

WEATHER, FORECASTS, AND WARNINGS.

By EDWARD H. BOWIE, District Forecaster.

From the evening of the 3d to the 5th there were slight evidences of a disturbance over the western Gulf of Mexico and on the morning of the 6th there was a more or less well-defined circulation with center apparently south of the Louisiana coast. Small-craft warnings were issued on that date for the Gulf coast from Pensacola to Mobile. By the morning of the 7th the center of the disturbance was near the mouth of the Mississippi River. The storm remained of moderate intensity and passed eastward over the northern portion of the Florida Peninsula. Winds of storm force were reported along the South Atlantic coast at several stations, advices regarding which were issued previously.

On the morning of the 6th a high pressure area of marked intensity was central over western North Dakota. It advanced to Virginia by the morning of the 11th, having caused scattered frosts and cooler weather in northern districts. During the 36 hours following it passed off the coast with decreased intensity.

During the week ending June 10 some of the temperatures reported in Arizona and California were unusually high, while in New England, the lower Lake region, and portions of the Middle Atlantic States temperatures were recorded which were among the lowest ever observed in those districts during the first decade of June.

The following weekly forecast was issued Sunday, June 9:

The indications are that the coming week will be one of moderate temperature over the greater part of the country, a reaction to normal temperature, following several days of unseasonably cool weather over Middle West and the Southern and Eastern States, being probable during the first half of the week. Fair weather will prevail the next several days in the Eastern and Southern States, while an area of low barometric pressure that now covers the western plateau region will advance slowly eastward and give local rains the first part of the week in the Middle West and the latter part of the week in the Eastern and Southern States.

On the 9th a wireless vessel report from the middle Gulf of Mexico indicated the presence of a disturbance of moderate intensity in that region. Special observations were called for during the two days following from Gulf stations and shipping was kept advised as to probable conditions in the Gulf. On the morning of the 12th observations from west Gulf stations indicated that the disturbance was apparently approaching the eastern Texas or the Louisiana coast and advices were accordingly sent to Gulf stations and vessel interests. By the morning of the 13th the center had passed inland over Louisiana

causing some damage by the spreading of flood waters; no damage however was reported to shipping. The storm, which was of moderate intensity, passed east-northeastward to the North Carolina coast by the evening of the 14th, causing storm winds over the south Atlantic coast warnings of which were issued on the 14th. A severe local storm was reported near Fayetteville, N. C., during the 14th.

THE STORM OF JULY 14TH-15TH, 1912.

The following report on the storm near the Georgia coast is taken from notes furnished by Mr. C. J. Doherty, local forecaster, in charge at Savannah, Ga.:

A decided fall in the barometer took place on the 14th, with increasing winds. The regular p. m. reports showed an incipient disturbance near the Georgia coast, and high winds with unusually rough seas prevailed at Tybee Beach during the night. The morning reports of the 15th indicated that the storm had increased slightly in intensity. The weather was thick and threatening, with light intermittent showers which continued during the day and night. After midnight the wind became fresh and gusty. A verifying velocity was first attained at 7.35 a. m. of 36 miles an hour, and thereafter the wind continued high until 10 p. m., with a maximum velocity of 49 miles from the southeast shortly after 11 a. m. on the 15th. During the day the displayman at Tybee reported unusually wild seas, with high winds and swell from the southeast. Northeast storm warnings were displayed from Jacksonville to Charleston. No material damage was reported.

On the evening of the 14th there was an unsettled condition off the Georgia coast, and by the morning of the 15th pressure had fallen slightly over that region, and a maximum wind velocity of 36 miles from the east was reported from Charleston. Storm warnings were ordered from Charleston to Jacksonville, and special observations were called for, but no further development was noted. Heavy rains, however, occurred over Georgia and South Carolina, and a maximum wind velocity of 46 miles from the southeast was reported on the morning of the 16th from Charleston. This disturbance caused showers and thunderstorms over the East Gulf and South Atlantic States for several days following the 16th.

