

THE WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

F. A. YOUNG, Temporarily in Charge, Marine Division

NORTH ATLANTIC OCEAN

By F. A. YOUNG

With the exception of a tropical disturbance of slight intensity and a few local squalls, that will be described later, the North Atlantic during the current month was unusually free from heavy weather. Up to the time of writing only 15 vessels have rendered storm reports, and of these only 2 recorded a wind force as high as 10, while gales were not reported on more than one day in any 5° square.

On the 25th a depression was over the peninsula of Yucatan, that afterwards developed into a moderate tropical disturbance. On the daily weather map for June 26 it is stated: "A disturbance of moderate intensity is apparently central in the south-central portion of the Gulf of Mexico." On the 27th the center of this disturbance was about 100 miles east-northeast of Brownsville, Tex., and on the 28th over the coast of western Texas. The Honduran steamship *Choluteca* was the only vessel rendering a report of this storm, as shown in table.

Charts VIII to X cover the period from the 23d to 25th, inclusive. Charts VIII and IX give an idea of the weather encountered by Messrs. Post and Gatty on the first two days of their around-the-world flight, and Chart X is drawn to show the conditions on the 25th, when Messrs. Hillig and Hoiriis landed in Germany.

Notes.—British steamship *Olna*; captain, P. Skone-Rees; observer, Sydney Mitchell, chief officer. Montreal to Port Arthur:

June 19, 1931, from 4 p. m. to 5:30 p. m. A. T. S.: A heavy electrical storm; clouds, Ci.-Cu., Cu. and Cu.-Nimb. Continual thunder and lightning. Occasional squalls traveling from NW. to SE., with an inclination to the southward and SW. This was preceded by a remarkable display of waterspouts, as many as five being seen at the same time and reforming as quickly as they dispersed. Position, between 24° 25' N., 82° 08' W., at beginning to 24° 25' N., 82° 20' W., at end.

Greek steamship *Okeania*; captain, Isadore M. Carivalis; observer, Master. Gibraltar to Baltimore:

Waterspout, June 4, in 36° 14' N., 56° 37' W., 6:30 p. m. ship time. Observed waterspout on starboard bow (ship course west) 3 miles distant. Lasted until 7:30 p. m. Barometer 29.81 (corrected); clouds Cu.-Nb. from SW., 7 to 10. Air temperature, 66; water, 72.

American steamship *San Julian*; captain, G. V. Spankie; observer, M. Sander, chief mate. From Philadelphia to Canal Zone:

June 29, 3:30 a. m. E. S. T., in 16° 00' N., 75° 40'; wind NW., 4. Vessel entered very heavy electrical disturbance. Lightning, thunder, and torrential rain; wind calm and variable. At 7 a. m. in 15° 30' N., 75° 50' W., wind SE., 3, then to NE., 3, and calm in afternoon. About one hour before entering this, wind had been NE., 4, then shifted to NW. When near the center the thunder and lightning were almost continuous.

Reports in hand indicate that gales were experienced on only a few days in the month. The most disturbed conditions occurred over the main northern steamship routes east of longitude 45° W. during the latter half of the month, with three ships reporting winds of gale force in that area on the 16th and three on the 20th or 21st. These spells of mildly stormy conditions were the result of the development of an extensive low-pressure belt reaching from Labrador to the North Sea with a stable ridge of high pressure extending from Florida to Spain and crested well northward over the Azores.

The French steamship *Nevada* (captain, F. Bougouin; observer, LeFichoux) on the 14th encountered a small, sharp depression at the western end of the English Channel, in which the barometer dropped between noon and 7 p. m. from a reading of 29.9 to 29.1 inches, after which the pressure rose rapidly, the depression being accompanied by wind rising briefly to force 10, and shifting from east-northeast to west-northwest. This disturbance is clearly identified in the daily weather maps of the region, which show it to have traveled northeastward, retaining its central depth but increasing in area, though apparently not producing storm winds of any great extent.

