Name: Great Falls of Paterson-Garret Mountain

Location: Passaic County, New Jersey

Description:

This approximately 317-acre site consists of two portions: Great Falls of Paterson (4 acres) and Garret Mountain (309 acres) which reveal the first Watchung lava flow and the underlying Triassic Brunswick mudstone, over which the lava flowed. Outpouring of the Watchung basalt began long after the start of detrital sedimentation in the Newark Basin without preliminary explosive activity. Fluid lava was spread at least 50 miles in single flows 150 to 175 feet thick. In a general way, the distribution of the lava records the axial position of the Newark Basin. There are excellent exposures of both platy and columnar jointing, and the west flank of the mountain is marked by a long normal fault that records break-up of the Newark Basin, after accumulation of the Brunswick Formation and its lava flows. The glacially smoothed crest of Garret Mountain affords an excellent view of the gorges of the Passaic River that cut into the hard lava ridges of the three Watchung lava flows. The river notch and vertical cliffs in which it occurs exhibit a joint system, with the boulders below the cliff face illustrating the action of stream and frost in disrupting jointed rocks. The Passaic River is the principal drainage of the Great Swamp area that formerly was occupied by glacial Lake Passaic. At the falls, the river drops about 75 feet from the basalt cliffs and cuts its downstream channel into the more erodable sandstone.

Significance:

Great Falls of Paterson-Garret Mountain provides an excellent illustration of the jointed basaltic lava flow that began a period of extrusion and intrusion throughout eastern North America in the early Mesozoic, influencing present day landforms in this region.

Ownership: County, Federal, Municipal

Designation: April, 1967; Expanded, January, 1984

Evaluation: Robert H. Rose, National Park Service, 1966; F. B. Van Houten, Princeton University, 1977