THE TROPICAL STORM OF SEPTEMBER 13-14, 1912.

(By ALBERT ASHENBERGER, Local Forecaster, Mobile, Ala.)

The storm that passed inland from the Gulf on the night of September 13-14, with its center probably not over 20 miles west of Mobile, was much less destructive than several other storms recorded in the meteorological history of Mobile. The short duration of the high winds, the comparatively low accompanying tides, and the absence of heavy rainfall for an extended period tended to lessen its disastrous effects.

No premonitory signs of the approaching disturbance were observed, except a somewhat red sky near the western horizon at sunset, and an unusually rapid movement of the lower clouds at about 9 p. m. The tides in Mobile River had been abnormally low, but during the east and southeast winds rose rapidly, and reached the level of the top of the lowest wharves at about 4.30 a. m.

The hourly wind velocity on September 13 ranged from 11 to 16 miles, and the wind veered from north to northeast. An increase in wind velocity was not perceptible till after 1.30 a. m. of September 14. A maximum rate of 32 miles an hour was attained at 2.50 a. m., and the highest velocity, 52 miles an hour, at 3.50 a. m. No high winds occurred after 6 a. m. On September 14 east winds prevailed from 1.30 a. m. to 3.15 a. m., and were followed by southeast winds changing to south at 4.45 a. m. At Pascagoula, Miss., about 35 miles southwest of Mobile, the wind backed from northeast to southwest, and the highest wind was from the northwest. The wind did not reach dangerous velocities at Gulfport, Miss., or other storm warning stations farther west.

A total rainfall of 1.30 inches fell during the storm. Traces of rain occurred near midday and rain began again at 8.30 p. m., on the 13th. Heavy rain fell for about a half hour preceding the increase in the wind velocity.

The barometer read 29.71 inches at 8 a. m., and 29.65 inches at 8 p. m., on September 13, and a slight rise in pressure occurred about 11 p. m. A rapid fall began after midnight; the lowest atmospheric pressure, 29.37 inches, occurred at 3.30 a. m., the pressure remaining almost stationary for half an hour, and then rising steadily until 29.65 inches was reached at 8 a. m. on the 14th.

The loss of property in the city of Mobile from the high winds is estimated at \$8,000. A church, a very weak

structure, on the corner of Delaware and Cedar Streets, was blown down, as were also some business signs and many fences. The wire systems also sustained considerable damage. The loss to vessels in the bay and river is estimated at \$4,000. The larger vessels had been made fast with extra cables, and many of the smaller vessels had ascended the river to places of safety. The principal loss to shipping interests was a barge, valued at \$2,000, which was lost in Mobile Bay, and the steamboat *National*, which sank in shallow water about 3 miles up the river. During the storm a watchman on a barge fell overboard and was drowned.

Storm warnings had been displayed from 2 p. m. of September 12, and wide publicity had been given to the information. The Mobile Daily Item, of September 14, in its account of the storm stated:

Ample warning by the United States Weather Bureau undoubtedly prevented greater loss, as every city, town, and settlement on the coast had been advised of its coming and were prepared for it.

On September 15, the Mobile Register published a special telegram from Pascagoula, Miss., reporting the storm at that place, and which referred to the warnings as follows:

Because of the ample warnings given by the Government shipping was fully able to protect itself.

At Pensacola, Fla., the storm was more severe, and the damage to property considerably greater. High winds from the northeast set in at 9.45 a. m. on the 13th, shifting to east at 3 p. m., and to southeast at 8.14 p. m., attaining a maximum velocity of 59 miles an hour at 9.21 p. m. Immediately after midnight the wind increased in velocity, reaching 74 miles from the southeast at 2 a. m. on the 14th, when the anemometer was carried away. The wind remained high until about 5 p. m. The lowest atmospheric pressure was 29.65 inches on the 13th.

