

551.515 (73)

## STORMS AND WEATHER WARNINGS

## WASHINGTON FORECAST DISTRICT

A tropical disturbance of slight and diminishing intensity passed on a west-northwest course from about latitude 20°, longitude 61°, on September 26, to latitude 25°, longitude 71°, on October 1. Advices were disseminated twice daily, but they were rather indefinite as to its location on account of lack of vessel reports.

A second disturbance also of slight intensity was located south of Swan Island on the morning of the 3d. It advanced slowly northwestward and was last susceptible of identification on the evening of the 4th off the coast of British Honduras. The highest wind velocity reported in connection with this disturbance was 42 miles per hour, by the S. S. *Toloo* at 1 a. m. of the 3d in latitude 18° 10', longitude 82° 40', approximately.

Another tropical disturbance of slight intensity apparently developed northeast of Turks Island during the 14th-15th and moved slowly northward until the morning of the 16th, when it was central, as near as can be estimated, in latitude 27°, longitude 69°. The S. S. *San Lorenzo* reported a barometer of 29.60, wind west 28 miles on the evening of the 15th in approximate latitude 25° 30', longitude 68° 30'. It then turned eastward and southeastward, but absence of vessel reports prevents tracing its subsequent course. Advices were broadcast twice daily.

Beginning on the 14th and continuing for several days pressure fell slowly over the southwestern Caribbean and Canal Zone region. From reports now available it would seem that a cyclonic circulation existed as early as the 16th, but sufficiently definite information was not available until the evening of the 17th to broadcast information that a tropical disturbance of slight intensity was central about 300 miles north of Colon. The disturbance moved north-northwestward with rapidly increasing intensity, passing near and to the east of Swan Island during the night of the 18th-19th.

The S. S. *Pastores* at 3 p. m. of the 17th, in approximate latitude 14° 20', longitude 81° 30', recorded a barometer of 29.42 and north winds of 28 miles per hour with steady rain. At 10 a. m. of the 18th the S. S. *Atenas*, in approximate latitude 16° 30', longitude 82°, had a barometer of 29.26 inches north, raining, 50 miles, and at noon in nearly the same position reported a barometer of 28.74 north, cloudy and light wind, being apparently at the center of the storm. The lowest barometer 24 hours previous was about 29.40, indicating a decrease of pressure of 0.66 in that time. During the daylight hours of the 19th the center moved almost due north and during the next 12 hours northeast, passing over Nueva Gerona, on the Isle of Pines at 3 a. m., when a calm lasting 30 minutes was noted. Storm warnings were ordered for Key West at midnight of the 19th-20th, and on the following morning hurricane warnings were displayed along the southern Florida coast from Punta Rassa and Punta Gorda to West Palm Beach and storm warnings on the west coast northward to Tampa and on the east coast northward to Titusville. At that time the disturbance was central slightly south of Habana. It then moved on a course about east-northeast, passing over the northern Bahamas during the night of the 20th-21st and over the Bermudas about noon of the 22d.

The barometer at Habana was 713 mm. (28.07 inches) at 11:10 a. m. of the 20th, taking the mean of the oscillations of the barograph. The lowest swing during a furious gust was 700 mm. (27.56 inches). The barom-

eter fell from 727 to 700 mm. in about half an hour, a fall of about 1 inch. Rainfall at Habana during the 20th was 510 mm. (20.08 inches). Damage was enormous in the Isle of Pines and in the Province of Habana. A wind velocity of 99 miles per hour was recorded at Habana up to the time that the tower on which the anemometers were exposed was blown down, and was much higher later.

A maximum velocity of 62 miles per hour from the north was recorded at Key West, with gusts estimated at 80 to 85 miles per hour. At Miami winds reached gale force with an estimated velocity of 70 miles per hour from the north-northeast. While there was some damage on the southeast and extreme southern Florida coast, it was not severe, as the storm center passed some 30 miles off the coast. The lowest barometer at Key West was 29.18 inches at 4:14 p. m. of the 20th. At Miami it was 29.22 at 12:40 a. m. of the 21st. The hurricane passed over Bermuda during the day of the 22d. Hamilton reported lowest barometer 28.45 at 11:45 a. m., with central calm lasting about an hour, and highest wind velocity of 128 miles per hour, northwest. At Prospect the lowest barometer was 28.58 and highest wind velocity 114 miles per hour from northwest. The central calm was experienced; the wind velocity from 11:45 a. m. to noon was only 8 miles per hour, whereas from 10:30 a. m. to 11:30 it was 47 and from 12:30 to 1:30 p. m. it was 114.

At St. Georges the lowest barometer was 28.67 inches between 12:30 and 12:52 p. m., The central calm was also experienced here between 12 and 12:52 p. m.

Advices were disseminated at least twice daily concerning the storm, and special advices were sent to the Bahama Islands and to Bermuda. (See account of this hurricane in Bermuda, p. 428 of this REVIEW.)

The rate of progress of the center from the 16th to the 19th was about 200 miles per day; from the 19th a. m. to 20th p. m., about 350 miles per day; and from the 20th p. m. to the 22d p. m., between 600 and 700 miles per day.

On the morning of the 24th storm warnings were ordered from Hatteras to Eastport and small craft warnings south of Hatteras to Jacksonville in connection with a disturbance of increasing intensity over Tennessee. The disturbance moved northeastward with greatly increased intensity and caused gales from Hatteras northward and strong winds of short duration south of Hatteras to Jacksonville.

Frost warnings were issued on the 7th, 8th, 13th, 15th, 17th, 21st, 24th, 25th, and 26th for portions of this district.—R. H. Weightman.