A disturbance resembling in some of its characters a mild tropical cyclone originated in the western Gulf of Mexico on the 14th and caused winds of force 8 to 11 near the Louisiana coast as it progressed northeastward on the 14th and 15th. The tanker *W. C. Teagle* (captain, W. Doyle; observer, C. Dwyer) encountered this disturbance en route from Galveston through the Florida Straits, on the afternoon of the 14th, about latitude 28° N. and longitude 91° W. The barometer fell rather sharply about two-tenths of an inch, reaching the lowest point at 4:30 p. m., when the ship's weather journal states that "the wind was ESE., force 11, with driving rain squalls and the air full of spray. Kept the vessel head-on at reduced speed. At 6 p. m. the wind was SE., force 10, with barometer pumping between 29.72 and 29.78." Southeast gale and rain continued throughout most of the night of the 14th-15th, but the wind changed to south

by 7 a. m. and diminished to force 6, with barometer returning to approximately the same height as at the beginning of the storm. The intensity of the disturbance may be judged, however, by the remark in the storm log that "the vessel was set north about 50 miles by wind and sea."

A wind of moderate gale force was experienced by the steamship *La Playa* in the Gulf of Honduras on the 23d, but this appears to have been the result of a local strengthening of the trade wind rather than a developing tropical disturbance.

Fogs were as prevalent as usual for July over the main steamer routes from North Atlantic ports eastward and northeastward, being most widespread between the 5th and 10th and again from the 22d to 28th, during which periods fog blanketed most of the Atlantic area north of latitude 40° and eastward to the vicinity of longitude 20° W., with a considerable extension southward along the American coast to the latitude of Hatteras from the 7th to 9th. There was another spell of extensive fogs over the mid-Atlantic between the 15th and 19th, but American waters were quite free between the 17th and 21st and again in the last five days of the month.

Three successful airplane crossings of the Atlantic were attempted during July. The first plane (Magyar and Endres) left the American coast on the 15th, landing near Budapest on the 16th. Two planes (Boardman and Polando in one, Herndon and Pangborn in the other) left simultaneously on the 28th, the first named making a nonstop flight from New York to Constantinople by which they claimed to have established a new mark for distance, in a traveling time of somewhat over 49 hours of flight. The second plane landed safely at Berlin.

It may be noted here that these flights were favored by stable barometric situations over the Atlantic, marked in each case by a well-developed ridge of high pressure extending completely across the ocean with long, almost straight, isobars parallel to the line of flight, creating steady tail winds over practically the entire stretch of ocean route. Charts VIII to XI reproduce the weather maps of the North Atlantic on July 15, 16, 28, and 29, for their interest in connection with these trans Atlantic flights.

