

26th and 27th, lowest pressure 29.50. On both days the ship's position was near  $41^{\circ}$  N.,  $153^{\circ}$  E. Southerly gales, force 10, occurred near the  $180^{\text{th}}$  meridian on the 27th and 28th, and were reported by the American S. S. *West Jessup*, eastward bound, in latitudes  $47^{\circ}$  to  $48^{\circ}$  N.

At the close of the month moderate to whole northwesterly gales occurred off the American coast from northern California to Washington, following the passage inland of a slight depression. These gales were apparently severest between  $40^{\circ}$  and  $50^{\circ}$  N., near and along the  $130^{\text{th}}$  meridian.

Variable weather was met with along the American coast from Panama to San Diego. Calms and light airs were frequent, although gales of forces 7 to 10 occurred on several days. The strongest winds, as usual, blew from the Gulf of Tehuantepec.

In the lower Far East two tropical storms occurred. These receive mention below.

Pressure for December, 1923, based on p. m. observations taken at the island stations, was at Honolulu the same as the average, at Dutch Harbor slightly below, and at Midway Island much above average. The average for the month at Midway Island was 30.20 inches, whereas that for the 12 years of record, 1912 to 1923, inclusive, is but 30.03. The previous high value was 30.14, in 1918. The highest pressure of the month, 30.38, was recorded on the 10th, 11th, and 12th; the lowest, 29.74, on the 26th. The p. m. pressure at Dutch Harbor was 29.52 inches, as compared with an average of 29.55. The highest pressure, 30.16, was recorded on the 15th, 23d, and 27th; the lowest, 28.52, on the 4th—absolute range 1.64 inches. The p. m. pressure at Honolulu was 30.01 inches, which is the same as the normal. The highest pressure, 30.12, occurred on the 16th; the lowest, 29.77, on the 23d.

The North Pacific high-pressure area, while it fluctuated in size and intensity, was broken up comparatively little during December. The Hawaiian storms of the 10th and 24th were the main disturbing elements to the high, except from the north, whenever the Aleutian cyclone oscillated southward.

The weather at Honolulu was fine, but the cloudiest on record. The average wind velocity was 10 miles per hour, with velocities exceeding 35 miles per hour on the following dates: 39 NE., 12th; 39 NE., 15th; 41 NE., 16th; 37 NE., 17th. The prevailing direction was east.

Very little fog was reported by ocean observers. The heaviest percentage occurred outside of San Francisco harbor, where it was noted on five days. In addition scattered occurrences were reported off the coast of southern California, along the northern steamer routes, and to the eastward of Japan.

## TWO TYPHOONS IN THE FAR EAST DURING DECEMBER, 1923.

By REV. JOSÉ CORONAS, S. J.

[Weather Bureau, Manila, P. I.]

There were only two typhoons in the Far East during the last month of December—one over the southern part of Luzon and the other over the Pacific to the east of the southern part of the Philippines.

The first typhoon appeared on the 3d to the NE. of Samar and E. of the southern part of Luzon near  $127^{\circ}$  longitude E., and between  $13^{\circ}$  and  $14^{\circ}$  latitude N. It

moved W. by N. on the 3d and then inclined to W. and W. by S. on the 4th. The body of the storm was very small, the barometer at Daet (about 120 miles E. by S. of Manila) having fallen to 740.75 mm.,<sup>1</sup> 29.16 inches, at 2 p. m. of the 4th, while in Manila it was as high as 760 mm., 29.92 inches. The center passed over the northern part of Camarines Norte, over 100 houses and many big trees having been blown down in the town of Paracale, where this typhoon is considered as one of the strongest typhoons experienced there in many years.

The intensity of the typhoon decreased considerably while traversing the northernmost part of Camarines Norte and the southern part of the Province of Tayabas. The center passed during the night about 50 miles to the south of Manila moving W. by S. or WSW.

The other typhoon was of hardly any importance for the Philippines. It appeared south of Yap on the 18th near  $138^{\circ}$  longitude E. and between  $6^{\circ}$  and  $7^{\circ}$  latitude N., and moved W. by N. until the 20th, when it recurved slowly to the north and northeast near  $130^{\circ}$  longitude E. and between  $7^{\circ}$  and  $11^{\circ}$  latitude N. On the 24th the center was still shown by our Weather Maps in about  $134^{\circ}$  longitude E.,  $19^{\circ}$  latitude N. moving NE. or ENE., it having been impossible to follow it after the 24th.

## TROPICAL CYCLONE IN THE NORTH INDIAN OCEAN.

The British S. S. *Cyclops*, Capt. W. Cosker, proceeding from Suez to Singapore, on December 19, while southwest of the Laccadive Islands, encountered a tropical cyclone moving in a westerly direction. Observers C. A. Blow, second officer, and R. W. Ellis, fourth officer, reported the following:

December 18th, midnight. Overcast, frequent rain squalls. Wind N., force 4.

December 19th, 4 a. m.: Continuous rain. Moderate NE. sea. Wind N., force 4. 9:30 a. m.: Barometer 29.68 inches (uncorrected), commenced falling. Heavy rain. Wind N., force 6. Noon. Latitude  $9^{\circ}$  N., longitude  $67^{\circ}$  E. Heavy rain. Wind NW., force 7. Rough sea. Bar. 29.44 inches. 0:55 p. m.: Hove to. 2:30 p. m. to 3 p. m. Heavy squall, force 12. Barometer 29.08 inches, with wind shifts from NW. to W. High NW. and w'y sea. 3:30 p. m.: Similar conditions, barometer 29.22 inches. 4 p. m.: Wind SW. by W., force 8, same confused sea, barometer 29.29 inches. 4:30 p. m.: Weather moderated, sky cleared, rain ceased, vessel kept away on course. 8:30 p. m.: Wind SE., force 4-5, barometer 29.63 inches. Slight w'y swell. (A. J. McC., jr.)

## DETAILS OF THE WEATHER IN THE UNITED STATES.

### GENERAL CONDITIONS.

By ALFRED J. HENRY.

The outstanding characteristic of the month was the continued low pressure in Alaska and thence southward to about  $50^{\circ}$  north latitude. As a direct result the drift of the atmosphere over the United States and Canada was, in general, in an east-west direction with remarkably few interruptions in a north-south direction. Anticyclones came in from the Pacific and moved rapidly across the country, yet east of the Rocky Mountains the temperature was exceptionally mild for the season. The usual details follow.

<sup>1</sup> Gravi y correction not applied.