The damage at Pensacola is summarized by Mr. Reed, local forecaster at that station, as follows: The entire beach was strewn with timber and about 20 barges, fishing smacks, etc., went ashore. Private wharves along the bay shore from Fort Barancas to Baylen Street were generally carried away, together with numerous small houses on the wharves used either as bath houses or for fishermen's equipments. The wharves of many of the fishing companies were also damaged considerably. There were several coal barges, steamers, and tugs moored along the east side of Palafox Wharf where two coal barges went adrift; one of them damaged the steamer *Edna C* and the steam yacht *Page*, and rammed and sank the revenue cutter *Penrose*. The British steamer *Coniston* went ashore about 75 miles east of Pensacola. A portion of the track of the Pensacola Electric Co., was undermined south of Bayou Grande, and on Main Street. The damage by winds in the city was slight. The tide during the night of the 13th-14th rose about 2 feet above normal high water, and the waves ran about 4 feet high. Total estimated damage at Pensacola and vicinity, \$25,000.

From the 6th to 13th conditions were unsettled off the east Gulf coast and reports from land stations as well as those from vessels by wireless indicated the existence of a disturbance of slight intensity in that region. On the afternoon of the 12th, special observations indicated that the storm was increasing in intensity, and advices and warnings were issued to ports on the Gulf in the following message:

Hoist northeast storm warnings New Orleans to Pensacola 2 p. m. Disturbance central southeast of mouth of Mississippi River, apparently moving northwest. Increasing north to east winds this afternoon and to-night.

On the 13th the following advisory message was disseminated:

Disturbance southwest of Pensacola will probably move north-northwest and pass inland late to-night or Saturday, attended by strong shifting winds on the northwestern Florida, and the Alabama, Mississippi, and eastern Louisiana coasts.

By the morning of the 14th the storm had passed inland with decreased intensity and was central over southern Mississippi. Thence it passed up the Ohio Valley, causing showers and thunderstorms over the lower and middle Mississippi Valley and over northern and central districts east of the Mississippi River. On the 16th it was off the middle New England coast, with slightly increased intensity. It caused high winds of local character over portions of the middle Atlantic States, and on the afternoon of the 15th a tornado was reported in Onondaga County, N. Y.

The following remarks regarding this storm are taken from the report of the official in charge at Pensacola:

On the night of the 11th shipping interests were advised of a disturbance south of the Mississippi coast and to exercise caution until further advices. On the morning of the 12th small craft warnings were ordered displayed again, and were ordered changed to northeast storm warnings at 12.37 p. m., with the information that the disturbance was central southeast of the mouth of the Mississippi River, apparently moving northwest, and increasing north to east winds could be expected during the afternoon and night. This information was given general distribution. At 8.48 a. m., on Friday the 13th, an advisory message was received, stating: "Disturbance central southwest of Pensacola will probably move north-northwest and pass inland late to-night or Saturday, attended by strong shifting winds on north-west Florida, and the Alabama, Mississippi, and east Louisiana coasts." This was immediately sent out by messenger and telephone, reaching all shipping interests by 10 a. m., the official in charge adding remarks that the strongest winds would be from the southeast and personally warned all interests affected to take extreme precautions. On the strength of this information the fish companies moved all smacks (about 23) across the bay to a sheltered anchorage; timber was towed to safer places and extra dogs and chains put on. Warnings were changed to southwest at 10 a. m. of the 14th.

On the 12th pressure was low and fell from 29.85 to 29.71 inches, the weather was generally cloudy with strato-cumulus clouds from the northeast and light scattered showers after 11 a. m. The winds were from north to northeast, increasing from 11 to 23 miles per hour; a squall of 33 miles from the north occurred at 6.33 p. m.

