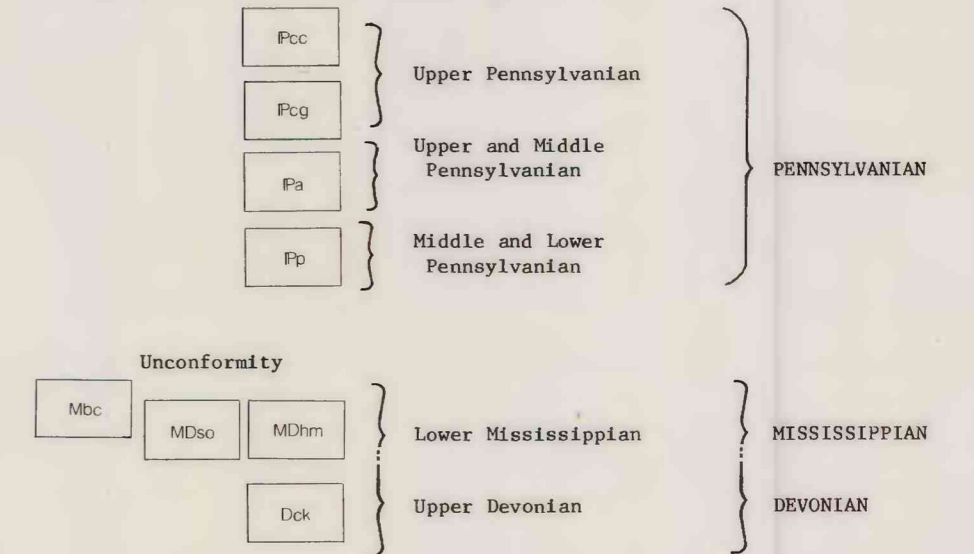


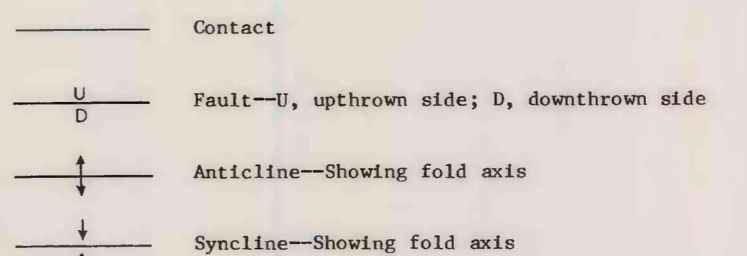
CORRELATION OF MAP UNITS

The stratigraphic nomenclature in this report generally follows the usage of the Pennsylvania Topographic and Geologic Survey.



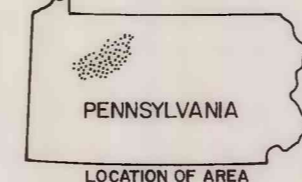
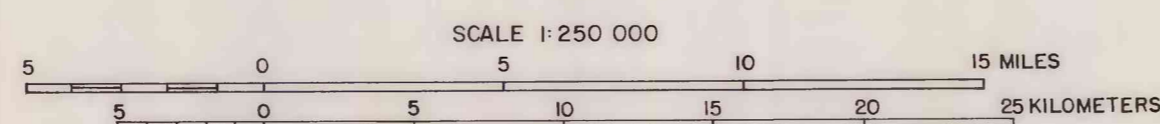
DESCRIPTION OF MAP UNITS

