ought not to be encouraged to get more experience by taking the offensive with a line squall, but may learn something of its wiles by getting set down on a good field well in advance of the roll cloud of the squall and making sure of some shelter. Once passed the squall will be followed by the weather of the other side which is not uniformly good but often marked by bumpy, rough, colder air, with numerous snow or rain squalls, scudding clouds and varying visibility which finally ease up when the colder change attains full possession of the territory.

EVAPORATION FROM RAIN GAGES

551.573 : 551.508.7

By HARRY G. CARTER

[Weather Bureau Office, Lincoln, Nebr.]

To determine the amount of water that would evaporate from a rain-gage measurements were made at Lincoln from May 1 to September 30, 1928. A standard 8-inch gage with receiving funnel and measuring tube in place was used in making the measurements. The water was placed in the measuring tube, the depth ranging from 5 to more than 10 inches (measuring 0.50 inch to more than 1 inch on a regular measuring stick). Readings were made at the time of the regular 7 a. m. and 7 p. m. observations.

The measurements were not in any way intended to determine the exact amount of evaporation from a free-water surface, but merely to give an indication of the amount of water that would evaporate from a rain gage during the interval between the ending of a rain and the measuring of the water.

The results of the measurements indicated that the daily evaporation averaged nearly 0.02 inch each 24 hours during May and approximately 0.01 inch each 24 hours during June, July, August, and September. Measurements also indicated that practically two-thirds of the evaporation occurred during the 12 hours between 7 p. m. and 7 a. m. Whether this was the actual condition or due to the crude method of measuring evaporation with a measuring stick with relatively large units, is questionable. But every month showed the greatest evaporation during the night.

Table 1 shows the average evaporation for the two 12-hour periods for each month during which measurements were made.

Since practically all the cooperative observers, at least in Nebraska, measure rainfall but once each day, usually late in the afternoon or early evening, it would seem that there is a possibility that between 0.01 and 0.02 inch of water would evaporate from the gage before the rain was measured, particularly so when the rain fell a short time after observation and the water stood in the gage 15 to 20 hours before being measured.

TABLE 1.—*Evaporation from a rain gage at Lincoln, Nebr., from May to September, 1928*

	May	June	July	Aug.	Sept.
Average evaporation:	*Inch*	*Inch*	*Inch*	*Inch*	*Inch*
For the 12 hours, 7 a. m. to 7 p. m.	.005	.003	.002	.003	.004
For the 12 hours, 7 p. m. to 7 a. m.	.012	.006	.007	.006	.008
For the 24 hours, 7 a. m. to 7 a. m.	.017	.009	.009	.009	.012
Average percentage of total evaporation:	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
For the 12 hours, 7 a. m. to 7 p. m.	29	33	22	33	33
For the 12 hours, 7 p. m. to 7 a. m.	71	67	78	67	67

During the months when precipitation is practically all in the form of rain, say from the 1st of April to the last of September, there are, on an average, between 45 and 55 rainy days in Nebraska. Since approximately two-thirds of these rains fall during the night hours and the water is not measured until late the next afternoon, it would seem that there would be a loss of water by evaporation amounting to between 0.30 and 0.60 inch during the six months.

From the above it would appear that cooperative observers should be encouraged to measure rainfall after each fall, or if this is impracticable, as it would be in many cases, to make measurements both morning and evening, keeping in mind that the amount to be entered on the daily record should be the amount that fell during the 24 hours ending at the hour of observation

COAST FOGS AND RADIOBEACONS

551.575

By WILLIS E. HURD

[Weather Bureau, Washington]

Recently in connection with a study of fog at sea, made at the central office of the Weather Bureau, there arose an informal discussion with the Lighthouse Service as to whether, fog being present at a given lighthouse, say on the southern New England coast, one might reasonably determine upon the probabilities of simultaneous fog occurrence at another lighthouse a considerable number of miles distant.

While there are many instances of fog obscuring in an unbroken sheet a long stretch of sea off the coast, more frequently such surface condensation is of a spotted character, depending upon the local contour of, and amount of sea envelopment by, the adjacent land; neighboring conditions of atmospheric pressure; the direction and steadiness, or variability, and force of the wind; the differences in temperature between adjacent water surfaces, or between that surface and the overlying air, etc. In almost any case there is great difficulty attending the successful forecasting of sea fogs.

Apart from the purely meteorological probabilities involved, it is interesting to note that various light stations incidental to their position finding signals by radiobeacon, are giving special information as to fog and thick weather whenever it exists in their vicinity.

In the Lighthouse Service Bulletin of the Department of Commerce for March 1, 1929, appears the following item bearing upon this subject:

FOG INFORMATION BROADCAST FOR SHIPPING

In addition to their primary purpose of providing signals on which ships can take accurate bearings by radio, the radiobeacon system incidentally broadcasts valuable information as to fog and low-visibility conditions along the coast.

These signals are operated during fog or low visibility and are silent in clear weather, excepting for certain regular time schedule operating periods, which are published for each station. Therefore, a navigator has a