On the 13th pressure remained between 29.66 and 29.70 inches; with generally cloudy weather. Light rains occurred in the morning and continuous rain after 12.20 p. m., amounting to 0.75 inch. Winds gradually increased, northeast prevailing to 3 p. m., east from 3 p. m. to 9 p. m., then southeast past midnight. Easterly squalls began between 9 and 10 a. m., increasing in severity after 3 p. m., and passing the 50-mile rate in all hours after 7 p. m. Fifty-three miles from the southeast was registered at 7.18 p. m., 50 southeast at 8.14 p. m., 59 southeast at 9.21 p. m., with an extreme of 62 miles; 58 southeast at 10.57 p. m., and 58 southeast at 11.56 p. m. Temperature fluctuated between 74° and 80°. There was a moderate but increasing southeast

surf with normal tide at noon; at 2 p. m. the tide was rising slowly and the surf was high; at 7 p. m. the tide was 1 foot above normal.

On the 14th extremely severe southeast squalls continued to 7 a. m., reaching 68 miles southeast at 12.24 a. m., and 74 southeast at 2 a. m., with an extreme velocity of 86 miles at 1.58 a. m. The next squall, at 2.26 a. m., carried away the anemometer, which had worked loose on its stand. The anemometer record was started again at 8.26 a. m. It was the general opinion that the squall at 2 a. m. was the hardest, but the severe squalls of about 60 miles continued to 6 a. m., south winds prevailing after 3 a. m. Thunder was heard 1.50 a. m. to 2.20 a. m., and lightning occurred from 2 a. m. to 3 a. m. Southerly squalls continued during the passage of a thunderstorm that came from the southwest. Pressure fell to 29.62 inches at 2.30 a. m., then began rising rapidly, reaching 30 inches at 9 p. m. Rains ceased at 4 p. m., amounting to 0.75 inch for the day. The sky cleared between 7.30 and 8.30 p. m. The tide during the night of the 13th-14th rose 2 feet above normal high water, the waves were about 4 feet high, and the wind carried the spray over the American National Bank Building.

DAMAGE.

Beginning at Pensacola entrance and making a circuit of Pensacola Bay, the following damage by the storm was observed: Fishing smack *Two Boys* ashore. The tracks of the Pensacola Electric Co. were undermined for a distance of about 1,200 feet immediately south of Bayou Grande; also about 1,000 feet on Maine Street; their tracks were also inundated by high tide at the corner of Intendencia Street and Ninth Avenue. Private wharves along the bay shore from Fort Barrancas to Baylen Street were generally carried away, together with numerous small houses on the wharves which were used either as houses or for fishermen's equipment. The entire beach was strewn with timber and about 20 barges went ashore; only a few barges remained at anchor and retained their cargoes of lumber. The British S. S. *Meltonian*, moored along the east side of Perdido Wharf, broke away and went aground on Rat Island. Her local agents were notified at 10 a. m. of the 13th of expected conditions, and were phoned again in the afternoon, calling attention to her dangerous position. She could have weathered the storm without mishap at anchor in the bay. The fish companies were advised to take their fishing smacks across the bay in shelter of the peninsula. This advice they heeded. There were in all about 23 fishing smacks, valued at \$7,000 each. The tug *Brittania* also took the precaution to anchor across the bay after being advised that severe southeast squalls were expected during the night. There were several coal barges, steamers, and tugs moored along the east side of Palafox Wharf where two coal barges went adrift. One of them damaged the steamer *Edna C*, the quartermaster's steam yacht *Page*, and rammed and sank the revenue cutter *Penrose*. At Jefferson Street Wharf a house-lighter sank with a cargo of naval stores. Traffic over the L. & N. R. R. was suspended for about 18 hours on account of the damage to the bridge by being rammed with rafts of timber. The west end of the roof of Monarch Pavilion on Santa Rosa Island was blown off and a portion of the southeast corner of the roof of the Gulf Beacon Inn was torn off by the gales. The British S. S. *Conniston* went ashore about 75 miles east of Pensacola. The fishing smack *Isabelle* went ashore about 12 miles west of Pensacola entrance. The owners of the coastwise steamer *Tarpon* were advised on the 13th to hold the *Tarpon* in St. Andrews Bay. This they did for 24 hours and she avoided the storm. The damage by wind throughout the city was slight. The Western Union lines went down during the night and were out of order until 1 p. m. of the 14th. Electric light circuits were cut off about 1 a. m. of the 14th. Telephone lines to the navy yard were blown down. The barkentine *Golden Rod* put into port on the afternoon of the 14th with five sails missing and two yardarms broken. The captain stated that he encountered the storm off Cape San Blas on the night of the 12th. The squalls grew more frequent and severe and at night he was driven along before them under bare poles, passing about 60 miles south of Pensacola at 11 p. m., when his barometer fell to 29 inches. He said the squalls were terrific and the ship remained over on her beam ends during the height of the storm. The British schooner *Hieronimus* weathered the storm at anchor off Mobile entrance. The captain said that the seas were the highest he had ever seen. The worst of the storm occurred about 2.40 a. m.