OCEAN GALES AND STORMS, JULY, 1931

| Vessel | Voyage | | Position at time of lowest barometer | | Gale began | Time of lowest barometer | Gale ended | Lowest barometer | Direction of wind when gale began | Direction and force of wind at time of lowest barometer | Direction of wind when gale ended | Highest force of wind and direction | Shifts of wind near time of lowest barometer |
|-----------------------------|---------------|---------------|--------------------------------------|-----------|------------|--------------------------|------------|------------------|-----------------------------------|---|-----------------------------------|-------------------------------------|--|
| | From— | To— | Latitude | Longitude | | | | | | | | | |
| NORTH ATLANTIC OCEAN | | | | | | | | | | | | | |
| Lochkatrine, Br. M. S. | Panama Canal | Liverpool | 27 56 N | 58 16 W | July 1 | 4 p., 1 | July 1 | 30.02 | SSE | SSE, 8 | SSE | SSE, 8 | Steady. |
| Narragansett, Br. M. S. | Liverpool | Panama Canal | 48 48 N | 18 33 W | July 3 | 6 p., 3 | July 4 | 29.85 | WSW | W, 6 | WSW | WNW, 8 | WSW-WNW. |
| Nevada, Fr. S. S. | Havre | do | 49 00 N | 2 00 W | July 14 | 7 p., 14 | July 15 | 29.00 | ESE | NNW, 10 | NW | NNW, 10 | ESE-S. |
| W. C. Teagle, Am. S. S. | Galveston | Cape Henry | 27 44 N | 90 42 W | do | 4 p., 14 | do | 29.70 | ESE | ESE, 11 | SSE | ESE, 11 | SSW-WBW. |
| Ambridge, Am. S. S. | Antwerp | New York | 49 04 N | 39 07 W | July 16 | 5 a., 16 | July 17 | 29.78 | WSW | SSW | SW | WSW, 9 | WSW-WNW. |
| Gonzenheim, Ger. S. S. | Rotterdam | do | 50 40 N | 23 02 W | do | 11 p., 16 | do | 29.89 | W | W, 8 | NW | W, 8 | SSW-WBW. |
| Do | do | do | 49 36 N | 23 02 W | July 19 | 6 a., 20 | July 20 | 29.81 | S | SSW, 9 | WSW | SSW, 9 | SSW-WBW. |
| City of Alton, Am. S. S. | do | do | 50 30 N | 15 46 W | July 16 | Mid., 16 | July 17 | 29.96 | W | W | SW | SW, 8 | W-SW. |
| Do | do | do | 48 45 N | 38 25 W | July 20 | 2 a., 19 | July 21 | 29.78 | SW | SW | WNW | W, 8 | SW-WNW. |
| Delfshaven, Du. S. S. | Antwerp | Baltimore | 42 37 N | 46 37 W | July 18 | 7 a., 19 | July 19 | 30.08 | S | S, 9 | SW | SW, 9 | S-SW. |
| Bird City, Am. S. S. | Copenhagen | Portland, Me. | 56 55 N | 30 00 W | July 21 | Mid., 21 | July 22 | 29.36 | W | W, 5 | WSW | W, 8 | Steady. |
| La Playa, Pan. S. S. | Mobile | Puerto Cortez | 17 16 N | 87 20 W | July 23 | 6 p., 23 | July 24 | 29.78 | ENE | NE, 7 | ENE | ENE, 8 | Steady. |
| Collamer, Am. S. S. | Bordeaux | New York | 47 21 N | 48 12 W | July 31 | 7 p., 31 | Aug. 1 | 29.25 | S | SSW, 9 | WSW | SSW, 9 | S-WSW. |
| NORTH PACIFIC OCEAN | | | | | | | | | | | | | |
| Golden Sun, Am. S. S. | San Francisco | Yokohama | 44 00 N | 151 30 W | July 2 | 6 p., 2 | July 2 | 30.16 | SSE | SSW, 8 | SSW | SSW, 8 | SSE-SSW. |
| Shintoku Maru, Jap. Bk. | Kobe | Honolulu | 46 43 N | 164 10 E | July 2 | 2 p., 3 | July 4 | 29.79 | SE | SE, 7 | E | SE, 8 | Steady. |
| Makiki, Am. S. S. | Hilo | San Francisco | 36 00 N | 127 00 W | do | 5 a., 4 | do | 29.84 | N | NNW, 6 | NNW | NNW, 8 | Do. |
| Emidio, Am. S. S. | San Pedro | Vancouver | 39 40 N | 124 24 W | July 3 | 2 p., 3 | July 3 | 29.86 | NNW | NNW, 7 | NNW | NNW, 8 | Do. |
| Challenger, Am. M. S. | Balboa | San Diego | 16 20 N | 99 57 W | do | do | do | 29.55 | E | E, 9 | W | E, 9 | E-W. |
| Ogura Maru, Jap. M. S. | Yokohama | Los Angeles | 42 43 N | 177 22 W | July 7 | 4 p., 8 | July 8 | 29.42 | ESE | NNE, 8 | N | NE, 8 | Steady. |
| Hanover, Am. S. S. | San Pedro | Kobe | 32 35 N | 140 25 E | July 9 | 11 a., 9 | July 9 | 29.66 | W | W, 8 | W | W, 8 | Steady. |
| San Diego Maru, Jap. M. S. | Yokohama | San Pedro | 41 46 N | 165 34 W | do | 8 p., 9 | July 10 | 29.33 | E | E, 8 | E | E, 8 | Do. |
| Akagisan Maru, Jap. M. S. | do | San Francisco | 42 47 N | 157 50 E | do | Noon, 9 | July 11 | 29.60 | E | NNE, 2 | ENE | ENE, 8 | E-NNE. |
| Charcas, Am. S. S. | Buenaventura | San Pedro | 15 00 N | 96 00 W | July 10 | 2 p., 10 | July 10 | 29.66 | N | N, 7 | SE | N, 8 | SE-SSE. |
| Atlantica, Am. S. S. | San Francisco | Panama | 18 51 N | 104 42 W | July 21 | 10 a., 21 | July 21 | 29.84 | SE | SSE, 5 | SE | SE, 8 | SE-SSE. |
| Efina, Am. S. S. | do | San Pedro | 15 00 N | 97 30 W | July 26 | 7 a., 26 | July 26 | 29.63 | NE | NE, 5 | SSE | NNE, 8 | Steady. |
| Nora, Am. S. S. | do | Balboa | 16 03 N | 98 48 W | do | 1 p., 26 | do | 29.67 | ENE | ENE, 7 | SE | E, 8 | E-ESE. |

¹ Position approximate.

