

summer maximum of Central Atlantic water is 27° C. or 28° C. north of Bermuda, and the annual range is fully eight degrees.

The water temperature record of the Boston-Bermuda route between August 28 and August 30, 1937, is illustrated in Fig. 1. Imposed upon this is the water

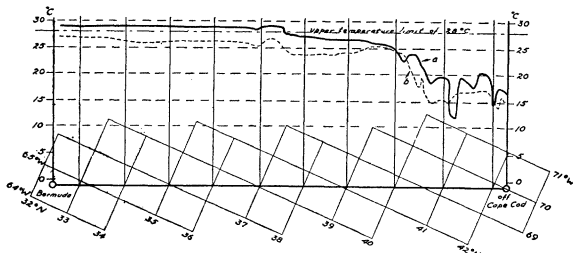


FIG. 1. Distribution of surface water temperature between Boston and Bermuda—(a) August 28 to August 30, 1937, and (b) September 24 to September 26, 1937.

temperature record on the same route between September 24 and September 26, which indicates that the northern edge of the Gulf Stream is in Latitude 40° 10' N. In August, it is evident that "detached warm masses" extended even north of Latitude 41° 00' N.

Central Atlantic water, south of Latitude 37° 50' N., in the latter part of August exhibits surface temperatures which are more than one degree higher than the upper temperature limit of 27° C. or 28° C., set by Church and Iselin. Gulf Stream temperatures (vicinity of Latitude 40° 00' N.) are at least two degrees lower than the accepted summer maximum of 28° C. or 29° C. Further, in the interval between late August and late September, the surface water temperatures south of Latitude 39° 00' N. were lowered as much as three degrees, which is more than one third of the total annual temperature range of Central Atlantic water of these latitudes. This large decrease in temperature took place at a time when ocean surface temperatures are, in general, comparatively stationary. It is suggested herein that such a temperature change is, in part, associated with a "pulsation"⁴ of the whole North Atlantic eddy. The nature of the suggested "pulsation," of considerable interest to oceanographers on both sides of the Atlantic, awaits elucidation from the five year cooperative program of the Woods Hole Oceanographic Institution and the Bermuda Biological Station.

Our observations have been concerned with a band of water, which, north of Bermuda, is approximately 500 miles in width. In dealing with water temperature departures from the normal, Church points out the possible influence of these in producing weather abnormalities along the eastern seaboard of the North

American continent. This band of water is associated with the source area for tropical Atlantic air masses, and in particular with the area of origin of North Atlantic tropical cyclones, which are features of late summer weather of the Atlantic seaboard. The abnormalities of temperature of Central Atlantic water, recorded herein, may therefore prove of interest also to students of marine meteorology.

H. B. HACHEY

ATLANTIC BIOLOGICAL STATION
ST. ANDREWS, N. B., CANADA

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³ C. O'D. Iselin, *Papers in Physical Oceanography and Meteorology*, 4: 4, 37, 1936.

⁴ E. W. MacBride, *Nature*, 139: 3527, 948, 1937.