

FOG ON THE NEWFOUNDLAND BANKS.

BY C. T. BRODRICK.

During the greater part of the year the route for high-powered steamers between Nantucket Lightship and Fastnet or the Scilly Islands crosses the forty-seventh meridian to the south of latitude 43° north, making a considerably greater distance to be traversed by thus avoiding the Grand Banks. This circuitous route is taken because of the fog and the ice found in this district during the spring and summer months. Numerous collisions with other vessels and with icebergs occur every year, and some accidents in the past have been accompanied by large loss of life.

The occurrence of fog about the coasts of Newfoundland and farther north was noted by some of the earliest explorers of the regions—Cook, Ross, Parry, and others. They remarked on its density, that it did not extend to any great height above the water, and that it was most prevalent with southerly winds. Some interesting speculations on the causes of these fogs are set forth at considerable length in Henry Ellis's "Voyage to Hudson's Bay," (1748). His fantastic theories are in strange contrast with our present ideas, even with his own considerable accuracy of observation.

In 1822 Scoresby published some data which he had accumulated during the previous summer. His general conclusions were that fogs are more prevalent during the summer months, that they have an average thickness of from 150 to 250 feet, and that they are accompanied by inversions of temperature. He thought they were caused by the chilling of warm, damp air through contact with the ice.

With the exception of a few scattered articles which added nothing new, little was written on these subjects down to 1875. In 1877 an article by Neumann gave an excellent summary of the facts known at that time and the theories as to the causes of the fog. He noted particularly the effect of the proximity of the Gulf Stream and the Labrador current, the vast amount of floating ice, and the prevailing winds, and he also suggested that the temperature of the water should be the best warning to vessels in a fog of the proximity of ice fields or bergs.

During the next ten years considerable interest was taken in the subject, and several papers were printed. The work of two men deserves special notice. In a series of articles in the *Monthly Weather Review*, Prof. E. B. Garriott outlined the conditions governing the prevalence of fog in relation to the passage of cyclones and anti-cyclones north of latitude 35° north, and suggested the feasibility of predicting fog and issuing forecasts for outgoing steamers.

Two years later, in 1889, J. P. Finley published a "Sailor's Handbook," in which he quoted from Professor Garriott's work, adding a series of charts showing the average and extreme limits of fog areas, based on data accumulated during the previous 32 months.

By far the most complete discussion of the subject is an article by Dr. Gerhard Schott, entitled "Die Nebel der Neufundland Banke."

With the addition of an article in the *Annalen* for 1904 on the relation of fog to wind, it expresses completely the present views, which may be briefly summarized as follows:

These fogs occur roughly over the area inclosed on the maps by the 200-fathom line, forming two centers of maximum frequency, one over the Grand Banks, southeast of Newfoundland, the other east of Massachusetts Bay. Over the greater part of this district, from May to August, more than 60 per cent of the total number of hours of observation are foggy. The minimum occurs in February. Southerly to westerly winds of a force 3 or 4 on the Beaufort scale are the most favorable to fog formation. Warm air from over the ocean, heavily charged with moisture, is thus brought in contact, within a distance of less than 300 miles, with colder water at a temperature of 30° F., and the formation of fog results. These conditions occur in the southeastern quadrant of a cyclone which leaves the States north of latitude 40° north. After the passage of the low area northwest winds follow, and these are accompanied by clearing weather. During the winter the close succession of cyclonic and anticyclonic areas prevents the long-continued fogs characteristic of the stagnant atmospheric conditions of the summer. Moreover, the prevailing winds during the summer are from a southerly quadrant, while those of the winter are from the northwest.

The importance of collecting data on these fogs and charting them, has been recognized by most of the nations whose shipping is affected. Pilot charts on which the occurrence of fog is shown are published monthly by Germany, Great Britain, and the United States.—*Monthly Weather Review*.

MISSOURI BOTANICAL GARDENS.

The nineteenth annual report of the Missouri Botanical Gardens that has just been received contains, in addition to the report of the financial condition of the gardens, five scientific papers. Two of these are of such a nature as to be especially interesting to teachers of botany in secondary schools. One of these, "The Florida Strangling Figs," by Ernst A. Bessey, gives by text discussion and abundant photographs an excellent presentation of the ways in which these peculiar trees begin their growth upon other trees, as oaks and palms, and how, by sending roots to the ground and branches around the supporting tree, the fig tree eventually entirely surrounds it.

The article by Henri Hus upon "An Ecological Cross-section of the Missouri River in the Region of St. Louis, Missouri," is full of interest since it applies to this region in its various plant formations the methods of ecological study that usually have been applied to regions of less variation than here presented. In addition to the general interest and importance of this paper, in the immediate vicinity of St. Louis it should prove a great source of stimulus and help.

Other papers of botanical value are "Crataegus in Missouri," by C. S. Sargent, "Illustrated Studies in the Genus *Opuntia*," by David Griffiths, and further contributions upon the Agaves by William Trelease.

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