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[By the Marine Division, W. F. McDONALD, in charge]

NORTH ATLANTIC OCEAN

By W. F. McDONALD

August was free from serious West Indian disturbances, although two very mild depressions were noted in the Caribbean Sea in the period from the 11th to the 17th. The first of these crossed the full length of the Caribbean from east to west, moved into Yucatan on the 16th, and passed near Frontera, Mexico, on the next day when the Honduran steamship *Morazan*, lying in port at Frontera, experienced a gale of force 9, together with a wind change characteristic of the central area of a tropical disturbance.

OCEAN GALES AND STORMS, AUGUST, 1931

| Vessel | Voyage | | Position at time of lowest barometer | | Gale began | Time of lowest barometer | Gale ended | Lowest barometer | Direction of wind when gale began | Direction and force of wind at time of lowest barometer | Direction of wind when gale ended | Direction and highest force of wind | Shifts of wind near time of lowest barometer |
|-----------------------------|----------------|---------------|--------------------------------------|-----------|------------|--------------------------|------------|------------------|-----------------------------------|---|-----------------------------------|-------------------------------------|--|
| | From— | To— | Latitude | Longitude | | | | | | | | | |
| NORTH ATLANTIC OCEAN | | | | | | | | | | | | | |
| General Greene, Am. S. S. | St. Johns..... | Labrador..... | 59 28 N | 44 28 W | Aug. 1 | 11 p., 2... | Aug. 2 | 29.00 | NE | NE..... | N..... | ENE, 9... | NE-N. |
| West Harcuvar, Am. S. S. | Bremen..... | Boston..... | 53 30 N | 39 52 W | Aug. 2 | 1 a., 2..... | do..... | 29.46 | SSW | SW, 7..... | SW..... | SW, 8..... | |
| Baron Kelvin, Br. S. S. | Cape Town.. | Calais..... | 47 25 N | 5 40 W | Aug. 8 | 8 a., 8..... | Aug. 9 | 29.47 | NW | WNW, 8... | WSW.. | NNW, 8... | NW-W-NNW. |
| Onondaga, Am. S. S. | Canal Zone.. | New York... | 39 37 N | 73 50 W | Aug. 11 | 6 p., 11... | Aug. 12 | 29.69 | NNNE | NNE..... | N..... | NNE, 10... | SW-N. |
| Lustrous, Br. S. S. | Houston..... | Hamburg... | 47 22 N | 33 00 W | Aug. 12 | 10 a., 12... | do..... | | SW | SW, 7..... | N..... | SW, 8..... | |
| Seattle Spirit, Am. S. S. | Bremen..... | Boston..... | 50 20 N | 20 00 W | Aug. 13 | 8 a., 14... | Aug. 15 | 29.03 | NW | NW, 11... | NNW.. | NW, 11... | |
| Ohioan, Am. S. S. | New York... | Los Angeles.. | 15 15 N | 76 10 W | do..... | 4 a., 14... | Aug. 14 | 29.86 | E | E, 9..... | E..... | E, 9..... | |
| Lustrous, Br. S. S. | Houston..... | Hamburg... | 49 17 N | 15 50 W | do..... | Noon, 15... | Aug. 17 | | NW | WNW, 8... | SW..... | WSW, 9... | NW-W. |
| Boston City, Br. S. S. | Bristol..... | Wilmington.. | 51 20 N | 7 23 W | Aug. 15 | 8 a., 15... | do..... | 28.96 | S | SSW, 8... | WSW.. | SSW, 8... | SSW-WSW. |
| New York, Gr. S. S. | Cherbourg.. | New York... | 49 45 N | 12 00 W | do..... | 4 p., 15... | Aug. 15 | 28.85 | SW | SW, 9..... | WNW.. | SW, 9..... | SSW-WSW. |
| Jason, Du. S. S. | Amsterdam.. | Canal Zone.. | 47 01 N | 9 19 W | do..... | do..... | Aug. 16 | 29.25 | SW | WSW, 8... | W..... | WSW, 8... | WSW-WNW. |
| Berlin, Gr. S. S. | Bremerhaven. | New York... | 49 53 N | 10 54 W | do..... | 12 mid..15 | do..... | 29.16 | SW | SW, 8..... | W..... | —, 9..... | S-W. |
| Morazan, Hon. S. S. | New Orleans. | Mexico..... | 18 38 N | 92 44 W | Aug. 17 | Mid., 17... | Aug. 17 | 29.74 | NW | NW, 8..... | S..... | NW, 9... | NW-S. |
| Statendam, Du. S. S. | New York... | Rotterdam... | 42 16 N | 49 50 W | do..... | 2 p., 18... | Aug. 18 | 29.52 | NNW | ESE, 5..... | S..... | ENE, 8... | NE-E. |

