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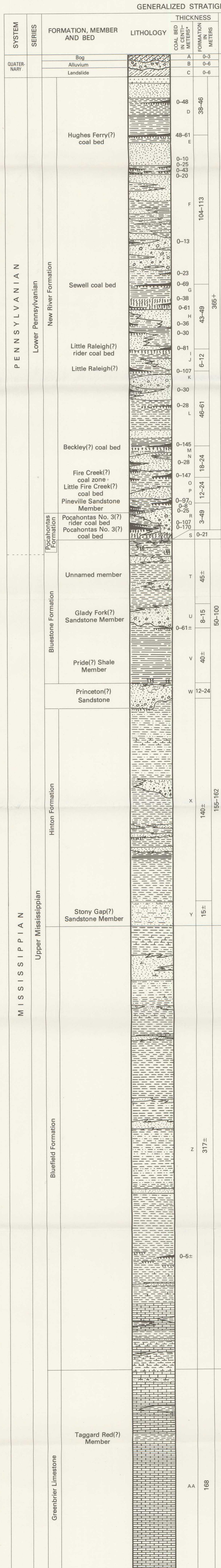
GENERALIZED STRATIGRAPHIC COLUMN



Letter indicates position of unit described in right-hand column

DESCRIPTION

A. Sphagnum, and humus peat (occurs in Cranberry Glades).

B. Gravel, sand, silt, and clay in flood plain deposits.

C. Soil and rock in slide deposits.

D. Sandstone, shale, coal, and underclay: Sandstone at top of unit, white to light-gray, very fine to fine-grained, thick-bedded to massive, contains 65–70 percent quartz and a notable amount of white weathering feldspar; becomes medium light gray downward, fine to medium grained, thin to thick bedded, and contains about 55 percent quartz. Shale, medium-gray to medium-dark-gray, slightly silty, thin evenly bedded to fissle; few scattered ironstone concretions. Coal occurs locally in thin beds underlain by medium-gray underclay with fossil rootlets.

E. Coal, bright, fine cleats; thin shale parting near top. Occurs in high ridge in northwestern part of area.

F. Sandstone, shale, siltstone, coal, and underclay: Sandstone, medium-light-gray, very fine to coarse-grained, thin-bedded to massive; contains 55–65 percent quartz, feldspar, mica flakes, dark and light minerals, few ironstone bands and pebbles. Conglomeratic sandstone and conglomerate near base of unit; contains rounded pebbles up to 0.6 cm diameter, 65 percent quartz. Shale, medium-dark-gray to black, silty, poorly bedded; interbedded medium-gray siltstone, and very fine grained sandstone. Coal occurs in thin discontinuous beds underlain by medium-gray underclay with fossil rootlets and root casts.

G. Coal, bright, fine cleats, moderately thick in places with thin partings; locally absent.

H. Shale, sandstone, siltstone, coal, and underclay: Shale, medium-dark-gray to dark-gray, thin evenly bedded with few layers of siltstone and very fine grained sandstone; few ironstone bands; interbedded siltstone, medium-gray shaly, and sandstone lenses. Sandstone, medium light-gray, very fine to fine-grained, lenticular; contains shale and siltstone layers, ironstone pebbles and scattered coal fragments. Coal and associated underclay occur in discontinuous thin beds.

I. Coal, bright to impure, bone at top; absent in many places.

J. Shale, siltstone and sandstone: Shale and siltstone, medium- to dark-gray, thin evenly bedded, few ironstone bands; siltstone contains layers of very fine grained sandstone. Sandstone, light-gray, very fine to fine-grained, lenticular, about 65 percent quartz.

K. Coal, mostly bright with dull bands, thin to thick vitrain bands, abundant fusain bands in upper 60 cm; fine cleats, fragile; absent in east-central part of area.

L. Sandstone, shale, coal, and underclay: Sandstone near top of unit, light- to medium-gray, fine to coarse, grained, conglomeratic, subangular to subrounded grains, thick-bedded to massive; forms bench; weathers very light gray, contains 60–65 percent quartz and white weathered feldspar. Other sandstones in unit are medium gray, thin to thick bedded; contain 50–55 percent quartz. Shale, medium-gray to dark-gray, evenly bedded scattered ironstone bands, slightly silty with interbeds of siltstone and very fine grained sandstone. Carbonaceous black shale near base of unit contains *Lingula*. Coal occurs in beds underlain by medium-gray underclay containing fossil rootlets and pisolitic siderite.

M. Coal, dull with bright bands, fine to medium cleats, fragile, contains thin shale parting in places; thins northwestward, locally absent.

