U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared in cooperation with the
NEW JERSEY GEOLOGICAL SURVEY

MISCELLANEOUS INVESTIGATIONS SERIES
MAP I–2540–A (SHEET 1 OF 2)
Pamphlet of references accompanies map

EXPLANATION OF MAP SYMBOLS

Contact—Dotted where concealed. Queried where uncertain

Faults—Dotted where concealed. Queried where uncertain

Tear fault—Arrows indicate relative horizontal movement

Normal fault—U, upthrown side; D, downthrown side. Bar and ball show dip of fault plane

Reverse fault—U, upthrown side; D, downthrown side. Bar and ball show dip of fault plane

Inclined thrust fault—Teeth on upper plate

Fault—Movement sense not known

Figure 1.—Index map showing the location of the northern, central, and southern geologic map sheets of New Jersey, the physiographic and structural provinces and cross sections.

Figure 3.—Diagram of inferred relations of Middle and Late Proterozoic rocks in the New Jersey Highlands.

DESCRIPTION OF MAP UNITS

COASTAL PLAIN

The New Jersey Coastal Plain (fig. 1) is underlain by unconsolidated and semiconsolidated siliciclastic sediments of Cretaceous and Cenozoic age. These sediments constitute a gently dipping, seaward-thickening wedge that is more than 1,920 m (6,300 ft) thick in the southern part of the State. Coastal Plain sediments accumulated along the Atlantic continental margin in a variety of nonmarine, marginal marine, and marine environments. Only marginal marine and nonmarine deposits of the Raritan Formation, as much as 13 m (43 ft) thick, are exposed in the southeastern part of the map area