“SAN NICOLÁS”—THE TROPICAL STORM OF SEPTEMBER 10, 1931, IN PORTO RICO

By F. E. HARTWELL

[Weather Bureau, San Juan, P. R.]

According to the accustomed nomenclature of West Indian storms the one which raked the north coast of Porto Rico on the night of September 10 has been named “San Nicolás” from the saint’s day of that date. The first intimation of abnormal weather previous to this storm was an almost perfect wide quadrant of wind directions extending from the Virgin Islands to Barbados on the morning of the 9th. The appearance at that time was that the area named was in the southwest periphery of a very wide cyclonic area. Broadcasts were immediately sent out in an endeavor to locate the center and

bulletin issued from the San Juan office that morning was as follows:

Advisory 9.00 a. m.—Sept. 10, 1931.—Disturbance of minor intensity has apparently passed through Leeward Islands and is approaching St. Thomas and St. Croix and will probably affect northeastern Porto Rico before midnight. No high winds have so far been reported and the lowest pressure is 29.72 inches at St. Martin. Caution advised small shipping on east coast of Porto Rico particularly.

(Signed) HARTWELL.

Our special observers at St. Croix and St. Thomas sent the required messages and indications pointed to the path

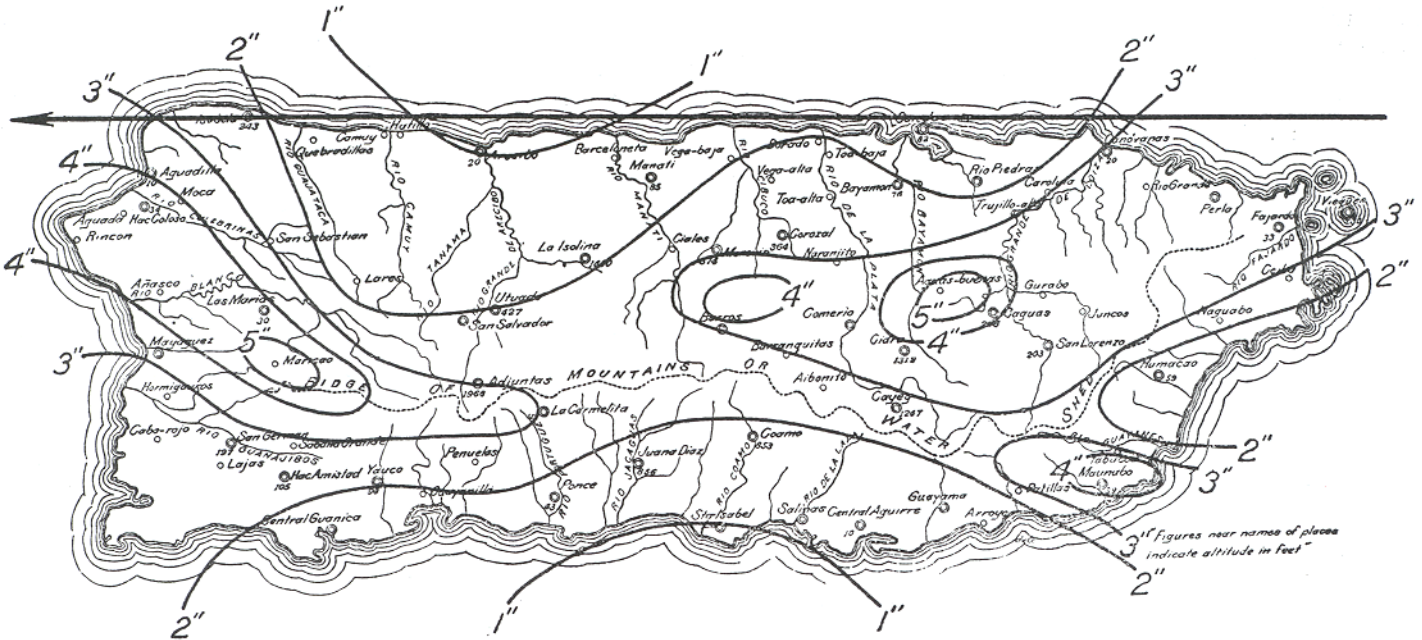


FIGURE 1.—Distribution of rainfall in Porto Rico during hurricane of “San Nicolás,” September 10-11, 1931. (Arrow shows path of center)