The estimated damage by tide and waves in Pensacola is \$23,500, and by winds \$1,500.

The following is an extract from the report of the official in charge at Mobile, Ala.:

The storm that passed inland from the Gulf on the night of September 13th-14th, with its center not over 20 miles west of Mobile, was much less destructive than several other storms recorded in the meteorological history of this city. The short duration of the high winds, the comparatively low accompanying tides, and the absence of heavy rainfall for an extended period tended to lessen its disastrous effects.

No premonitory signs of the approaching disturbance were observed, except a somewhat red sky near the western horizon at the time of

sunset, and an unusually rapid movement of the lower clouds at about 9 p. m. The tides in Mobile River had been abnormally low, but, during the east and southeast winds, rose rapidly and reached the level of the top of the lowest wharves at about 4.30 a. m. A maximum rate of 32 miles an hour was attained at 2.50 a. m. of the 14th, and the highest velocity, 52 miles an hour, occurred at 3.50 a. m. A total rainfall of 1.30 inches fell during the storm. The barometer read 29.71 inches at 8 a. m., and 29.65 inches at 8 p. m. of the 13th. A slight rise in pressure occurred about 11 p. m., and a rapid fall began after midnight, the lowest, 29.37 inches, occurring at 3.30 a. m. The pressure remained almost stationary for about half an hour and then rose steadily until 29.65 was reached at 8 a. m. of the 14th.

The loss of property in the city of Mobile from the high wind is estimated at \$8,000. A church, a very weak structure, on the corner of Delaware and Cedar Streets, was blown down, as were also some business signs and many fences. The wire systems also sustained considerable damage. The loss to vessels in the bay and river is estimated at \$4,000. The larger vessels had been made fast with extra cables and many of the smaller vessels had ascended the river to a place of safety. The principal loss to shipping interests was a barge valued at \$2,000, which was lost in Mobile Bay, and the steamboat *National*, which sank in shallow water about 3 miles up the river. The steamboat, which is about 100 feet in length, had been fastened with extra lines, but during the highest winds all parted except the anchor chain, and the boat swung around against submerged piling. Storm warnings were displayed from 2 p. m. of September 12 and wide publicity was given all information.

The following are editorials referring to the storm and the warnings issued in connection therewith:

The Mobile Daily Item of September 14 says:

* * * Sweeping inland from the central Gulf last night, the tropical disturbance, which has been gathering energy for several days past, spent its fury and passed on into central Mississippi, causing damage that will run into the thousands of dollars. Ample warning by the United States Weather Bureau undoubtedly prevented greater loss, as every city, town, and settlement on the coast had been advised of its coming and were prepared for it.

The Pensacola Journal of September 15th:

* * * The small damage done is due to the fact that owners of vessels had taken precautions, while the fleet of foreign vessels at anchor was small and the masters of the vessels had been given ample time to prepare for the blow which, however, was worse than anticipated earlier in the night.

HURRICANE OF OCTOBER 11-16, 1912.

