pressure 29.38, in 33° N., 160° E., on the 22d, while vessels in the Aleutian region toward the center of the great winter LOW experienced pressures much lower than 29 inches, with only moderate winds. The lowest pressure recorded in these waters by a vessel this month was 28.46 inches, read on board the Japanese S. S. *Ibukisan Maru*, in 47° 45′ N., 165° 20′ W., on the 29th, highest wind force 9 SW. Of course steepness of pressure gradient in large measure determined the relative strength of these winds.

NOTE

American S. S. *Pacific*, Puget Sound southward.—December 6, latitude 47° 10′ N., longitude 124° 33′ W. Sighted moderate waterspout about 2 miles to westward.

ONE TYPHOON OVER THE PHILIPPINES IN DECEMBER, 1924

By REV. JOSÉ CORONAS, S. J.

[Weather Bureau, Manila, P. I.]

There has been only one really well-developed typhoon in the Far East during this month of December; and this is the one that traversed the central part of the Philippines on the 19th and 20th and influenced the weather in most of our southern stations for eight or more successive days. Heavy, prolonged rains with destructive floods have been reported, particularly from places in Surigao, Cebu, Samar, and Leyte provinces. Great landslides have been also reported as an effect of heavy continuous rains in the Province of Surigao. Our observer at Surigao has reported the following daily amounts of rain in that place for the period of December 11 to 15, the heavy rains having begun even two days before the typhoon was noticed to the east of Surigao: December 11, 190.6 millimeters (7.50 inches); December 12, 183.5 millimeters (7.23 inches); December 13, 223.1 millimeters (8.78 inches); December 14, 328.9 millimeters (12.95 inches); December 15, 93.9 millimeters (3.70 inches); total in five days, 1,020 millimeters (40.16 inches).

The typhoon was first shown by our weather maps on December 13, between Yap and Mindanao, not far from 133° longitude E., between 9° and 10° latitude N. It moved probably west by north until the 15th, when it inclined northward near to the east of Surigao Strait. Then it remained almost stationary, or continued moving very slowly in the 16th, 17th, and part of the 18th, until finally in the afternoon of the 18th it inclined decidedly to the west.

On the 19th warnings were sent to the effect that the typhoon was moving practically west from the Strait of San Bernardino, threatening Romblon and Mindoro. In fact, the center passed over San Bernardino Strait, where the vortical calm was observed on board the steamer *Ulises* (barometric minimum 742 millimeters, 29.21 inches, shortly after noon of December 19; and over Romblon, where absolute calm was also reported by our observer at 8 a. m of December 20. The rate of progress of the typhoon was of about only 6 to 7 miles per hour on the 19th and 20th.

In the China Sea the typhoon continued moving west until the afternoon of the 21st, when it inclined to west-northwest. In the afternoon of the 22d the center was situated in about 115° longitude E and 14° latitude N., where it has at this writing (December 25) remained almost stationary for about two days, probably filling up gradually.

The position of the center at 2 p. m. of December 19, 20, and 21, and 6 a. m of December 20, 21, and 22, was as follows:

December 19, 2 p. m., 124° 10′ longitude E., 12° 40′ latitude N.

December 20, 6 a. m., 122° 25′ longitude E., 12° 40′ latitude N.

December 20, 2 p. m., 121° 35′ longitude E., 12° 40′ latitude N.

December 21, 6 a. m., 119° 05′ longitude E., 12° 45′. latitude N.

December 21, 2 p. m., 117° 25′ longitude E., 12° 50′ latitude N.

December 22, 6 a. m., 116° 10′ longitude E., 13° 15′ latitude N.

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DETAILS OF THE WEATHER IN THE UNITED STATES

GENERAL CONDITIONS

ALFRED J. HENRY

Practically a normal month up to the 18th when a southward flow of cold air from high latitudes set in, culminating on the 21st in extraordinarily high pressure over the Rocky Mountain and Plateau regions. The effect of the high pressure and associated low temperature was felt until about the end of the month. The usual details follow:

CYCLONES AND ANTICYCLONES

By W. P. DAY

The barometric pressure was abnormally high over Alaska from the 12th until the 28th, reaching its first great maximum on the 14th at Eagle. Meanwhile, this condition spread southeastward and reached Alberta on the 15th and carried as far as the lower Missouri Valley. With one or two interruptions the Alaska HIGH spread slowly southeastward until by the 21st there was one area of continuously high pressure extending from the northwestern limits of Alaska to the Atlantic coast. The southeastward movement of this great mass of cold air had been retarded by the persistance of high pressure extending westward from Bermuda, but it finally prevailed. Following the breaking down of the area over the United States on the 23d, three more important HIGHS from the parent HIGH in Alaska appeared in the northwest before the close of the month. The large area covered by the individual HIGHS prevented their being so numerous as in the preceding month.

The low-pressure areas after the 15th followed the southern circuit, or appeared first in northern Manitoba. They were less numerous than in November.

FREE-AIR SUMMARY

By V. E. JAKL

It will be noted from Table 1 that there was a pronounced deficiency in temperature at all aerological stations, except Due West, where about normal temperatures prevailed. The departures in the levels near the ground are in agreement with Chart 111, which shows that the greatest fall in temperature below the normal occurred over the Northwestern States. A closer inspection of Table 1 shows that the negative departures diminished in magnitude with increasing altitude, except that