N. Sandstone, shale, siltstone, coal, and underclay: Sandstone, medium light-gray, very fine to medium-grained, thick-bedded to massive, cross bedded; contains about 50 percent quartz. Shale and siltstone, medium-dark-gray to dark-gray; contains plant fragments, *Lingula* in dark-gray shale at base of unit. Coal and underclay occurs in thin discontinuous beds.

O. Coal, dull with bright bands, fragile, fine cleats, locally splits into two or more beds.

P. Sandstone, shale, siltstone, coal, and underclay: Sandstone, medium-light-gray, fine to medium-grained, thick-bedded to massive, cross-bedded, contains 55–60 percent quartz. Shale and siltstone, medium- to dark-gray. Coal and associated underclay in very thin discontinuous beds.

Q. Coal, bright with few dull layers, hard; slightly impure with thin partings in places. Limited areal extent.

R. Conglomeratic sandstone, sandstone, shale, coal and underclay: Pineville Sandstone Member at base of unit, is light gray, and in many places contains white rounded quartz pebbles, mostly 2.5 cm or less but a few up to 5 cm or more in diameter. Where nonconglomeratic, Pineville is fine- to very coarse grained. The member is thin-bedded to massive, cross bedded; contains about 65 percent quartz, also white weathering feldspar and coal spars. It apparently thins northwestward and is absent in northwestern part of the area. Other sandstones in the unit are light to medium gray, fine to medium grained, thick bedded and contain 55–60 percent quartz. Shale, medium- to dark-gray, sandy. Coal occurs in thin discontinuous beds underlain by medium-gray underclay with fossil rootlets.

S. Shale, sandstone, coal, and underclay: Shale and siltstone, gray to very dark gray, thin evenly bedded, partly sandy, carbonaceous; contains plant fragments including *Neuropteris pocahontas* found in shale overlying the Pocahontas No. 3(?) coal bed. Pocahontas No. 3(?) coal is thick and prominent in the central part of the area but thins rapidly to the north and south. Coal is banded with bright and dull laminations, fine to medium cleats, fragile to semihard, contains few bony partings in places. A rider coal occurs locally up to 6 m above the Pocahontas No. 3. Associated underclay is medium gray slightly sandy.

T. Shale, sandstone, conglomerate, and underclay: Shale at top of unit, greenish-gray, partly silty and sandy, slightly calcareous and in places underlain by thick carboniferous shale with ostracods (Bramwell Member(?)), contains siderite spherules. Shale, below top, mostly grayish-red to mottled greenish-gray and grayish-red; partly silty, few siltstone beds with zones of calcareous nodules; light-greenish-gray shale at base of unit contains *Lingula*. Sandstone, light to medium-gray, very fine to medium-grained, flaggy or thin-bedded, approximately 45 percent quartz, micaceous. Conglomerate occurs locally near middle of unit, light gray; contains rounded quartz pebbles 0.6 or more. Lenticular beds of underclay, mottled greenish-gray and grayish-red, occurring in upper part of unit.

U. Sandstone and conglomerate, medium-gray, medium-grained to very coarse grained, conglomeratic with rounded quartz pebbles up to 2.5 cm in diameter, upper part of unit mostly sandstone, medium- to coarse-grained, thin- to thick-bedded; basal part of unit contains angular to rounded fragments of limestone, siltstone, chert, and quartz pebbles. Locally contains gray silty shale bed near middle of unit.

V. Shale, medium-dark to dark gray, grayish-red and greenish-gray, evenly bedded, grades to silty shale, fissile; contains pelecypods and ostracods. Impure coal and underclay occurs at top of unit, associated with grayish-red and greenish-gray shale. Basal beds contain lenticular underclay, greenish-gray, nonbedded with fossil rootlets.

