

In the American Tropics, the American S. S. *Wacosta* ran into a cyclone of considerable intensity on the 1st and 2d, while at some distance southwest of Manzanillo, Mexico. The vessel's highest wind velocity was of force 10 from the northeast, lowest barometer, 1,004.7 millibars (29.67 inches), in 15°18' N., 107°18' W., at 10 p. m. of the 1st. Northeast to southeast gales of decreasing intensity continued until about 6 a. m. of the 2d. The cyclone, apparently blocked from northward movement by high pressure, took an unusual southwesterly course and appears to have persisted until the 3d, although no strong winds were reported after the 2d.

Tehuantepecers.—In the Gulf of Tehuantepec, northerly-type gales of force 7 were reported on the 4th and 5th, and of force 10 on the 15th, 16th, and 17th.

Fog.—Isolated occurrences of fog were observed on the 3d and 4th about midway along the San Francisco-Honolulu route; on the 8th and 9th south of the Aleutian Islands; and on the 9th to 11th near 45° N., 140° to 150° W. It was reported on 7 days off or near the California coast, and on 1 day off the middle coast of Lower California.

TYPHOONS AND DEPRESSIONS OVER THE FAR EAST

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Typhoon, November 2-10, 1940.—The weather maps of November 2 had indications of a disturbance somewhere southeast of Guam. The fall in pressure shown on the afternoon map indicated clearly that this disturbance was of typhoon strength and the extra evening observations supplied by Mr. Lewis Stroup, stationed at the Commercial Pacific Cable office in Guam, showed that the storm was approaching the locality of the island. On November 3, the center passed close to and south of the island, moving in a northwesterly direction. It continued along a course, either northwest or west-northwest, to the regions near longitude 135° E., where it inclined to the north. November 6 and the two following days, the center recurved to the northeast. November 9, it was located very close to and southeast of the Bonins. A few ships' reports of November 10, showed that the center was far to the east-northeast of the Bonins (Ogasawaras), moving east-northeast or northeast toward the date line.

The typhoon center passed very close to and south of the office of the Commercial Pacific Cable Company in Guam. It is possible that the center passed over the island itself, but no reports that any of the villages on the island experienced the calm center have reached this office up to the time of writing this article. The minimum pressure occurred at 1.45 p. m. Guam time, and was 716.69 mm. (955.5 mb.), gravity correction applied. The winds were east at the time, with a velocity estimated over 125 m. p. h. For about 10 or 15 minutes, about the time of the minimum, according to Mr. Stroup, there was a lull in the wind, decreasing to about 80 m. p. h. (estimated). About 20 minutes before the minimum, the barometer was pumping, which continued until after the barometer reached its minimum. Mr. Stroup supplied the Observatory with many observations as the storm progressed and the series is given here, but in a brief form:

November 2, at 8 p. m., Guam time, pressure 750.60 mm. (1000.7 mb.) winds NNE, force 6; 10 p. m., 750.18 mm. N winds, 30 m. p. h.; midnight, 748.68 mm., NNW winds, 30 m. p. h.; November 3, 4 a. m., 745.10 mm., N winds, 48 m. p. h. squally; 5 a. m., 743.90 mm.

N winds, 42 m. p. h.; 6 a. m., 743.80 mm., N winds, 42 m. p. h.; 7 a. m., 742.70 mm., NNE winds, 50 m. p. h.; 8 a. m., 741.83 mm., NNE winds 60 m. p. h., raining hard last two hours; 9 a. m., 740.68 mm. (987.5 mb.), NNE winds, 70 m. p. h.; 10 a. m., 737.28 mm. (983.0 mb.), NNE winds, 80 m. p. h.; 11 a. m. 731.65 mm. (975.5 mb.), NNE winds, 108 m. p. h.; anemometer ceased recording but cups can be seen revolving; noon, 724.62 mm. (966.1 mb.), NNE winds estimated more than 125 m. p. h.; 12.15 p. m., winds definitely NE; approximately 1.15 p. m. wind has changed to E, anemometer mast is down; approximately 1.25 p. m. 716.86 mm. (955.8 mb.) wind shifting ENE to E, terrific, barometer pumping; 1.45 p. m., minimum pressure 716.69 mm. (955.5 mb.) (28.22 inches), wind E terrific, then notably diminishing and becoming gusty; 2 p. m., 717.93 mm. (957.1 mb.), E winds, hurricane force; 3 p. m., 720.04 mm. (960.0 mb.) E to ESE, violent. After 3 p. m. no more extra observations were requested. The anemometer cups, it may be added, had been in use on station since 1918.

The loss of life was very small, considering the duration of these strong winds. From private sources, the writer learned that about five persons were missing after the storm, and it is supposed that they were drowned. Besides, two or three persons were killed when trees crashed down upon their houses. The property loss was enormous. Very few buildings were left undamaged. The greatest damage occurred with the east quadrant winds during the afternoon, after the center had passed.

On November 9, when the center was not very far from the Bonins, pressure at that station (the morning observation) was 729.5 mm. (972.6 mb.) with north-northwest winds force 5. At this time the storm center was moving east-northeast or northeast after recurvature.

The upper winds over Guam before the typhoon arrived were from the east quadrant. October 29 and following days, gradually backing, day after day, to the northeast and finally, on November 2, morning ascent, becoming north and north-northeast. Velocities were seldom over 30 k. p. h. before November 1, and never over 40 k. p. h. until after November 1, morning ascent. On the morning of November 2, the upper winds, as reported from the Navy station, were as follows—200 m., direction 10°, velocity 47 k. p. h.; 500 m., 10°, 49 k. p. h.; 1,000 m., 20°, 50 k. p. h.; 1,500 m., 20°, 42 k. p. h. 2,000 m., 30°, 6 k. p. h. Balloon obscured. (Direction 360°, N—90° E, etc.) Very strong southeast quadrant winds were reported November 4 and 5 after the storm center had passed.

Over the Philippines, at Zamboanga, there was a shift to the southwest quadrant, the velocities never reaching 30 k. p. h., October 30 and 31. It seems as though there was a tendency to change to the southwest because of the distant forces which caused the typhoon to form. November 2 and the following days, Zamboanga again had east quadrant winds aloft, but changing to the southwest and northwest quadrants just when the typhoon center was recurving (November 5 and 6). Northeast and east quadrant winds prevailed over the other Philippine stations. None of the other reports at hand seem to have any interesting aspects to be mentioned. However the data from Netherlands East Indies and the Straits Settlements (which cannot be received by radio at the Observatory) should show more points of interest.

As this is written, November 20, it must be remarked that since late in September 1940, there has not been any typhoon close to the Philippines, excluding a small,