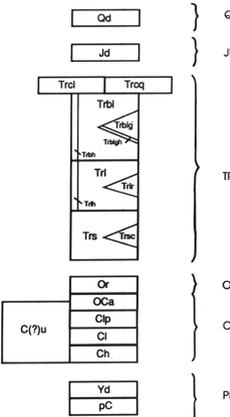


Base from U.S. Geological Survey
Bucks County (North Section) 1:50,000, 1983
Bucks County (South Section) 1:50,000, 1983

CORRELATION OF MAP UNITS



In a red, arkosic sand to silty shale matrix (Trsc). Maximum thickness is about 6,000 feet in the center of the basin, thinning in all directions.

RICKENBACK DOLOMITE. Massive, fine-grained, light to dark blue or blue-gray dolomite. Locally, it may be siliceous, finely laminated or shaly. About 1,000 feet thick.

ALLENTOWN DOLOMITE. Very fine to medium-grained, light-medium gray to light-olive gray to dark-medium gray, rhythmically bedded dolomite characterized by alternating light and dark weathering beds, abundant stromatolites, oolite beds and scattered beds and lenses of orthoquartzite. About 1,700 feet thick.

LIMEPORT FORMATION. Massive, dense, blue and light-blue dolomite with thin, wavy, crystalline partings and black cherty layers up to 1.5 inches thick. The formation consists of essentially repeated beds of light and dark beds. Beds may contain Crinoid stems, oolites, edgewise conglomerate, black chert, and small black phosphate nodules. About 900 feet thick.

LEITCHVILLE FORMATION. In the Durham Valley, it is a dark gray, buff-weathering dolomite, and in the Leitchville area, it is a light gray, buff-weathering dolomite. It is a shaly, fine-grained, finely laminated, light-blue, light gray, and gray dolomite and thick bedded, fine-grained, dove-colored marble. Ripple marks, mud cracks, and small black chert layers are common. About 1,900 feet thick in the Durham Valley and 500 feet thick in the Buckingham Valley.

HARDYSTONS QUARTZITE. In the Durham Valley, it consists of a gray, buff-weathering quartzite, quartz pebble conglomerate, arkose sandstone, silty shale, and yellowish-brown, iron-stained Jasper. In the Buckingham Valley, it is a thick bedded, vitreous, blue quartzite. The upper part is low vitreous and coarse grained than the lower and contains at the top a layer of closely packed chert, white quartz pebbles. The lower part is a shaly, fine-grained, cross-bedded arkose sandstone, conglomerate, and quartzite containing fragments of red chert pebbles 1 in. in diameter. Less than 100 feet thick in Durham Valley and 900 feet thick in Buckingham Valley.

UNDIFFERENTIATED TALCUM-LIKE ROCKS OF THE FURLONG KLIPPE. Felsite to slaty, black, blue, purple and gray phyllite. Minimum thickness is approximately 200 feet.

QUARTZ DIORITE. Light to dark gray, medium to coarse-grained rock composed principally of andesine or oligoclase, quartz, and hypersthene. May contain single and/or biotite.

GRANITE AND HORNBLENDE GNEISS, UNDIFFERENTIATED (TRC). Includes alaskite (light pink to light gray), medium to coarse-grained, siliceous alaskite and gneiss, hornblende gneiss (pink to light-gray, medium to coarse-grained, gneiss composed largely of microperthite, quartz, and oligoclase), hornblende gneiss (pink to light-gray, medium to coarse-grained, gneiss composed primarily of dioritic pyroxene and quartz), hornblende gneiss (medium to coarse-grained, gneiss composed primarily of dioritic pyroxene and quartz), hornblende gneiss (medium to coarse-grained, gneiss composed primarily of dioritic pyroxene and quartz), hornblende gneiss (medium to coarse-grained, gneiss composed primarily of dioritic pyroxene and quartz), hornblende gneiss (medium to coarse-grained, gneiss composed primarily of dioritic pyroxene and quartz).