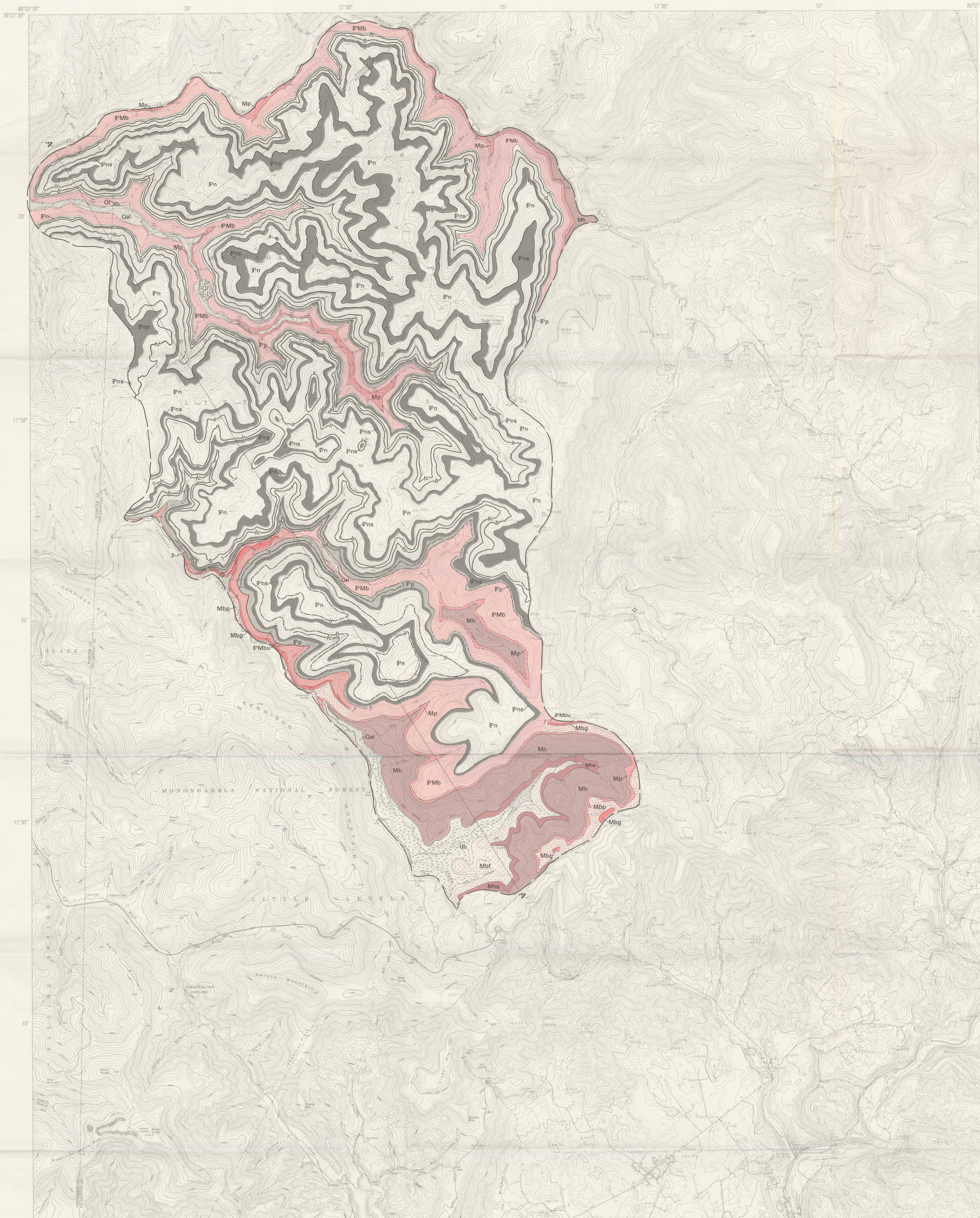
W. Sandstone and conglomerate, medium-gray to light-greenish-gray interbedded at top of unit with siltstone, grades downward into medium- to coarse-grained, and conglomeratic sandstone, thick-bedded to massive, crossbedded, 45–50 percent quartz. Basal part contains lenses of conglomerate with abundant angular to rounded limestone and quartz pebbles, rock and chert chips, up to 1.2 cm or more in diameter. Forms resistant ledge or bench. Basal contact undulates 6 m or more.

X. Shale and sandstone: Shale, grayish-red, with few interbeds of grayish-green, to gray, poorly bedded, fissile, partly silty fine-grained sandstone lenses; contains several thin, gray to olive-green beds, with abundant carbonaceous fragments and plant debris; contains few calcareous nodule zones. Sandstone, gray to grayish-red, silty, fine- to medium-grained, thin-bedded, slightly carbonaceous and calcareous, approximately 50 percent quartz, with feldspar, mica and dark mineral grains; contains limestone pebbles and shale chips at base.

Y. Sandstone, light-greenish-gray, fine- to medium-grained, thin bedded; contains 45 percent quartz with dark and light minerals, appears more quartzose than any sandstone seen below this unit.