The tropical storm that moved inland over the lower Texas coast between Corpus Christi and Brownsville on October 16 originated apparently in the Caribbean Sea. It was first announced by the central office of the Weather Bureau on Friday, October 11, but as the storm was far south no definite information as to its character could be given out. On October 13 it had apparently entered the Gulf of Mexico, and northeast storm warnings were ordered displayed that night from the mouth of the Appalachicola River to the mouth of the Rio Grande. On October 14 heavy rains and squally weather on the middle Gulf coast indicated the storm to be near the central or south-central portion of the Gulf. The barometric pressure at this time was above the normal at all Gulf coast stations, and it was rising on the Louisiana and Florida coasts and beginning to fall on the Texas coast. On Tuesday morning, October 15, there was a difference of 0.16 inch between the barometric pressures at Corpus Christi and at Brownsville. The difference increased as the day advanced, and at the morning observation of October 16 it amounted to 0.46 inch, the former station reporting a barometer reading (reduced to sea level) of 29.86 inches and the latter of 29.40 inches. In the meantime a steady rain set in along the entire Texas coast and the weather continued squally, with high tides and rising winds, and it became evident that the storm was approaching the mouth of the Rio Grande. Immediately after the evening observation of October 15 hurricane warnings were ordered displayed from Port Lavaca, Tex., to Brownsville, Tex., while storm warnings continued on the Texas coast east of Port Lavaca.

On Wednesday, October 16, the storm moved inland between Corpus Christi and Brownsville, decreasing rapidly in energy and breaking up on October 17 as an independent storm with general and heavy rains over the eastern two-thirds of Texas. Advices of the progress of the storm were received daily from the central office of the Weather Bureau and widely disseminated. In consequence there were no marine disasters, except that of the steamship *Nicaragua*, which sailed from Tampico, Mex., October 11, for Port Arthur, Tex., on the day when the storm was first observed in the Caribbean Sea, and could not therefore be warned. This vessel foundered on October 16 about 100 miles southeast of Corpus Christi. The following is an extract from the report of this storm, made by Mr. Joseph L. Cline, local forecaster, in charge of the Weather Bureau office at Corpus Christi:

Northeast storm warnings were displayed at this station October 14 and 15, and hurricane warnings were received at 9.30 p. m. October 15 and displayed until sunset of the 16th. These warnings were given

wide distribution, were highly appreciated, and of great value to the public in preventing vessels from being out of harbor during the disturbance. Northerly winds prevailed for several days at this station, shifting to the east on October 16. The maximum wind velocity was 30 miles from the north on the 14th and 37 miles from the north on the 15th. On the 16th storm velocities prevailed from 12.03 a. m. to 8.18 a. m. with a maximum velocity of 51 miles from the north at 4.10 a. m., and from 6.32 p. m. to 7.46 p. m. with a maximum velocity of 40 miles from the southeast at 7.05 p. m.

The wind lulled and shifted to the southwest during the night of October 16-17. Rain fell from 4.57 a. m. to 7.14 p. m. of October 15, and from 7.52 p. m. of the 15th to 5.33 p. m. of October 16. The total amount was 3.99 inches of which 3.33 inches fell in 22 hours and 50 minutes from 4.31 p. m. of the 15th. The barometric pressure remained above 30 inches until the afternoon of October 15, when it commenced falling and continued to fall until the afternoon of the 16th, reaching the lowest, 29.75 inches about 5 p. m.

Moderately high tides were reported on the morning of October 16, doing several hundred dollars damage to property on Harbor Island and nearly \$1,000 damage to the municipal wharf now under construction at this place. Considerable damage was reported from Point Isabel near Brownsville, Tex. No other damage was reported, except the sinking of the steamer *Nicaragua* in the Gulf of Mexico east of Padre Island, or southeast of Corpus Christi, on the morning of October 16. This boat sailed from Tampico, Mex., October 11 for Port Arthur, Tex., loaded with cotton and miscellaneous freight valued at \$20,000. It had a length of 286 feet and a net tonnage of 310 tons and was owned by the Cia Consolidada de Maderas, of Tampico, Mex. The crew consisted of 27 men. Capt. E. Eschevarra and 12 members of his crew were picked up in the Gulf of Mexico by members of the United States life-saving station at Port Aransas, Tex., on the afternoon of October 22. They were in two lifeboats. The captain believes that six of the crew were lost at the time the vessel foundered and that the others may still be drifting in lifeboats somewhere along the south Texas shore line. (Sinking of *Nicaragua* taken from newspaper reports.)