determine its intensity, but nothing of importance was received and by evening the low area had become elongated in a north-south direction, the southern extremity apparently filling up and the northern developing into a vortex of much narrower limits than at first indicated. Nothing below 29.72 inches (at St. Martin and Antigua) was reported, and no velocities above ordinary occurred within range of reporting stations. By the morning of the 10th the center had passed through the Leewards somewhere near St. Martin and was approaching the U. S. Virgin Islands of St. Thomas and St. Croix. The

slightly north of the latter station, where by mid-afternoon the storm had developed to 60 miles per hour with northwest shifting to west winds and a low pressure of 29.57 inches. By the time it had reached San Juan the intensity had increased to a low pressure of 29.17 inches and an estimated wind velocity of 90 miles per hour. This estimate is based partially upon a stop watch record made by Pan-American Airways (Inc.) officials with their 4-cup Robinson anemometer at the air field and, of course, the total mileage and the dial readings of our own anemometer.

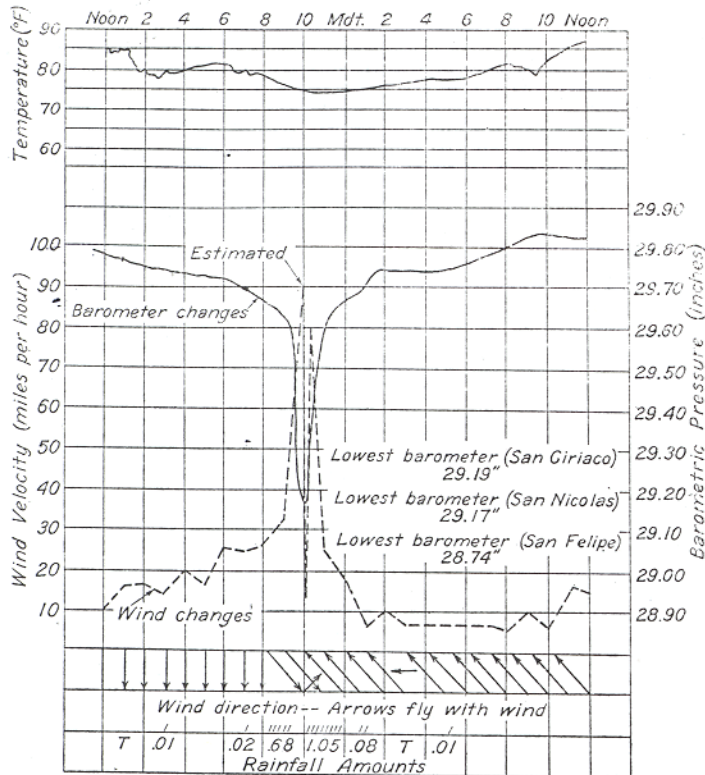


FIGURE 2.—Weather elements at San Juan, P. R., hurricane of September 10-11, 1931

So far the trajectory had been close to west-northwest and in this latitude, with the lowest pressures of the season between the Bahamas and Bermuda it seemed practically certain the storm would continue in that direction, affecting Porto Rico, probably with nothing more severe than heavy rain squalls. From St. Thomas, however, the track bent southward and from the afternoon of the 10th it pursued a due west course for many days, the center

passing along the north coast of Porto Rico, with decreased intensity over Santo Domingo City, then again increasing throughout the remaining length of the Caribbean Sea. This trajectory is shown in the accompanying chart of storm tracks for this area this season.