DESCRIPTION OF MAP UNITS

- Qd** ALLUVIUM AND GLACIAL OUTWASH. Deposits of clay, silt, sand, and gravel along streams, stratified sand and gravel deposits of fluvio-glacial origin, probably of Wisconsin age; may include remnants of glacial deposits older than Wisconsin.
- Jd** DEBARRE. Dikes, sheets, and sill-like intrusives. Dark-gray to black, fine to coarse-grained (except very fine to fine-grained near shallow basins) diabase composed largely of calcic plagioclase and augite. Larger bodies interpreted as discordant sheets with oval or irregular outcrop patterns.
- Trcl** LIMESTONE CONGLOMERATE. Subangular, medium- to dark-medium-gray limestone and dolomite clasts as much as 8.3 feet in diameter derived from Cambrian limestones in the immediate area and rare quartz pebbles and oolites in a matrix of red, partly arkosic sandstone and siltstone. Generally becomes finer grained southward.
- Trbl** LIMESTONE CONGLOMERATE. Subangular, medium- to dark-medium-gray limestone and dolomite clasts as much as 8.3 feet in diameter derived from Cambrian limestones in the immediate area and rare quartz pebbles and oolites in a matrix of red, partly arkosic sandstone and siltstone. Generally becomes finer grained southward.
- Trh** LOCKATONG FORMATION. Predominantly laminated to thick-bedded, gray and black siltstone and shale. Unit composed of alternating siltstone and chert/limestone cycles. Initial cycles: lower part laminated, medium-dark gray to black, calcareous, partitic siltstone and shale overlain by platy to massive, disrupted (undisrupted and burrowed), dark-gray, calcareous siltstone, ripple-bedded siltstone, and fine-grained sandstone. Average thickness about 17.1 feet thick. Chemical cycles: Lower part platy, medium-dark gray to black, dolomitic siltstone and marlstone with shaly partings and lenses of pyritic limestone, overlain by massive, gray or red, sandstone and calcareous siltstone, disrupted siltstone. Average thickness about 10.8 feet. Shales and siltstones surrounding diabase (Trbl) have been thermally metamorphosed to a purple-red, light gray, and dark gray, indurated, brittle, and fine-grained hornblende in a zone averaging about 2,000 feet wide. The lower contact of the Brunswick Group with the Lockatong Formation is gradational over about 1,640 feet and is either undisturbed and gradational to older rocks of the Newark Supergroup or is unconformable on basement rocks. Also intertongues locally with the Lockatong. The boundary between the Brunswick and the Lockatong generally is placed where the thickness of red beds is dominant over the thickness of gray and black beds, both horizontally and vertically. About 3,450 feet thick.
- Trs** STICKTON FORMATION. Light to medium gray and light-medium gray to pink, reddish-brown, thin to thick bedded, fine to coarse-grained sandstone, arkose and arkosic conglomerate with pebbles of quartzite, feldspar, shale, limestone, and metamorphic rock locally more than 3 inches long; grayish-red to moderate-red-brown, and light to medium gray siltstone and shale, laminated by roots and burrows, and grayish red to reddish-brown, thin to thick bedded siltstone and shale, generally fine grained with abrupt lateral facies changes. These rocks were deposited with abrupt lateral facies changes, cross-beds, pinch-and-swell structures, and minor burrows. Purple siltstone near the middle and end. Well bedded, gray and gray-green, fossiliferous siltstone present locally in the upper part. Local gray and buff, thick bedded, gray and gray-green, sandy siltstone and arkose with subangular to rounded pebbles of quartz, quartzite, limestone, and underlying basement rocks as much as 1.5 inch long

EXPLANATION OF MAP SYMBOLS

- CONTACT, accuracy not defined
- WELL AND IDENTIFICATION NUMBER

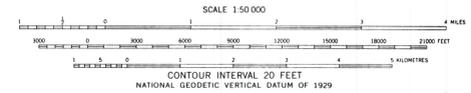
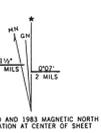
GEOLOGIC SOURCE MAPS

- Drake, A.A., Jr., McLaughlin, D.B., and Davis, R.E., 1961. Geology of the Fritchtown quadrangle, New Jersey-Pennsylvania. U.S. Geological Survey Map GQ-133, 1 plate, 1:24,000.
- Drake, A.A., Jr., McLaughlin, D.B., and Davis, R.E., 1967. Geology of the Regetville quadrangle, Pennsylvania-New Jersey. U.S. Geological Survey Map GQ-263, 1 plate, 1:24,000.
- Lytle, P.T., and Epstein, J.S., 1987. Geologic map of the Newark 1° X 2° quadrangle, New Jersey, Pennsylvania, and New York. U.S. Geological Survey Miscellaneous Investigations Series I-175, 1 plate, 1:250,000.
- Repaat, J.C., and Drake, A.A., Jr., 1991. Discovery of early Ordovician fossils in Bucks County, Pennsylvania. U.S. Geological Survey Bulletin 1934, p. D1-D6.
- Waters, Bradford, McLaughlin, D.B., Watson, E.H., and others, 1950. Geologic map of Bucks County, Pennsylvania in Waters, Bradford, and others, 1959. Geology and mineral resources of Bucks County, Pennsylvania. Pennsylvania Geological Survey, 4th series, Bulletin CV, scale 1:62,500.

PENNSYLVANIA



LOCATION OF MAPPED AREA



GEOLOGIC MAP SHOWING LOCATIONS OF SELECTED WELLS IN NORTHERN BUCKS COUNTY, PENNSYLVANIA

by
Curtis L. Schreffler, B. Craig McManus,
Cynthia J. Rowland-Lesitsky, and Ronald A. Sloto

Geology compiled from Drake and others (1961 and 1967), Lytle and Epstein (1987), Bradford and others (1950), and Repaati and Drake (1991)