the maximum temperature has been reached, but already on the 10th June (1903) the water of this poll is seen to be 5° C. warmer at a depth of 2 metres than at the surface.

Conduction of heat.

To understand how such a high temperature can be preserved for a length of time at a depth of 2 metres, one must bear in mind the fact that the conduction of heat plays an altogether subordinate part in the thermal conditions of the sea. Kelvin and Wegemann have made some calculations on the transmission of heat in water by conduction; Wegemann commences with a sea 5000 metres deep, with a temperature of 0° C. throughout; the surface is supposed to be in contact with a

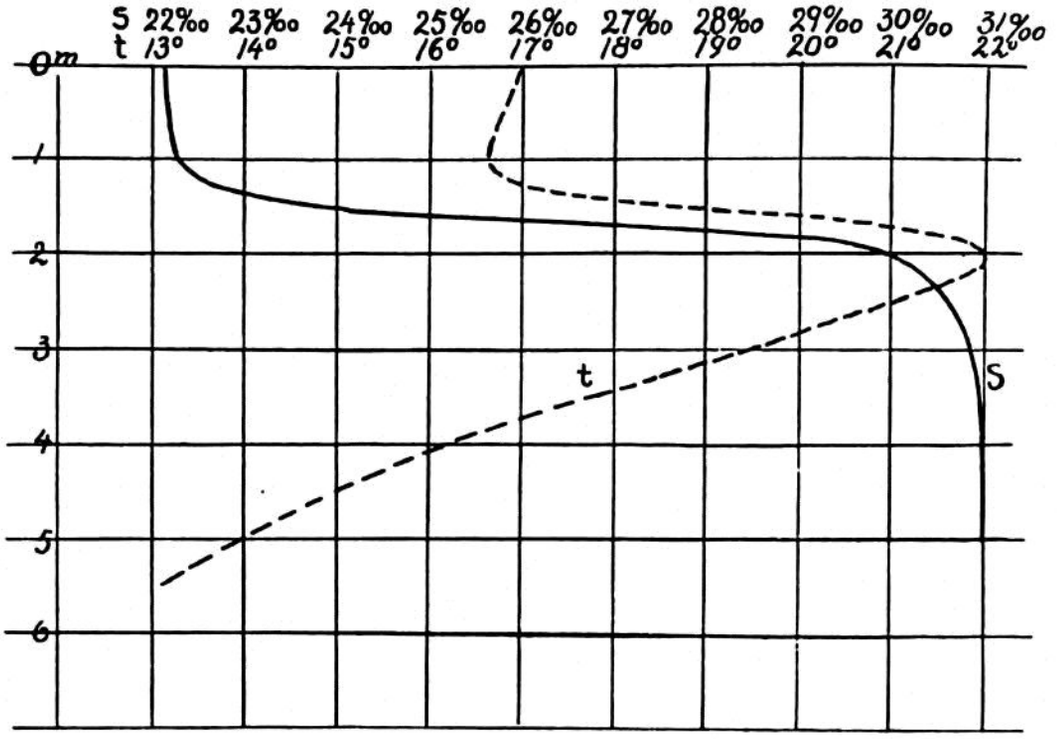

FIG. 158.—THE VERTICAL DISTRIBUTION OF TEMPERATURE (*t*) AND SALINITY (*s*) IN THE KVERNE-POLL, 10TH JUNE 1903.

source of heat at a temperature of 30° C. No forces intervening other than conduction, no heating effect would be perceived at a depth of 100 metres after 100 years, and after 1000 years the temperature at 100 metres would only have reached 7.3° C., and at 200 metres 0.6° C. It is thus seen that transmission of heat by conduction is practically negligible in the sea. The heat conveyed by the sun to the uppermost water-layers cannot therefore be propagated into deep water by conduction, but only through movements of the water—waves, currents, convection "currents," etc. Where there is no such motion, and where the sun's rays cannot penetrate, heat cannot be transmitted by conduction, and hence we find temperatures as low as 2° C. or less in deep water even under the equator.