

Such methods of helping worthy students in geography might well be considered for those specializing in meteorology and climatology.—*C. F. B.*

NOTES ON THE AURORA.

Greatest auroral heights ever determined.—For several years operations have been carried on in Norway by Carl Störmer and assistants to ascertain the height of the auroral rays, which generally accompany great magnetic disturbances. Recently, with seven stations from 26 to 250 kilometers apart, photographs were taken of the aurora; also the angles were found between the stations and the aurora and various stars. From these data calculations showed the upper limits of the aurora to be over 500 kilometers above the earth. Individual computations gave values of 597, 550, 607, 562, 528, 485 and 519 km. altitude.—*R. F. E.*

The aurora and magnetic storm of May 14-15, 1921, "was exceptionally noteworthy in two particulars; first, its accompanying earth currents caused the greatest demoralization to telegraphic communication ever recorded, and secondly it was seen in extreme southern latitudes with all the brilliance usually observed in the north." (H. Lyman).² The display was observed over a large part of the earth, and was brighter in the tropics than perhaps any other aurora on record. At San Juan, Porto Rico (lat. 18° N.), "The sky in the north was brightly alight and seemed filled with golden haze. Five great bars of extra brightness, extending from the horizon to the zenith [!], starting from a common axis, with diverging arcs about equal, extended through the golden haze and gave a wonderful effect." Near Kingston, Jamaica (lat. 18° N.) there were "shafts of orange light . . . reaching an altitude of 40°." On the other side of the equator, the aurora australis at Apia, Samoa (lat. 14 S.), ". . . was an extremely brilliant display, as otherwise it could not have been seen at all in the moonlight, and it is also a very rare event to see this phenomenon in latitudes near the equator."

Loomis, in his "Treatise on meteorology," 1885, mentions (p. 177-178) auroras of August 28 and Sept. 2, 1859 which were seen as far south as Jamaica, though apparently to not so high an angle in the sky.

*Auroras of early September, 1921.*³—A series of almost daily auroras was inaugurated on the night of Sept. 1-2 by a magnificent curtain display, which at Silver Lake, N. H. (lat. 43.9° N.) covered the entire sky except for a segment about 15° high in the south at 2 a.m. (75th mer. time.) The motion was impressive. The gigantic folds of the curtains moved majestically as if in a moderate breeze, while wave after wave of light rose rapidly from the bases.

The general lighting effect of auroral curtains is strongly suggestive of theater foot-lights shining on the folds of a great portiere.—*C. F. Brooks.*

At the time of this aurora I was at [Seabrook Beach, N. H.,] making a series of determinations of the deviations from the great circle bearings of the European radio stations. Throughout the aurora no change amounting to more than 2° of arc was noted [in the wave-front from Bordeaux] and the intensity of the signal was found to remain practically constant.—*Greenleaf W. Pickard.*

"LET US CHANGE THE OCEAN CURRENTS AND OUR CLIMATE."

There seems to be a cycle in the activities of those who would change the course of the Labrador Current and Gulf Stream to improve the climate of New England and the Maritime Provinces. Nine years ago Riker published his project for building a jetty 200 miles across the Grand Banks to divert the Labrador Current; and now the *Sunday Herald* (Boston, Mass., Aug. 28, 1921), following the lead of *Popular Science Monthly*, tells us that "Science [sic!] at last has a definite plan for bringing the nice, warm Gulf Stream to our New England coast.

¹ *Exemples de rayons auroraux dépassant des altitudes de 500 kilomètres audessus de la terre.* Geofysiske Publikationer, vol. 2, No. 2, 5 pp., 2 pl., Kristiania, 1921.

² See *Mo. Weather Rev.*, July 1921, vol. 49, pp. 406-409, and *Science*, Sept. 2, 1921, pp. 183-187.

³ See *Science*, Oct. 7, 1921, pp. 329-330.