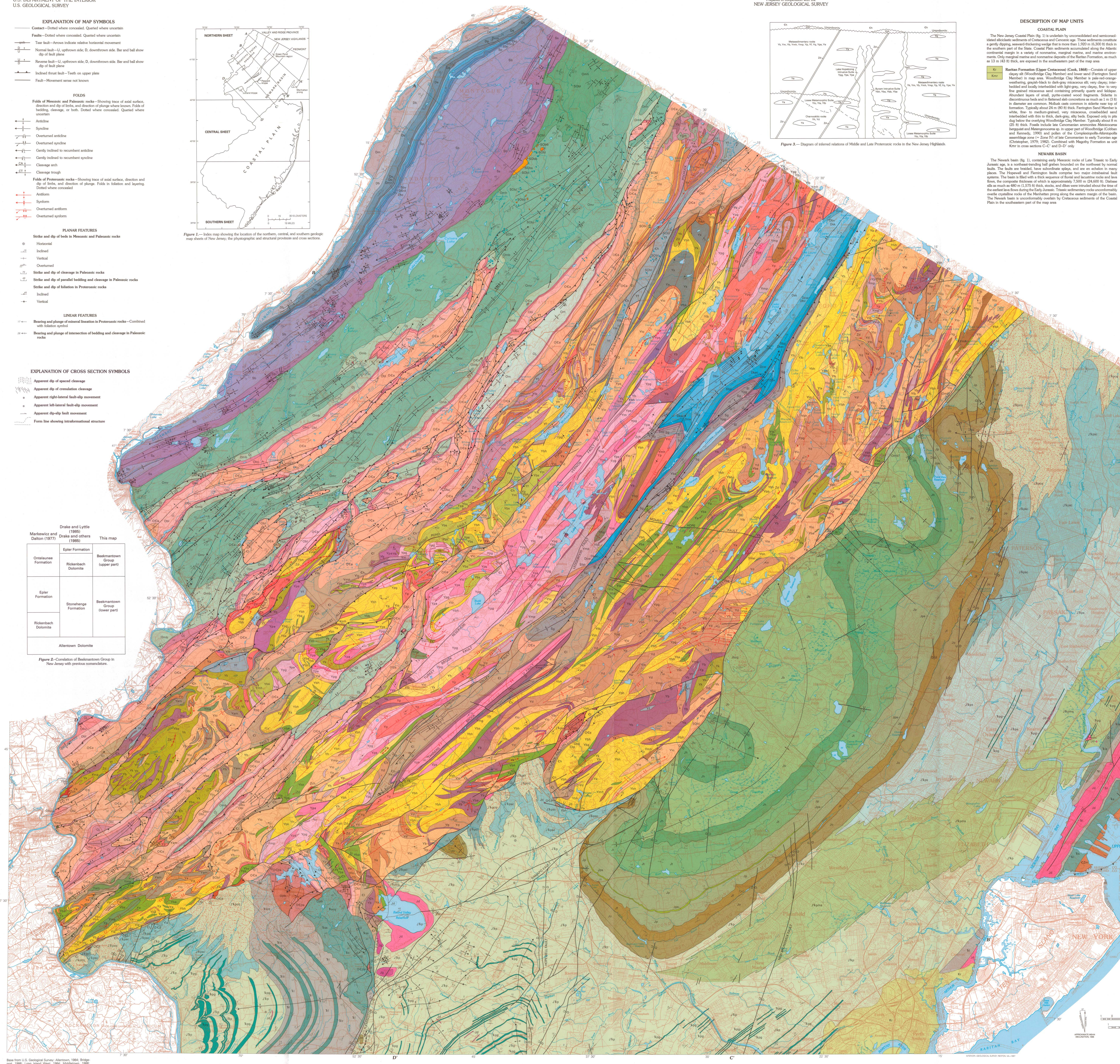
Kr / Kmr **Raritan Formation (Upper Cretaceous) (Cook, 1868)**—Consists of upper clayey silt (Woodbridge Clay Member) and lower sand (Farrington Sand Member) in map area. Woodbridge Clay Member is pale-red-orange-weathering, grayish-black to dark-gray micaceous silt; very clayey; interbedded and locally interbedded with light-gray, very clayey, fine- to very fine grained micaceous sand containing primarily quartz and feldspar. Abundant layers of small, pyrite-coated wood fragments. Siderite in discontinuous beds and in flattened slab concretions as much as 1 m (3 ft) in diameter are common. Mollusk casts common in siderite near top of formation. Typically about 24 m (80 ft) thick. Farrington Sand Member is white, fine- to medium-grained, very micaceous, crossbedded sand interbedded with thin to thick, dark-gray, silty beds. Exposed only in pits dug below the overlying Woodbridge Clay Member. Typically about 8 m (25 ft) thick. Fossils include late Cenomanian ammonites *Metoicoceras bergquisti* and *Metengonoceras* sp. in upper part of Woodbridge (Cobban and Kennedy, 1990) and pollen of the *Complexiopollis-Atlantopollis* assemblage zone (= Zone IV) of late Cenomanian to early Turonian age (Christopher, 1979; 1982). Combined with Magothy Formation as unit Kmr in cross sections C–C′ and D–D′ only

NEWARK BASIN

The Newark basin (fig. 1), containing early Mesozoic rocks of Late Triassic to Early Jurassic age, is a northeast-trending half graben bounded on the northwest by normal faults. The faults are braided, have subordinate splays, and are en echelon in many places. The Hopewell and Flemington faults comprise two major intrabasinal fault systems. The basin is filled with a thick sequence of fluvial and lacustrine rocks and lava

