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### Surficial Geology of Boston Basin

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SURFICIAL GEOLOGY OF BOSTON BASIN

Clifford A. Kaye  
U.S. Geological Survey

(Topographic maps: Boston North, Boston South, Hull, Lexington, Newton quadrangles)

Much depends on whether or not revealing foundation excavations are open and available for our inspection. The following stops will comprise the trip without excavations. Otherwise one or more of these stops will be dropped from the itinerary to allow time for unscheduled stops.

No road log is given because in a heavily built-up city this serves little purpose.

Starting point is Boston University parking lot.

Stop 1. Long Island, Boston Harbor (Hull quadrangle)

- A.) View of the harbor from hospital parking lot to see the many drumlin islands.
- B.) Middle drumlin. This is a compound drumlin made up of 3 coalesced drumlins, side by side. We will look at a cliff cut in the middle drumlin which shows good stratification and non-till zones. We can also see oxidized and non-oxidized till and, if we are lucky, we can collect shells from the till.
- C.) West Head. This cliff shows some stratification and deep oxidation. We will discuss probable original shape and later glacial modification of shape. The rock types represented in the clasts and the location of the probable source beds will be discussed. The erosional processes working on this cliff will be discussed and the net rate of erosion.

Stop 2. Chapel Rocks, Squantum (Boston South quadrangle)

Type locality of the Paleozoic Squantum "tillite". We will discuss whether it is a tillite.

Stop 3. Lunch, at Howard Johnson No. 1.

Stop 4. Boston Common with view of Beacon Hill.

- A.) Original topography, Hill, Boston Common, Public Garden
- B.) Structures and deposits in two morainic systems

C.) Dating the glacial readvances

Stop 5. We will trace the line of the Back Bay moraine and Fresh Pond moraine in Cambridge (Boston North quad.).

Stop briefly at Observatory Hill (Lexington quadrangle)

Stop 6. South side of Fresh Pond, Cambridge (Lexington quadrangle)

Stop 7. Mt. Auburn Cemetery, Cambridge (Newton quadrangle)

Stop 8. Foster St., Brighton (Newton quadrangle)

Striated outcrop that shows 3 directions of ice flow.

Stop 9. Jamaica Pond moraine (Boston South quadrangle)

This small moraine is at the head of the Jamaica Plain outwash. Jamaica Pond is a large kettle and may mark the southern advance of a late Wisconsin readvance, possibly Beacon Hill, slightly less possibly, the Back Bay readvance.

Return to parking lot by way of Harvard Medical School area and Parker Hill drumlin.