Temperature and Salinity Observations in the Gulf of Aden.

My letter on the observations of the outflow from the Red Sea, made by H.M. Surveying Ship *Ormonde* during the spring of 1927 (NATURE, Oct. 8, 1927, p. 512), and the account of the oceanographical work of the Italian Surveying Ship *Ammiraglio Magnaghi* in the same area during the spring of 1924 ("Camp. idrografica nel Mar Rosso della R.N. *Ammiraglio Magnaghi*, 1923, 1924." *Ricerche di oceanografia fisica*. Parts I. and IV.), were published independently and almost simultaneously. Prof. Vercelli has now sent me the drawing reproduced here (Fig. 1) with an

Disease of Grasses caused by *Epichloe typhina*.

THE Ascomycete fungus, *Epichloe typhina*, has been recorded on eight species of Gramineae in the neighbourhood of Aberystwyth during the past seven years. Although not a parasite of general economic importance in the district, the fungus has been decidedly destructive at the Station, entailing the loss of some valuable breeding plants. An investigation relative to the biology of the fungus started in 1922 has given some interesting results.

Epichloe typhina is found to possess a slender inter-cellular mycelium, which permeates the stems and leaves of infected plants at all periods of the year.

FIG. 1.—Temperature and salinity in the Gulf of Aden: April-May 1924. Red Sea Expedition, 1923-24, of the R. Nave *Ammiraglio G.B. Magnaghi*.

expression of the hope that it might be possible to publish it also in NATURE.

The two sets of observations agree in general, but they show differences of considerable interest. Comparison is easy, since two of the stations are nearly identical in position for the two ships; there was, however, no Italian station so far east as the British station E.

The *Ormonde's* station B lies seven miles nearly due south of the Italian station 141. At the former the salinity was 37.8 on the bottom in 370 m., as compared with 38.8 in the smaller depth of 300 m. at 141. Again, at D the *Ormonde's* maximum salinity was 37.54, at 1000 m., against 36.44 at 830 m. at the Italian station 138, which lies two miles farther northward and ten miles to the westward. The *Ormonde* sounded 1300 m. here, with water of a decidedly oceanic character, 35.76 salinity, at 1200 m.; the *Ammiraglio Magnaghi* found only 1015 m., so it is possible that the distance between the two stations was more than ten miles.

The differences support Prof. Vercelli's contention that the tidal currents in the western part of the Gulf of Aden extend to great depths.

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Field experiments have proved that the parasite is perpetuated by vegetative propagation of the host plant.

The research has centred for the most part in the disease on *Festuca rubra*, a species which first aroused the interest of the writer by showing the conidial stage on exserted panicles. In most grasses the fungus fills the spaces between successive leaves of the fertile shoot and holds the panicle a prisoner.

Seed collected from diseased specimens of *Festuca rubra* has produced consistently a high percentage of infected plants. Visible symptoms of attack, namely, the formation of conidia external to the host, were not developed until the second or third year of growth, but microscopic examination of seedlings revealed the characteristic mycelium at the growing point and in the leaves. Some plants which remained barren for three successive years also revealed mycelium in the vegetative organs.