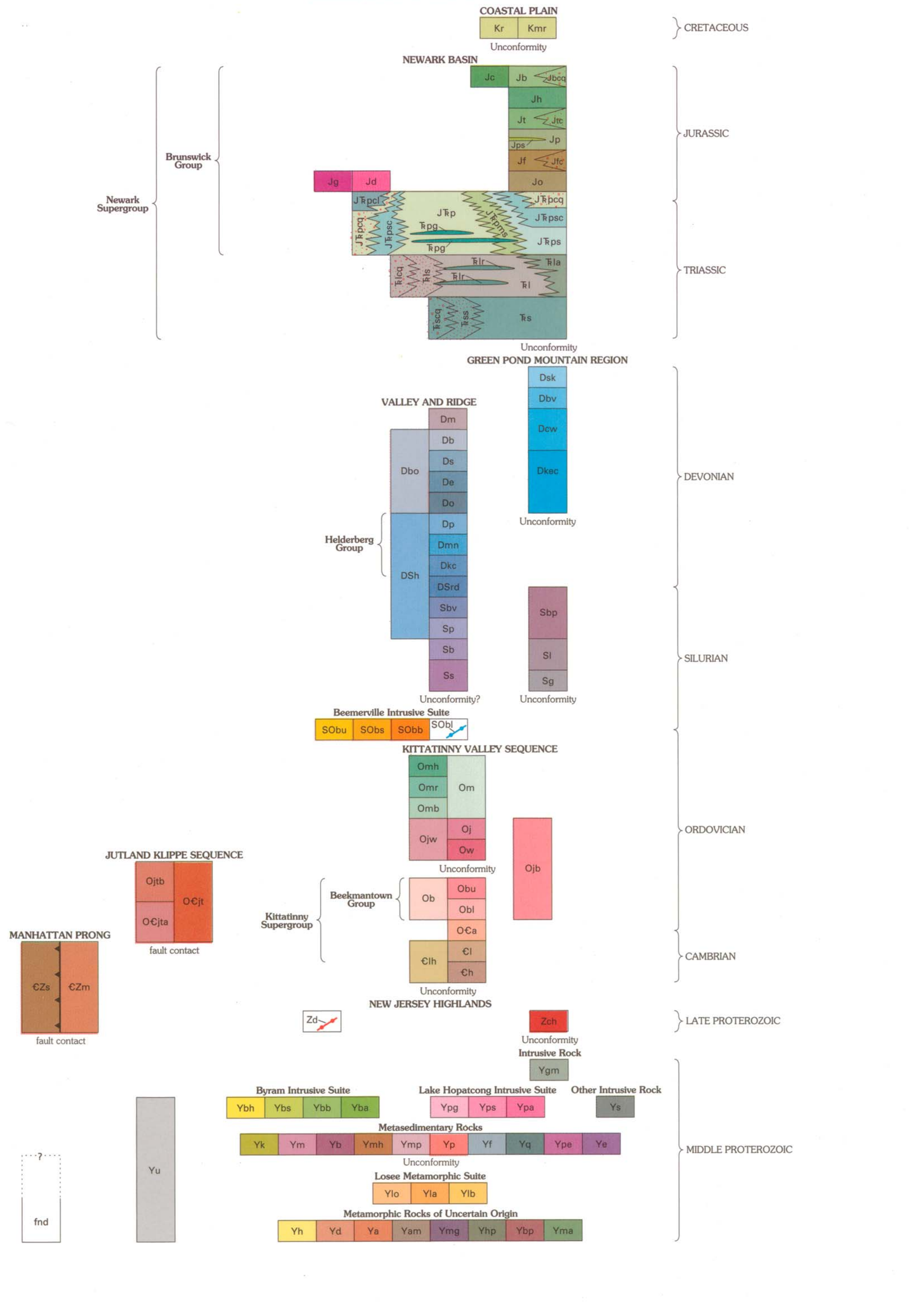
GREEN POND MOUNTAIN REGION

The Green Pond Mountain region (fig. 1), extending from Greenwood Lake to Califon, is a northeast-trending, narrow belt of Paleozoic rocks within the New Jersey Highlands. Lower Cambrian through Middle Devonian rocks are downwarped and block faulted in a half graben that is complexly faulted along its northwest border. An overturned syncline dominates the northeast part of the region, whereas upright anticline and syncline pairs occur in the central and southwest parts. Moderate- to high-angle reverse faults that are subparallel to the regional fold axes occur on the southeast sides of large anticlines in the central part of the region. Cambrian and Ordovician rocks of the Kittatinny Valley sequence are mostly dolomite and lesser amounts of siliciclastic rocks. They are absent in the central part due to erosion, where the Silurian Green Pond Conglomerate rests unconformably on Middle and Late(?) Proterozoic rocks. The Silurian and Devonian rocks are lithologically unique to this region, but have been correlated with rocks of equivalent age in the Valley and Ridge Province (Barnett, 1970; Herman and Mitchell, 1991) to the northwest



SCALE 1:100 000

CONTOUR INTERVAL 20 METERS
DATUM IS MEAN SEA LEVEL



CORRELATION OF MAP UNITS

Base from U.S. Geological Survey: Allentown, 1984; Bridgeport, 1986; Long Island West, 1984; Middletown, 1986; Newark, 1986; Scranton, 1986

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BEDROCK GEOLOGIC MAP OF NORTHERN NEW JERSEY

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