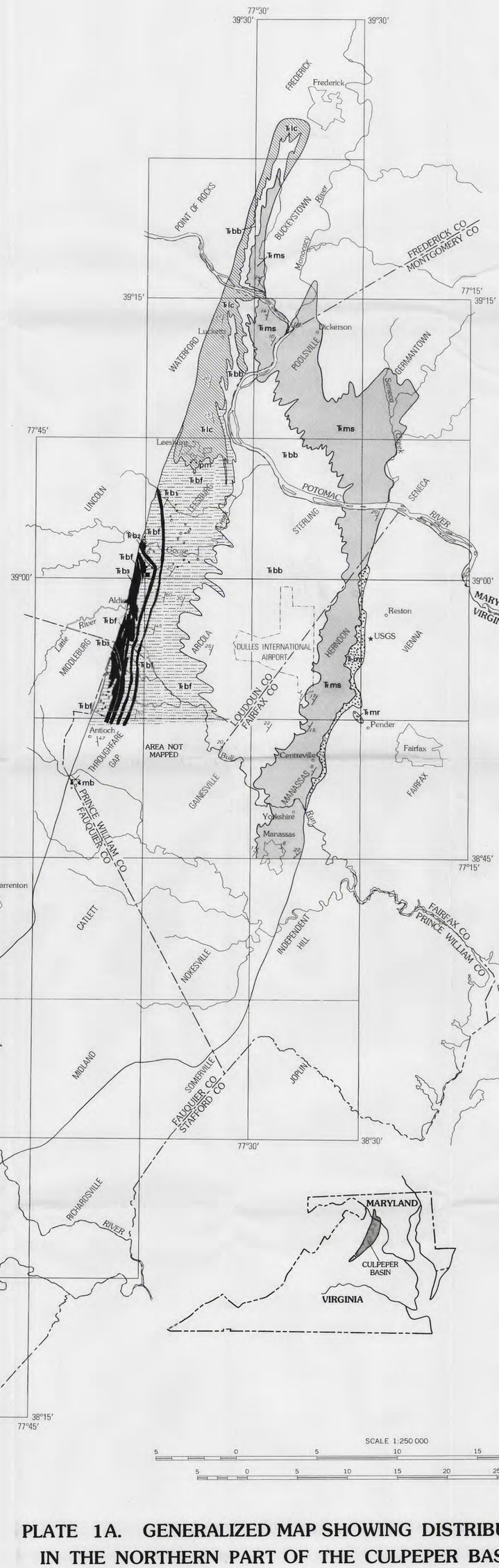
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BULLETIN 1422-C
PLATE 1

