## JANUARY WEATHER IN THE UNITED STATES 50 YEARS AGO

January, 1878, was characterized by high temperatures in the northern half of the country, especially in the upper Mississippi and Missouri Valleys, including Minnesota. Rainfall was greater than normal in both Atlantic and Pacific Coast States. The coastal waters of the Atlantic were visited by two severe storms in one of which the S. S. *Metropolis* foundered off the North Carolina coast, with a loss of 100 lives. Very high winds were recorded—120 miles per hour at Cape Lookout, N. C., and the unprecedented velocity of 186 miles per hour (uncorrected), at Mount Washington, N. H.—*A. J. H.*

## NOTES

M. Koenig in Miscellaneous publications of the Royal Alfred Observatory, Port Louis, Mauritius, No. 6, gives an account of a cyclone which passed from northeast to southwest north of Mauritius on February 27, 1927. After passing that island the cyclone changed its direction of movement to west-northwest and struck the coast of Madagascar at or close to Tamatave on March 3, 1927, with a very considerable increase in intensity. This cyclone is the first case of record in that part of the Indian Ocean, of a cyclone actually moving toward the Equator.—*A. J. H.*

We reprint from Science Abstracts, volume 30, page 853, a discussion by G. Abetti (Accad. Lincei, Atti, 5, pp. 721–726, May 15, 1927). This discussion consists almost entirely of a review of the work of previous investigators, the object of the paper is to draw attention to a few of the most noteworthy cases in which spectroheliographic observations have with some probability established a correspondence between a given solar eruption and a terrestrial magnetic storm, and, confirming the hypothesis of Tacchini and Hale, have assigned a value to the velocity of transmission of the perturbations from the sun to the earth. It appears from these observations that a mean period of 25.6 hours intervenes between the solar eruption and the commencement of the magnetic storm, and that a velocity of transmission of about 1,600 km./sec. may therefore be considered as fairly well established.—*E. F.*

*Wireless telegraphy.*—The influence of surfaces of atmospheric discontinuity, polar fronts, on the propagation of short waves.

On a cruise off Norway and Iceland during April and May, 1927, the dispatch boat *Ville-d'Ys* maintained a regular service of sending meteorological reports by wireless six times each day. The messages were sent simultaneously on lengths of 65 and 24 meters, respectively, and were received in the vicinity of Paris and also in the interior and on the coasts of France.

M. Georges-Henri Huber has investigated this service with reference to the influence of atmospheric discontinuity, polar front, on the propagation of short waves. In *Comptes Rendus de l'Academie des Siences*, 185, 1927, page 935, he presents the following conclusions:

(1) The surfaces of discontinuity in the atmosphere present an obstacle to the propagation of short waves. This is especially clear for the polar front, properly named, which often presents very sharply defined discontinuities. The obstacle is, furthermore, all the more serious when the part of the front situated between the two stations exchanging messages is well marked.

(2) With a surface of discontinuity forming two angles with the ground, one acute and the other obtuse, the station situated within the acute angle finds broadcasting subject to much less interference than that affecting reception. It has been seen that such a station could very well be unable to hear its correspondents on the other side of the front and yet be heard by them. It appears, in addition, that the nearer the front the correspondents are situated, the more considerable does the obstacle become.—*W. W. R.*

An article from the Times correspondent at Delhi, in the issue of January 12, conveys the welcome news that a great new meteorological observatory at Poona is to be brought into use this summer, thus carrying into effect a scheme proposed in 1924 for transferring the headquarters of the Indian weather department thither from Simla. The difficulties that have led to the transfer are not limited to the tropics. On one hand, it is vital that the routine work of daily forecasting and of administration shall be well carried on, for it is on performance of these tasks that revenue depends, and with that the chance of scientific progress. Further, there is a material gain of efficiency if the staff can be collected into the same station, facilitating cooperation as well as access to laboratories and libraries. There is, therefore, a tendency for the ablest men to gravitate to headquarters. But Simla can not employ kites because winds are too light, or instrument-carrying balloons because of the wild mountain regions in which they would be lost; so experimental examination of the physical processes of weather can scarcely be effected there, and bringing up an officer from a provincial observatory very seriously reduces his chance of advancing knowledge and of keeping in living contact with science. The remedy adopted by the department in India has been to give up the advantage of being at the seat of government and to transfer its headquarters to Poona, where upper air work is possible and monsoon conditions, unlike those of the western Himalayas, are representative of India. Poona has the further advantages of a good climate and of proximity to Bombay, so that closer relationships can be maintained with shipping and commercial interests.

The Times correspondent says, however, that the object of the new observatory is "special research work with a view to elaborate and accurate forecasting of the southwest monsoon." Also "The Meteorological Department * * * is now able regularly to forecast in mid-October the quantity of rainfall in northern India in the next five months. The indications are given to within a fraction of an inch, and during twelve years wherever the system has been followed it has never proved fallacious." *On reading this surprising account, it is natural to inquire into the recent success of the method and we find Mr. Field in his forecast of January 6 last, after rightly deprecating undue confidence, saying that the high-level winds were "about normal in character." The total actual precipitation, as described on June 27, was, however, not normal but "in moderate defect." Again in the previous year the high-level winds were "stronger than usual"; and the total actual precipitation was not in excess as it should have been, but "in slight defect." In spite of this lack of perfection, we are convinced that upper-air data promise to be of great value for seasonal forecasting after twenty or thirty years of data have been accumulated; but friends of the department should lay stress on the value of the upper-air work done ot Poona for aerial navigation and daily forecasting, rather than arouse expectations of an early revolution in methods of seasonal prediction. Confidence in long-range forecasts can only be built up slowly, and is more easily lost than won.—Reprinted from Nature, London, January 21, 1928.*