Considerable damage was caused along the Texas coast between Rockport and Brownsville by wind and tide. Padre and Brazos Islands were reported submerged for several hours and a number of buildings were washed away. At Point Isabel, a fishing station about 22 miles from Brownsville, the damage to buildings and fishing boats is estimated at \$7,000. At Brownsville several windmills were wrecked, trees were blown down, and poorly constructed buildings more or less damaged. No loss of life was reported. The total damage, however, is insignificant when compared with the benefits resulting from the heavy rains accompanying this storm. About two-thirds of the entire area of Texas received a copious supply of moisture, the amounts ranging from 1 to over 5 inches, which not only relieved the droughty conditions existing in many localities, but also prepared the ground for fall plowing and sowing. By far the greater portion of the moisture soaked into the ground as evidenced by an extremely small run-off. The heaviest rainfall occurred at Brownsville, where the total amount from this storm measured 8.26 inches, and in a large number of localities northward as far as Corsicana the amounts ranged from 4 to 5 inches.

WEATHER FORECASTS AND WARNINGS.

By H. C. FRANKENFIELD, Professor of Meteorology.

and on the following day storm warnings were ordered from Norfolk, Va., to Hatteras, N. C. These were continued on the following day and extended southward to Savannah. After crossing Florida this storm was followed by radiotelegraph reports alone. Without them, knowledge of the progress of the storm would have been impossible, and no warnings would have been issued. The great value of the radiotelegraph service of the Weather Bureau has again been demonstrated and its permanency as an important feature of the forecast work is assured.

On the morning of the 5th radiotelegraphic reports indicated the presence of a disturbance off the Colombian coast, at about latitude 10 North and longitude 76 West. A week later it was off the eastern coast of Yucatan, with reported barometer readings of 29.50 inches. It continued its northwestward movement, reaching the south Texas coast on the morning of the 16th, and then turned northward into central Texas where it dissipated on the following day. The lowest pressure reported during the storm was 29.40 inches at Brownsville, Tex., on the morning of the 16th. No reports were received from the Gulf of Mexico during the passage of the storm, but high winds prevailed on the Texas coast on the 15th and 16th, and the foundering of the steamer Nicaragua occurred. The first advisory warnings regarding this storm were issued on the 11th. Warnings were first ordered on the night of the 13th from Apalachicola to Brownsville, not with the idea that high winds would actually occur on the coast but that vessels sailing southward would encounter them. On the 15th it became apparent that the storm was approaching the Texas coast and hurricane warnings were ordered west of Galveston. Considerable damage was done along the south Texas coast, and the highest wind velocities reported were 55 miles an hour at Brownsville, Tex., and 52 miles an hour at Corpus Christi, Tex.

WEATHER.

On September 27 a moderate depression (Brownsville 29.92 inches) appeared at the mouth of the Rio Grande. It moved slowly across the Gulf of Mexico in an east-northeast direction without any material increase in intensity, and crossed the Florida Peninsula on October 4. Then followed a sharp turn to the north-northeastward with the rapidly increasing intensity attendant upon a change in direction to the northward, and on the evening of October 6 the storm was central about 350 miles east of Charleston, S. C., a vessel observation in that locality showing a barometer reading of 29.42 inches. Heavy rains and winds of hurricane force attended the storm which continued north-northeastward with slowly decreasing intensity until October 9 when it was lost somewhere between the North Carolina coast and the island of Bermuda. The first advisory warnings for this storm were issued during the afternoon of October 4,