In Porto Rico, while the information of Thursday evening was perhaps too sanguine, indicating that the center would probably pass as much as 50 miles north of San Juan, the warning of the morning had been well heeded and some preparation was effected where practicable. Two lives were lost and several minor injuries reported in San Juan. Much plate glass and light construction were destroyed, and some 50,000 boxes of fruit blown from the trees. The damage was confined to a strip of 5 or 6 miles in width extending from San Juan to Aguadilla, the damage varying considerably in this area with the character of the crops. The destructive portion of the storm was hardly more than 10 or 12 miles in diameter and the northern half of this was off shore. There was an interval of 15 minutes at San Juan which represented the center of the storm, but it is the opinion of the writer that the actual center passed a short distance north of San Juan as the first renewal of the wind was from the southwest, then after several minutes it became southeasterly. The wind during the first portion of the storm held northwest with practically no variation until the lull.

All electric service was broken and definite news of the passage of the center was sent out through the cooperation of the officials of the Spanish liner *Juan Sebastian Elcano* who communicated the dispatches to the main broadcasting station of the naval radio at Cayey, the local station of that service being badly crippled by both wind and water and their usual land lines to Cayey being down.

A notable feature of the trajectory of all the storms this season has been their close adherence to an east-west course as indicated in the chart, whereas there is regularly a steady deviation toward the north almost from their inception with a recurve as soon as they reach latitudes 18° or 20°.

