Explanation for the geologic map
of the Orleans quadrangle, Barnstable County, Cape Cod, Mass.
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EXPLANATION

HOLOCENE
POSTGLACIAL DEPOSITS

Qd

Dune deposits

Windblown sand to small pebbles in irregularly shaped dunes, areas of small discontinuous dunes, and foredunes

Qb

Beach deposits

Sand to small boulders deposited by wave action and long shore currents. Composed of reworked drift. Beach deposits occur near sea level. Includes some fresh water beach deposits

Qbs

Storm beach deposits

Beach and dune deposits eroded, transported, and redeposited by storm waves. Storm beach deposits occur from near sea level to a few feet above sea level

Qs

Marsh and swamp deposits

Muck, peat, sand, silt, and clay of marine and fresh water origin. Some fresh water swamps converted to cranberry bogs

Qe

Eastham plain deposits

Characterized by a high content of felsic volcanic rocks (fig. 3). Mostly pebbly to cobbly sand. Beds of pebble to cobble gravel, clayey silt, and till occur in some places. Boulders up to several tens of feet in diameter common in the vicinity of Nauset Bay and Nauset Light. Beds generally a foot to several feet thick; mostly gently dipping. Where collapsed moderate to steep dips and normal faulted. Planar bedding, current ripples, and tabular and scour and fill crossbedding common. Clayey silt laminated to massive. Till massive to poorly bedded. Sand mostly quartz; glauconite and feldspar accessories. Grains mostly subangular to subround; a few round grains. Stone content (fig. 3) mostly felsic volcanics 34 percent, granites 15.5 percent, quartzite 15 percent, and mafic volcanics 12 percent. Stones mostly angular to subround. Fossil material includes carbonized and silicified wood

Ql

Lake deposits

Pebbly to cobbly fine to very coarse sand interbedded with clayey silt and silty clay. Boulders up to several feet in diameter scattered throughout the deposit. Sand mostly angular to subround; a few round grains. Stones mostly subangular to subround

QUATERNARY

PLEISTOCENE
GLACIAL DEPOSITS

Qbr

Brewster outwash deposits

Drift deposited north of the Harwich outwash plain deposits. Mostly medium to very coarse sand and pebble to cobble gravel. Lenses and beds of fine to very fine sand, clayey silt, and silty clay common. Till common, occurs mostly at or near top of the deposits. Boulders up to several feet in diameter common. Sand mostly quartz. Feldspar and glauconite common accessory minerals. Grains mostly angular to subround, some rounded. Stone content similar to Harwich outwash plain deposits. Mostly angular to subround. Beds and lenses mostly a foot to a few feet thick. Gently dipping, where collapsed steep dips and normal faulting common. Clayey silt and silty clay mostly laminated, locally deformed. Till ranges from massive to poorly bedded

Qnh

Nauset Heights deposits

Characterized by a high content of basic igneous stones (fig. 3). Mostly pebbly to cobbly sand. Beds of pebble to cobble gravel, clayey silt, and till common. Boulders up to several tens of feet in diameter common. Beds generally a foot to several feet thick; mostly gently dipping. Where collapsed moderate to steeply dipping and normal faulted. Planar bedding, tabular and scour and fill crossbedding common. Clayey silt mostly laminated, locally deformed. Till massive to poorly bedded. Sand mostly quartz; glauconite and feldspar common accessories. Sand mostly angular to subround; a few round grains. Stone content (fig. 3) mostly basic igneous rocks 27.5 percent, granites 18.5 percent, quartzites 16 percent and felsic volcanic rocks 10.5 percent. Stones are mostly angular to subround

Qhw

Harwich outwash plain deposits

Drift in the form of a large outwash plain with a graded surface that slopes gently south toward Nantucket Sound and an ice-contact head that slopes steeply north toward Cape Cod Bay. Composed mostly of medium to very coarse sand and pebble to cobble gravel. Till, and boulders up to several tens of feet in diameter common. Till most commonly occurs at or near the surface of the deposit. Lenses and beds of clayey silt occur in some places. Sand mostly quartz, feldspar and glauconite common accessories. Sand mostly angular to subround, a few round grains. Stones mostly granite 40.5 percent, (Fig. 3). Felsic volcanic 14.5 percent, mafic volcanic 11.5 percent, and quartzite 12 percent. Stones angular to subround. Beds mostly gently dipping. Gentle to steeply dipping and normal faulted where collapsed. Beds generally a foot to several feet thick. Bedding in sand and gravel is mostly planar, tabular and scour and fill crossbedding common. Current rippled beds occur in some places. Silty clay beds mostly laminated, some massive. Laminations deformed in some places. Till massive to poorly bedded

cb

Cranberry bog

af

Artificial fill

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Areas of older stabilized dune sand

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Contact

Long dashed approximate, short dashed inferred

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Inferred limit of till and boulders believed to have been derived from partially buried ice or deposited during minor changes in the position of the ice front

△ 5

Stone count, triangle shows location

←

Preferred direction of plunge of long axes of stones in till. Arrow point shows fabric locality

A ├────┤ A'

Line of section

○

Location of exposure or auger hole

✕

Pit

Extent of large pits shown by hachures. Letter symbols show texture and structure at pits and other exposures.

S - sand, (VF - very fine, F - fine, M - medium, C - coarse, VC - very coarse); G - gravel, CP - pebble, C - cobble, B - boulder); S - silt; C - clay; T - till

$\frac{T}{S(M\text{-}VC)}\ \frac{5'}{7'}$ would read five feet of till over 7' of medium to very coarse sand. Where numbers not given section or unit not measured

Note: Late-glacial eolian sand overlies the drift in most places and is not mapped.

Massachusetts (Orleans quad.). Geol. 1:24,000.
sheet 2,
cop. 1.