- Fcc** CASSELMAN FORMATION OF THE CONEMAUGH GROUP (UPPER PENNSYLVANIAN)—Cyclic sequences of tan to white sandstone; tan to gray siltstone; red and gray shale; thin, freshwater limestone; and thin, nonpersistent coal. Sandstones are massive to thin bedded. No data available on yield or water quality.
- Fcg** GLENSHAW FORMATION OF THE CONEMAUGH GROUP (UPPER PENNSYLVANIAN)—Cyclic sequences of tan to white sandstone, tan to gray siltstone, red and gray shale, thin limestone, and generally thin coal. Locally contains commercial coal beds. Ames Limestone Member is at top and massive Mahoning Sandstone Member commonly present at base. Generally a good aquifer. Only about one-tenth of wells yield less than 3 gal/min. No wells yield more than 30 gal/min. The median specific capacity of domestic wells is 0.38 (gal/min)/ft. The few data available indicate poor water quality.
- Fa** ALLEGHENY GROUP (UPPER AND MIDDLE PENNSYLVANIAN)—Cyclic sequences of tan to white sandstone, tan to gray siltstone, gray shale, limestone, and coal. Locally, massive sandstone beds are present. Contains many commercial coal beds. In descending order consists of Freeport and Kittanning Formations, Vanport Limestone, and Clarion Formation. Generally a good aquifer. Only about one-tenth of wells yield less than 3 gal/min. About one-fifth of wells yield more than 25 gal/min. Four wells yield more than 50 gal/min, with the maximum yield being 254 gal/min. The median specific capacities of domestic and nondomestic wells are 0.62 and 3.0 (gal/min)/ft, respectively. Water quality generally poor. More than half of wells sampled have moderately hard to very hard water. Iron in excess of 0.3 mg/L is common.
- Fp** POTTSVILLE GROUP (MIDDLE AND LOWER PENNSYLVANIAN)—Generally composed of two massive, gray to white sandstones that are separated by gray to black shale and coal of variable thickness. Locally, upper sandstone is thin or absent. Base of lower sandstone may be conglomeratic. Locally contains commercial coal beds. In descending order consists of Homewood, Mercer, and Connoquessing Formations, and Olean Conglomerate, which is present only in northern part of area. Generally a good aquifer. Only about one-twentieth of wells yield less than 3 gal/min. About one-fifth of wells yield more than 25 gal/min. Thirteen wells yield more than 100 gal/min; two yield more than 200 gal/min, with the maximum yield being 300 gal/min. The median specific capacities of domestic and nondomestic wells are 0.38 and 1.8 (gal/min)/ft respectively. Water quality generally poor. In more than half of wells sampled, water is moderately hard to very hard; iron exceeds 2.0 mg/L; and manganese exceeds 0.50 mg/L.
- Mbc** BURGOON SANDSTONE, SHENANGO FORMATION, AND CUYAHOCA GROUP, UNDIVIDED (LOWER MISSISSIPPIAN)—Composed of greenish-gray to gray sandstone, siltstone, and shale, and some red beds. Sandstones are generally massive. Upper part is predominately sandstone, and lower part is largely shale.
- MDso** SHENANGO FORMATION THROUGH OSWAYO FORMATION, UNDIVIDED (LOWER MISSISSIPPIAN AND UPPER DEVONIAN)—Composed of greenish-gray to gray sandstone, siltstone, and shale; locally thick to thin beds of flat-pebble conglomerate; and some red beds. Sandstones may be massive to thin bedded. Interval tends to be more sandy than shaly.
- MDhm** HUNTLEY MOUNTAIN FORMATION (LOWER MISSISSIPPIAN AND UPPER DEVONIAN)—Composed of greenish-gray to light olive-gray flaggy to slabby, sandstone with a few interbeds of grayish-red siltstone.
Hydrologic information available only for the combined Lower Mississippian parts of the preceding three map units. The Lower Mississippian generally is best bedrock aquifer, but is poor where it is mostly shale. Less than one-twentieth of the wells yield less than 3 gal/min. About half the wells yield more than 25 gal/min. About one-third of wells yield more than 50 gal/min. One-fifth of wells yield more than 100 gal/min. Three wells yield more than 480 gal/min, with the maximum discharge being 550 gal/min. The median specific capacities of domestic and nondomestic wells are 0.55 and 5.0 (gal/min)/ft, respectively. Water quality generally poor. More than half of wells sampled have moderately hard to very hard water.
- Dck** CATSKILL FORMATION (UPPER DEVONIAN)—Composed of nonmarine, red, grayish-red, and greenish-gray shale and siltstone with thick sandstone interbeds locally present. Proportion of red clastics decreases westward across area. No data available on yield or water quality.



Base from Geologic Map of Pennsylvania, 1980, Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey, 4th Series, Map 1.

1973 magnetic declination from true north for this map varies from 6° westerly for the center of the west edge to 8° westerly for the center of the east edge.



Geology by T.M. Berg, W.E. Edmunds, and A.D. Glover, Pennsylvania Bureau of Topographic and Geologic Survey, and by C.H. Dodge, U.S. Geological Survey

Plate 1.—Bedrock geologic map of the Clarion River and Redbank Creek basins, northwestern Pennsylvania.