

In the Hawaiian area Honolulu continued to experience prevailing east winds, though the maximum velocity was 30 miles from the southwest. This was on the 8th during what the observer termed an "unseasonable kona," which brought excessive precipitation for a short time and broke a seven-months' drouth. The total June rainfall was 1.98 inches, which is 1.06 inches above the normal. The kona was due to a depression which appeared over the islands on the 5th. The low moved northward and slightly westward, affecting Honolulu most on the 8th. On the 11th it had traveled northwestward to a point near 50° N. and the 180th meridian, where it shortly disappeared without the usual eastward inclination of such cyclones.

During a considerable part of the month lows lay over Mongolia and eastern China. One of these appeared over the Yangtse Valley on the 9th. It moved into the Eastern Sea on the 11th, and by the afternoon of the 12th, when it was central between Taiwan and southern Japan, had acquired considerable intensity. Late on the 12th and early on the 13th the American steamer *China Arrow* was experiencing gales of force 10 from NNE. to NE., in 28° 24' N., 128° E., with barometer down to 29.47 inches. During the 13th the storm crossed the Nansei Archipelago and late on that date and during the 14th and early 15th vessels off the lower and eastern Japanese coasts were experiencing northerly to northeasterly winds of force 10 and 11, with squalls of hurricane force. Among these vessels were the American steamers *President Lincoln* and *West Chopaka*. The cyclone closely

touched the eastern extremities of Hondo and Yezo, the latter on the afternoon of the 15th and, thence moving northeastward, seems shortly to have died out east or southeast of Kamchatka.

In the American Tropics the rainy season was well established at sea early in the month, especially off the Central American coast. One cyclone developed in this area. Our only information thus far received concerning it is from the Italian steamer *Duchessa d'Aosta*, which was southward bound at the time of the blow. Late on the 13th, while west of the southern part of the Gulf of Tehuantepec, this vessel ran into a moderate gale from ESE., with falling barometer. Before midnight the gale had changed to NE. by N., and increased to force 10, with pressure at 29.55 inches. At 5.30 a. m. of the 14th the barometer had risen only 0.03 inch from the lowest reading, with the wind at WSW., 7, and decreasing, in 15° N., 95° 50' W.

NOTES

South Pacific Cyclone.—According to press reports the harbor of Valparaiso, Chile, was swept by a hurricane on June 10, and much damage was done to shipping.

Indian monsoon.—The British steamer *Eurylochus*, while crossing the north Indian Ocean between Penang and Aden, experienced the southwest monsoon from June 7 to 20. On the 17th to 19th, while between 8° N., 55° E., and Cape Guardafui, the vessel reported a strong monsoon, often reaching force 8, but with "barometer following usual range."—W. E. H.

551.506 (73) DETAILS OF THE WEATHER IN THE UNITED STATES

GENERAL CONDITIONS

The outstanding feature of the month was its resemblance to one of the colder months of the year rather than to a normal June month; cyclonic systems developed rather more than the usual intensity and there were a large number of days when low pressure in the southeastern States, in conjunction with higher pressure to the northward, caused north to east winds and much cloudiness over the northeastern States, the Lake region and Ohio Valley, where the month was unusually cool. In the far west it was exceptionally warm, due to clear skies and abundant sunshine. Precipitation, as a rule, was deficient, although some rather small areas received more than the normal amount. The usual details follow.—A. J. H.

CYLCONES AND ANTICYCLONES

By W. P. DAY

Twelve lows were plotted, which were important enough to be identified at three successive observations, and a few of these reached moderate intensity, especially along the northern border and in southern Canada. However, there were an unusual number of slight barometric depressions of local and temporary character especially over the Southern States, which could not be easily traced from the succeeding observations.

The 9 highs were mostly of the Alberta type, the pressure being considerably above the normal at Fort Simpson on the Mackenzie River during most of the month; but the highs pushing southward from the latter region were only of slight or moderate magnitude.

FREE AIR SUMMARY

By L. T. SAMUELS

Free-air temperatures averaged mostly below normal, with the negative departures increasing with altitude at several of the stations. (See Table 1.)

Relative humidities averaged close to normal, while the vapor-pressure departures were mostly negative at all aerological stations.

In Table 2 it may be seen that the resultant winds were close to their normal values at all stations except Ellendale, where a pronounced northerly component prevailed as compared to the normal southerly. At this station it will be observed, the negative temperature departures increase most appreciably with altitude.

The resultant winds for the month as shown by pilot-balloon observations indicated, at the 1,000 m. level, a marked southerly component over Florida, Texas, and Oklahoma, and an equally marked northerly component over North Dakota. At the other stations east of the Mississippi River the predominant resultant direction at this level was practically west. At 5,000 m. the resultant winds were northwest over all stations west of the Atlantic coast States. In the latter they were mostly west, while over southern Florida they were southwest.

Deep easterly winds were observed on the last three days of the month to heights of 10 km. at Broken Arrow, Groesbeck, Memphis and Due West. These stations were at the time situated in the southern quadrant of a ridge of high pressure extending in an E-W direction. At Washington, D. C., on these days a light northwesterly wind extending to 8 km. was surmounted by a gale reaching 34 m. p. s. from the west-southwest. The line