Z. Shale, siltstone, sandstone, limestone, coal, and underclay: Shale, grayish-red, to grayish-green, nonbedded to poorly bedded, to fissile, slightly calcareous, contains thin grayish-red, calcareous siltstone beds with calcareous nodules and nodular limestone beds scattered near top of unit. Few interbeds of olive-green shale containing carbonaceous matter, with ostracods and pelecypods in some places. Siltstone, grayish-red, to olive-green; contains carboniferous matter and plant debris, slightly calcareous. Sandstone, grayish-red, to greenish-gray, fine- to medium-grained, thin- to medium-bedded, crossbedded, shaly and argillaceous, slightly calcareous, micaceous. Limestone dark-gray to black, dense to finely crystalline; argillaceous; contains shell fragments, fossil hash, and semi-pelletal beds near base of unit. Coal and underclay, few very thin beds of impure coal with plant fragments, underclay with fossil rootlets, and dark bands of carbonaceous shale in lower part of units.

AA. Limestone, shale, and siltstone: Limestone, medium-gray to medium-dark gray, pelletal, granular, oolitic, arenaceous, thick-bedded to massive, crossbedded, zones of abundant fossil hash and detrital fragments, few beds of calcilutite, and mudstone, medium-gray, nodular to massive. Upper part of unit contains interbedded greenish-gray to grayish-red shale and siltstone; contains one lense of shale, medium-dark-gray, with carbonaceous matter and mica flakes along bedding planes. Taggard Red(?) Member; calcareous mudstone, shale, and siltstone, grayish-red, castellated.



Base from U.S. Geological Survey Webster Springs SE, 1966 and Woodrow, Lobelia, Hillsboro Quadrangles, 1973

APPROXIMATE MEAN DECLINATION 1980

SCALE 1:48 000

1 .5 0 1 2 3 4 5 6 KILOMETERS

1 ½ 0 1 2 3 MILES

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

Geology by C. R. Meissner, Jr., and J. F. Windolp, Jr., 1977

EXPLANATION

QUATERNARY

Qb — Bog

Qal — Alluvium

Ql — Landslide

PENNSYLVANIAN — Lower Pennsylvanian

New River Formation

Pns, *unnamed sandstone members*
hf, Hughes Ferry(?) coal bed
s, Sewell coal bed
lr, Little Raleigh(?) coal bed
b, Beckley(?) coal bed
fc, Fire Creek(?) coal bed

Pp — Pocahontas Formation

3–r, Pocahontas No. 3(?) rider coal bed
3, Pocahontas No. 3(?) coal bed

MISSISSIPPIAN — Upper Mississippian

PMbu, Mbg, Mbp, PMb — Bluestone Formation

PMbu, *unnamed member*
Mbg, *Glady Fork(?) Sandstone Member*
Mbp, *Pride(?) Shale Member*
PMb, *Bluestone Formation, undivided*

Mp — Princeton(?) sandstone

Mh, Mhs — Hinton Formation

Mhs, *Stony Gap(?) Sandstone Member*

Mbf — Bluefield Formation

Mg — Greenbrier Limestone
(In cross section and stratigraphic section only)

Coal bed
Dashed where approximately located; queried where extent unknown

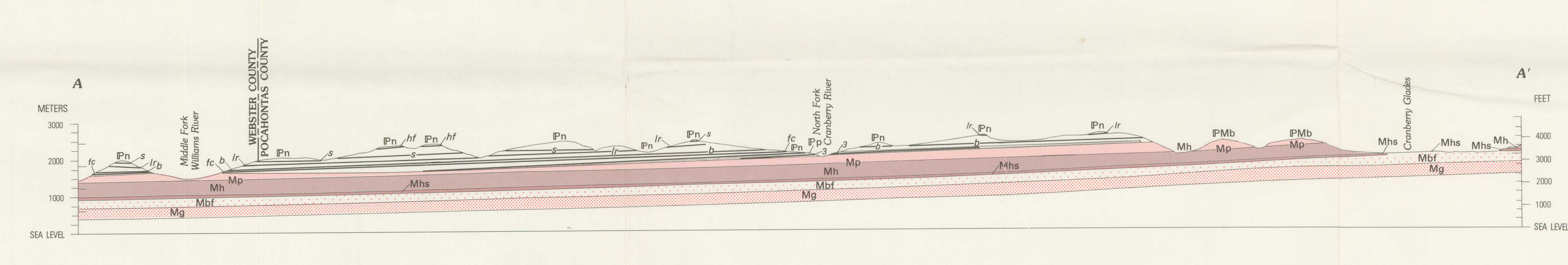
Contact
Dashed where approximately located; dotted where concealed; queried where extent unknown

x Prospect or outcrop

Adit

Caved Adit

Dry Hole



GEOLOGIC MAP, CROSS SECTION, AND GENERALIZED STRATIGRAPHIC COLUMN, CRANBERRY WILDERNESS STUDY AREA, WEBSTER AND POCAHONTAS COUNTIES, WEST VIRGINIA