystallization foliation.

Strike and dip of mylonitic foliation.

Strike and dip of spaced cleavage.

Vertical spaced cleavage.

Linear Features

Bearing and plunge of mineral lineation in Proterozoic rocks.

Dike

REFERENCES

Arch Associates, 1980, Geologic and groundwater investigation, Exxon Research and Engineering Research Facilities and Headquarters Project, Clinton Township, N.J.: Consultants report prepared for Jason M. Cortal and Associates, Inc., on file in the office of the New Jersey Geological Survey, Trenton, N.J.

Bayley, W. S., Salisbury, R. D., and Kummel, H. B., 1914, Description of the Raritan quadrangle (New Jersey): U. S. Geological Survey Geologic Atlas, Folio 191, 32 p.

Kummel, H. B., ca 1900, unpublished field maps and notes: On file in the office of the New Jersey Geological Survey, Trenton, N.J.

Olsen, P. E., 1980, The latest Triassic and Early Jurassic Formations of the Newark Basin (eastern North America, Newark Supergroup) - Stratigraphy, structure and correlation: New Jersey Academy of Science, The Bulletin, v. 25, p. 25-51.

State of New Jersey, 1958, Spruce Run - Round Valley Reservoir Project: Special Report 15, New Jersey Department of Conservation and Economic Development, Part III.

PROVISIONAL BEDROCK GEOLOGIC MAP OF THE PROTEROZOIC AND LOWER PALEOZOIC ROCKS OF THE CALIFON QUADRANGLE, HUNTERDON AND MORRIS COUNTIES, NEW JERSEY

by Richard A. Volkert, 1989