## CHICAGO FORECAST DISTRICT

There was considerable variation in temperature during the month, the mean temperature being below the seasonal normal from the Mississippi Valley eastward and above normal on the central Great Plains. The greatest excess was 5° at North Platte, Nebr., and the greatest deficiency was 4° at Marquette and Sault Ste. Marie, Mich.

The rainfall was distributed most irregularly, the amounts being large from the Lower Lakes southwestward across the Ohio and Middle Mississippi valleys to southeastern Kansas, while in other portions of the Forecast District the precipitation was either below the seasonal normal or only slightly above.

The disturbances, coming largely from the west and reaching in troughs far to the south, increased consider-

ably in energy in their eastward movement as they approached the Great Lakes, and resulted in more than the usual amount of precipitation in the eastern and southern portions of the region. The relatively low temperature in the Lake region was, moreover, a result of this development, producing as it did, steep gradients and strong northwest winds in the rear of the disturbances.

However, there was really no storm of unusual intensity during the entire month. The disturbances were for the most part of moderate energy as they passed across the region. Warnings, either small craft or storm, were displayed on the Great Lakes on various occasions; and frost warnings were issued when conditions warranted over the eastern and southern portions of the Forecast District where vegetation required protection.

The special long-range forecast service for the protection of fruit from the Pacific Northwest in transit through the Dakotas and Minnesota was begun on October 21.—*H. J. Cox.*

#### NEW ORLEANS FORECAST DISTRICT

The month averaged warm and rainy for the season, although during the last two weeks a number of small, North Pacific HIGHS, attended by cool periods, moved over the district.

The first frosts of the season occurred on the 21st and 24th in the extreme northwestern portion of the district and were in accordance with warnings issued the preceding mornings. The first general frost warning for the northern portion of the district was issued on the 24th. Frost occurred the following morning, not only in the northern portion, but also in interior sections of the extreme southeastern portion. No frosts of importance occurred during the remainder of the month except on the 31st, in the more northern sections of the district, and this was predicted.

No general windstorm occurred. The only storm warnings were issued for the Louisiana coast on the 23d, at 8.30 p. m., because of squally conditions on the Texas coast, which were expected to move eastward with a disturbance from south Texas. The disturbance advanced as expected, but did not cause verifying winds on the Louisiana coast and warnings were lowered the next morning. On the 28th, small craft warnings were displayed on the east and middle coasts of Texas for fresh to strong southerly winds.—*R. A. Dyke.*

#### DENVER FORECAST DISTRICT

With high barometric pressure predominating over the middle and southeastern portions of the district and the frequent passage of depressions eastward along the Canadian border, the month was unusually mild and precipitation was deficient everywhere except in the northwestern and extreme southeastern portions of Wyoming. There was an almost entire absence of severe weather conditions, so that no general warnings were necessary. Frost and freezing temperature advices, most of which were verified, were issued from time to time for portions of southern Wyoming, western Colorado, and eastern New Mexico.—*E. B. Gittings, jr.*

#### SAN FRANCISCO FORECAST DISTRICT

On October 4 the depression which had occupied the Gulf of Alaska for several days deepened rapidly and

showed signs of moving onto the coast of Washington and British Columbia. Advisory warnings of this probability were consequently sent out to display stations in Oregon and Washington. The disturbance, however, moved northward and diminished in intensity and warnings were not hoisted until the second day after, when they were displayed at all ports from Marshfield north. Southerly gales occurred that day along the coast. On the 8th a new disturbance developed in the Gulf of Alaska and southeast warnings were ordered from Eureka to Cape Flattery in the morning, and extended south to Point Reyes in the evening. Strong winds and gales followed during the night and day after. Timely warnings of rain were sent to all fruit-drying interests in northern California in connection with this disturbance, so that all were enabled to get their fruit under cover.

Conditions began to show a generally disturbed con-  
 plection over the northeast Pacific on the 9th, and by the 12th a well developed Low was approaching the Oregon-Washington coast which seemed to require the display of warnings. These were consequently ordered from Cape Blanco north, but were not justified by wind conditions as registered at coast stations, and although gales presumably occurred at sea, the warnings were allowed to expire the day following. However, on the 14th they were displayed again, due to the inward passage of a portion of the ocean Low over British Columbia, and this time they were followed by strong gales on the coast. The pressure during this period was abnormally low over the greater part of the northeast Pacific, readings in the Gulf of Alaska being below 29.00 inches. Warnings were continued until noon of the 16th, attendant gales subsiding that night.

Another low pressure system of similar character filled the northeast Pacific Ocean during the ensuing week, and on the approach of this disturbance to the Oregon-Washington coast southeast warnings were again displayed, which were verified by the occurrence of strong gales during the day. There was no occasion for warnings during the remainder of the month and no further displays were ordered.—*T. R. Reed.*

#### 627.41 (73) RIVERS AND FLOODS

By H. C. FRANKENFIELD

Report has already been made in the MONTHLY WEATHER REVIEW for September, 1926, of the destructive floods that occurred during that month in the rivers of Indiana, Illinois, Iowa, Missouri (except in the Missouri and Grand Rivers), eastern Kansas and eastern Oklahoma. In general the rains that caused these floods began during the second week of August and continued through the early days of October, although they were neither so widespread nor heavy during the second half of September. Over the Great Central Valleys the rain-falls for that month occurred generally in five principal periods (the last of which continued into October) as follows: September 1-6, 9, 12-16, 20, and 22-October 5. These rains were so phenomenal for the season that a table was prepared showing the general rain conditions for September over the flooded areas. The column showing the excess of rain above the normal amounts is especially significant.