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PLEISTOCENE AND HOLOCENE SEDIMENTS
AT HAMLIN BEACH STATE PARK, NEW YORKRobert W. Adams
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Erosion and sedimentation along the Lake Ontario shore at Hamlin Beach State Park, ten miles north of Brockport, New York, have exposed and produced numerous sedimentological features. The purpose of this trip is to examine Pleistocene and Holocene deposits in order to observe the variety of materials and structures present and to discuss their possible origins. The high water level condition of Lake Ontario and periodic lake storms have created new exposures of Pleistocene deposits and have removed or made inaccessible other exposures. This situation is not expected to change prior to the field trip and therefore specific localities cannot be designated in this summary. The general types of material which we may reasonably expect to examine are outlined below. It is hoped that the experience of the participants and discussions on the "outcrop" will aid in the interpretation of the Pleistocene features.

Shoreline Sedimentation

The sandy beaches at Hamlin Beach State Park have been modified greatly by the high water conditions. Much of the sand has been removed, leaving a "lag concentrate" of coarser material with abundant sand-size heavy minerals. The lack of a substantial replenishing sand source to the west of this area (dominant longshore currents are from the west) inhibits the reformation of a sand beach. In the past this has necessitated

groin construction for trapping the sand moved by longshore drift, trucking-in sand to maintain the beaches, and snow-fencing during the winter season to inhibit the removal of sand by wind.

Under normal conditions the subdivisions of a beach (shoreface, berm crest, and backshore) can be found and examined at the Park. The presence of a wide range of clast size (silt to boulders), clasts of contrasting composition and derivation (igneous, metamorphic and sedimentary), and variable wind and water conditions together provide for the development of a host of sedimentary textures and structures. Examination of these sedimentation features provides an opportunity to observe sedimentation phenomena and to develop and discuss principles of physical stratigraphy and sedimentology.

Heavy mineral concentrates as layers up to one-inch thick were common in the beach area during normal conditions and have increased in proportion and thickness in the last year. Black magnetite-rich and pink to red garnet-rich bands dominate the beach deposits. Hornblende and hypersthene are very common in the concentrates. This material provides excellent teaching examples for optical mineralogy and sedimentary petrography.

Pleistocene Sediments

The shoreline within the Park extends from eastern, low, marshy areas westward to bluffs dominated by a prominent topographic high, locally called Devil's Nose, extending approximately eighty feet above lake level. Exposures of sediments along the shoreline has revealed materials which have the characteristics of recent beach sedimentation. Individual sedimentation units are composed of clay, silt, sand, or boulder gravels and are probably late Pleistocene. A minor proportion of

the material is cemented into a boulder conglomerate which upon being eroded by wave attack has formed "sea" caves, arches, and stacks. The documentation and analysis of the sedimentary units is an on-going project by the staff and students, Department of The Earth Sciences, State University College at Brockport.

This field trip will traverse the shoreline along the northwest portion of the Park. Exposures of the pre-recent vary from low wave-cut benches to high, vertical bluffs resulting from lake storm undercutting and subsequent collapse of the bluffs. The group will examine as many features of the Pleistocene as possible and a summary of facts and conjecture will be presented at the end of the trip.

