

Extratropical cyclones and gales.—A few cyclones entered the northwestern part of the ocean from Asia, but the greater part of the extratropical cyclonic developments of the month occurred over northeastern waters concentrating between the vicinity of the Alaskan Peninsula and about the fortieth parallel to the southward.

To the westward of the one hundred eightieth meridian only one gale was reported prior to the 23d; that occurred on the 6th, southeast of Kamchatka. On the 23d and 26th, wind forces of 8 to 9 were experienced along those parts of the northern routes lying south of the Kuril Islands, and on the 30th a whole gale (force 10) was encountered south of the Aleutians.

In west longitudes there was a wider and more frequent distribution of storminess, with gales reported on 7 or 8 days within the area 35° to 55° N., 170° W. and the American coast. Scattered fresh-to-strong gales occurred on the 1st, 8th, 11th, 13th, and 14th, and a whole gale on the 6th; but it was not until the 19th that storminess overspread a considerable region, extending from the Washington coast and Vancouver Island west-southward two-thirds of the way toward Midway Island. Over the eastern half of the area the gales reported on the 19th did not exceed force 8. The most intense wind of the day was a brief gale of force 11, encountered by the Japanese steamer *Shoyo Maru*, in 41° N., 160° W. The ship's lowest barometer was 29.10. The lowest pressure occurring in an extratropical cyclone of the month was 28.56, reported by radio on the 19th by the British steamer *Eurypylus* from near 50° N., 140° W.

Following the 19th there was very little storminess in northeastern waters.

Tropical cyclones off the west coast of Mexico.—A shallow depression appeared south of Cape Corrientes on September 1 and passed inland from the Gulf of California on the 3d. No gales were reported in connection with it.

The only cyclone of the month in this locality, the track of which can be drawn with some approximation, was that of the 4th to 13th. Wind and pressure conditions on the lower part of the Gulf of Tehuantepec late on the 4th were indicative of the formation of a Low. On the early morning of the 5th the U. S. A. T. *St. Mihiel*, southbound in the vicinity of $15\frac{1}{2}^{\circ}$ N., 98° W., ran into a succession of winds shifting over a period of about 2 hours from north, through northeast and southeast to southwest. The cyclone was of some intensity, with a maximum wind force of 9, accompanied by momentary stronger squalls, from northeast, lowest barometer 29.31. On the 6th cyclonic circulation was indicated specifically by a report from the American steamer *Kahuku*, but her lowest barometer was only 29.70, with strongest wind east, force 8, in $17^{\circ}13'$ N., $101^{\circ}42'$ W., at about local noon.

The disturbance continued to move slowly northwestward, the center lying at about 100 miles from the coast between Acapulco and Manzanillo. The southbound steamer *City of San Francisco* was considerably under the influence of the cyclone from 8 a. m. of the 7th until 6 a. m. of the 8th, with strong southeasterly winds throughout, rising to force 10 during the afternoon of the 7th, lowest barometer 29.65. The highest winds reported thereafter in connection with the disturbance, as it moved slowly past Cape Corrientes and across the mouth of the Gulf of California, were of force 7. The cyclone persisted weakly until the 13th, when it disappeared at sea off the southern west coast of Lower California.

While the disturbance already described was in progress, another cyclone formed and dissipated suddenly on the 11th close off the coast between Salina Cruz and Acapulco. Its entire known history, at this writing, is em-

braced in the storm reports of the American steamers *Washington* and *Virginian*, both from Los Angeles toward Balboa. The *Washington* met gales shifting from northeast, force 9, at 9 a. m. (local time), to south, force 10, at 10 a. m., lowest barometer 29.42, in $15^{\circ}25'$ N., $97^{\circ}25'$ W. The *Virginian* had a maximum wind of force 9 from the southwest at 7 p. m. of the 11th, in $16^{\circ}50'$ N., $99^{\circ}04'$ W., lowest barometer 29.65.

On the afternoon of the 24th and continuing into the 25th, the American steamer *Golden Cross*, westbound, entered into a stormy region near 18° N., 120° W. The gale began from the north-northeast, force 8, and ended from a westerly direction, highest force 9, lowest pressure, uncorrected, 29.66. A cyclone was evidently in progress to the westward of the Revillagigedo Islands.

A moderate north gale occurred in the Gulf of Tehuantepec on the morning of the 23d. Apparently it was a Tehautepecer—the first of the season.

Typhoons and depressions of the Far East.—There were several disturbances in tropical waters of the Far East during September. A complete discussion of them by the Rev. Bernard F. Doucette, S. J., of the Manila Observatory, is anticipated and will be published in a later REVIEW if not received in time for the current issue.

From our own meager reports it appears that a cyclone of some energy lay over the Marianas on September 1. The Panaman motorship *Granville* on that date had a north gale of force 9, lowest barometer 29.57, near 21° N., 144° E. On the 4th a depression is shown on our maps east of the Nansei Islands. On the 5th it had moved to southern Japan, where it is indicated to have been of considerable depth and accompanied by strong gales. This was over the same region that had been hard hit by the disastrous typhoon of the night of August 31–September 1, mentioned in the preceding issue of the Review.

Late in the month another typhoon raged in the China Sea. Very early on the 25th the British Navy vessel *Pearleaf* reported an east-northeast gale of force 8, barometer 29.61, in $16^{\circ}19'$ N., $113^{\circ}18'$ E. On the 26th to 28th a strong typhoon moved west toward the coast of Indo China, and thence northward into the Gulf of Tonking, where it appears to have been of great energy.

Fog.—Early autumn brought a lessening in fog production on the North Pacific, especially in higher middle latitudes, east of the one hundred and eightieth meridian, where it was unusually frequent in August and unusually scarce in September. The principal fog belt of the month lay along the western third of the northern steamer routes, with some 10 to 15 percent of days with fog. In United States coastal waters fog was reported off Washington on 4 days; off California on 6 days; and off Lower California on 2 days.

LATE REPORT: TYPHOONS AND DEPRESSIONS OVER THE FAR EAST, AUGUST 1938

By BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

Typhoon, August 4–13, 1938.—From August 4 to 8, a disturbance apparently of mild intensity moved in a west-northwesterly direction from the ocean regions about 300 miles south-southeast of the Bonins to the northern Nansei (Loochoo) Islands. Because of insufficient observations it was not certain that the storm had intensified to typhoon strength until it was in the Eastern Sea, about 250 miles east of Shanghai (August 9, 6 a. m.). It continued moving west-northwest into the continent, passing over the coast line about 80 miles north of Shanghai during the early morning hours of August 10. During the