ERA	SYSTEM	GROUP	SERIES	FORMATION AND MEMBER	SOUTHWEST FREDERICK VALLEY, MARYLAND	SOUTH DICKERSON—LUCKETTS AREA, VIRGINIA AND MARYLAND	NORTH PENDER—EAST ALDIE AREA, VIRGINIA	NORTH CENTREVILLE—ANTIOCH AREA, VIRGINIA
MESOZOIC	TRIASSIC and JURASSIC(?)	Newark Group	Upper Triassic–?Lower Jurassic(?)	Bull Run Formation, Basaltic-flow-bearing clastics member	REMOVED BY EROSION AND TRUNCATED BY BORDER FAULT		Truncated by border fault Sandstone, siltstone, and silty shale; 93.75 m (309 ft) Basaltic flow; 208 m (686 ft) Sandstone, siltstone, and silty shale; 156 m (515 ft) Basaltic flow; 119 m (393 ft) Sandstone and siltstone; 214 m (706 ft) Basaltic flow; 42 m (139 ft) Sandstone, siltstone, and silty shale; containing Balls Bluff Siltstone lenses; 1,115 m (3,680 ft) Total 1,947 m (6,428 ft)	Very fine to very coarse clastics. Limestone, metavolcanics, quartzite conglomerates; sandstone, siltstone, and shale; at places, contains basaltic flows: 1,718.5 m (5,671 ft) Basaltic flow; 437.5 m (1,444 ft) Sandstone, siltstone, and shale; 219 m (723 ft) Basaltic flow; 594 m (1,960 ft) Sandstone, siltstone, and shale; 437.5 m (1,444 ft) Basaltic flow; 437.5 m (1,444 ft) Sandstone, siltstone, and silty shale; 519 m (1,713 ft) Basaltic flow; 119 m (393 ft) Sandstone, siltstone, and silty shale; containing Balls Bluff Siltstone lenses; 3,445 m (11,369 ft) Total 7,927 m (26,161 ft)
				Bull Run Formation, Leesburg Limestone Conglomerate Member	Light-gray and blackish-gray, rounded to subrounded cobbles and pebbles of limestone in granules of limestone, vein-quartz, and clayey silt matrix, cemented by calcite; containing Balls Bluff Siltstone lenses, 190 m (627 ft)	Light-gray and blackish-gray, subrounded and subangular boulders, cobbles, and pebbles of limestone; and limestone, vein-quartz and clayey silt matrix; cemented by calcite; containing Balls Bluff Siltstone lenses, 1,072 m (3,538 ft)		
				Balls Bluff Siltstone	Chiefly calcisiltite, containing lenses of limestone conglomerate in the upper part and sandstone and siltstone in the lower part; 95 m (314 ft)	Chiefly calcisiltite, containing lenses of limestone conglomerate in the upper part and sandstone and clayey siltstone in the lower part; oolitic variety at places; 615 m (2,030 ft)	Chiefly calcisiltite, containing lenses of sandstone, siltstone, and thin oolitic limestones; 2,187 m (7,219 ft)	Chiefly calcisiltite, containing lenses and thin interlayers of sandstone, siltstone, and gray limestone; 1,937.5 m (6,394 ft)
				Manassas Sandstone, Sandstone member	Sandstone, siltstone, and clayey siltstone; conglomeratic near the base; 342 m (1,129 ft)	Sandstone, siltstone, and clayey siltstone; conglomeratic near the base; 1,400 m (4,620 ft)	Sandstone, siltstone, and clayey siltstone; conglomeratic near the base, and conglomeratic lenses; 808 m (2,666 ft)	Sandstone, siltstone, and clayey siltstone; conglomeratic lenses; 719 m (2,373 ft)
				Manassas Sandstone, Reston Member	NOT EXPOSED		Loose to semicompact sand and gravel; containing lenses of siltstone, sandstone, conglomeratic sandstone, and conglomerate; 22 m (73 ft)	Loose to semicompact sand and gravel; containing lenses of siltstone, sandstone, conglomeratic sandstone, and conglomerate; 12.5 m (41 ft)
				Total	627 m (2,070 ft)	3,087 m (10,188 ft)	4964.5 m (16,386 ft)	10,595 m (34,969 ft)

Conglomerate | Sandstone and conglomerate lenses | Siltstone | Shale | Basaltic flow | Sand and gravel

PLATE 1B. COLUMNAR SECTIONS OF THE NEWARK GROUP IN THE NORTHERN PART OF THE CULPEPER BASIN, VIRGINIA AND MARYLAND [THICKNESS ESTIMATED IN METERS (FEET), BUT NOT SHOWN TO SCALE]



EXPLANATION

- Newark Group
  - Bull Run Formation
    - Tbs, Tbc, Tb2, Tbf — Basaltic-flow-bearing clastics member: Tb1, First basaltic flow; Tb2, Second basaltic flow; Tb3, Third basaltic flow
    - Tlc — Leesburg Limestone Conglomerate Member
  - Balls Bluff Siltstone — Tbb
  - Manassas Sandstone
    - Tms — Sandstone member
    - Tmr — Reston Member
- LOWER JURASSIC(?) / UPPER TRIASSIC / TRIASSIC and JURASSIC (?) / MESOZOIC
- 20 — Strike and dip of beds
- Dinosaur track quarry
- Abandoned quarry pm, Potomac Marble mb, Millbrook quarry
- Oak Hill
- Location of crustacean fauna
- SENECA — 7½′ topographic quadrangle map

Note: Boundary of the Culpeper basin in Maryland modified in part from Jonas and Stose (1938), Fisher (1964), and Reinhardt (1974); the southern boundary in Virginia adopted in part from Milici, Spiker, and Wilson (1963) and Conley and Johnson (1975).

PLATE 1A. GENERALIZED MAP SHOWING DISTRIBUTION OF THE NEWARK GROUP IN THE NORTHERN PART OF THE CULPEPER BASIN, VIRGINIA AND MARYLAND