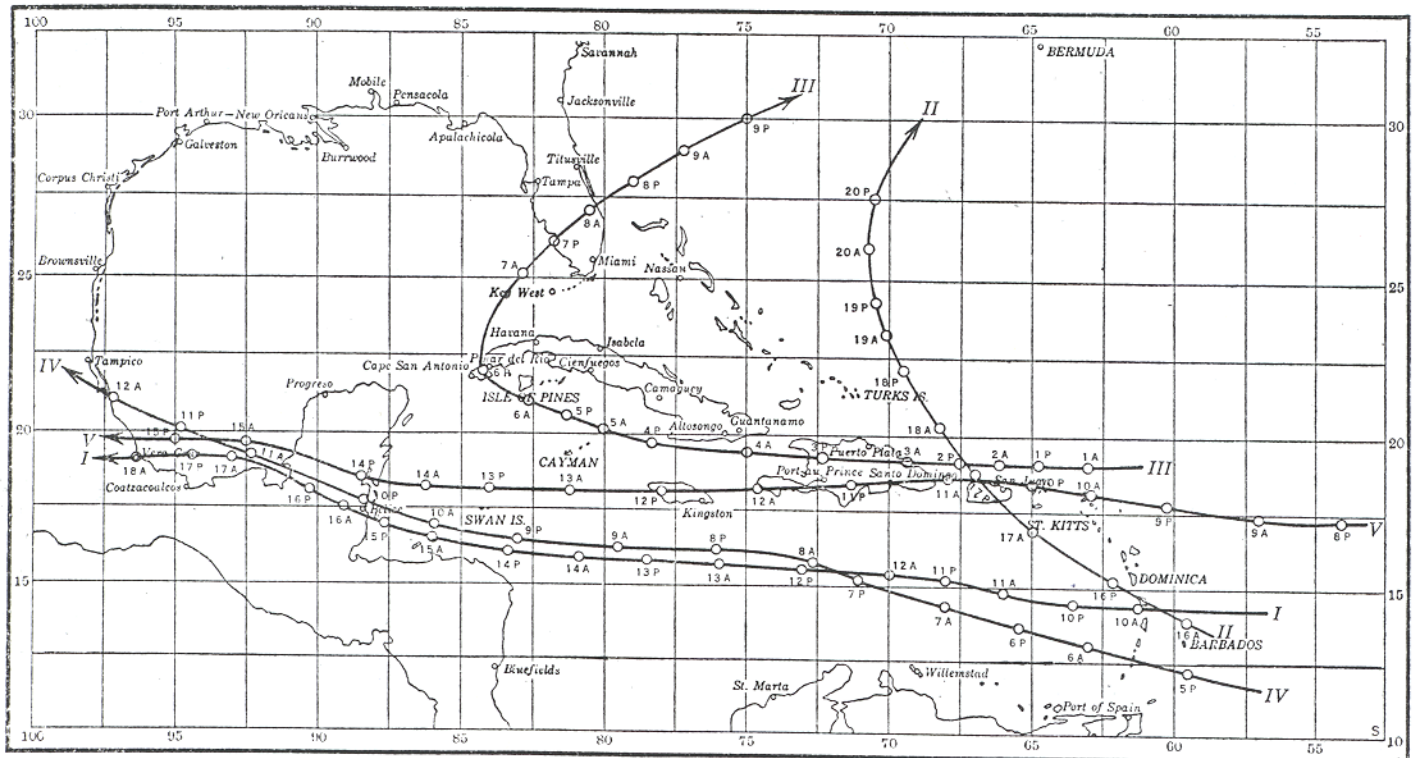


FIGURE 3.—Paths of hurricanes of 1931 (Plotted by Arthur J. Haidle): I, August 10-18; II, August 16-20; III, September 1-9; IV, September 5-12; V, September 8-15 ('San Nicolas')

Gales and tropical disturbances.—Three tropical storm movements crossed the Caribbean area in the month, these being discussed at length in a separate article in this number of the REVIEW. It is worthy of note here, however, that no ship reporting to this bureau encountered winds of hurricane force in connection with these storms in the open sea on the Atlantic side of the continent, the hurricane damages being inflicted on the coasts as the storms passed.

Most of the gale reports on the main trans-Atlantic steamer routes appear on the 23d to 25th, at which time winds of force 8 to 9 were encountered quite generally over the area between 30° and 60° W. longitude and north of 45° latitude.

OCEAN GALES AND STORMS, SEPTEMBER, 1931

| Vessel | Voyage | | Position at time of lowest barometer | | Gale began | Time of lowest barometer | Gale ended | Lowest barometer | Direction of wind when gale began | Direction and force of wind at time of lowest barometer | Direction of wind when gale ended | Direction and highest force of wind | Shifts of wind near time of lowest barometer |
|-------------------------------|--------------------|------------------------------|--------------------------------------|-----------|------------|--------------------------|------------|------------------|-----------------------------------|---|-----------------------------------|-------------------------------------|--|
| | From— | To— | Latitude | Longitude | | | | | | | | | |
| NORTH ATLANTIC OCEAN | | | | | | | | | | | | | |
| Jamaica Pioneer, Br. S.S. | Kingston, Jamaica. | Rotterdam | 43 04 N | 40 44 W | Sept. 2 | 2 p., 2 | Sept. 4 | 29.38 | ESE | | ESE | ESE, 8 | Steady. |
| City of Alton, Am. S. S. | Rotterdam | New York | 50 12 N | 6 30 W | Sept. 3 | 2 a., 4 | do. | 29.38 | NW | NW, 8 | NW | NW, 8 | Do. |
| Brave Coeur, Am. S. S. | New Orleans | London | 49 25 N | 16 30 W | do. | 6 a., 3 | Sept. 3 | 29.65 | N | NE, 9 | N | NE, 9 | N-NNE-N. |
| City of Alton, Am. S. S. | Rotterdam | New York | 51 00 N | 26 50 W | Sept. 7 | 8 a., 7 | Sept. 7 | 29.68 | SE | SE, 8 | SE | SE, 8 | Steady. |
| Illinois, Am. S. S. | San Pedro | Providence, R. I. | 15 20 N | 76 28 W | Sept. 8 | 9 a., 8 | Sept. 8 | 29.53 | NE | NE, 11 | ESE | NE, 11 | NE-E. |
| President McKinley, Am. S. S. | New York | Cristobal | 16 07 N | 81 45 W | Sept. 9 | 1:30 p., 9 | Sept. 9 | 29.38 | E | SSE, 10 | S | E, 11 | E-SE. |
| Atenas, Am. S. S. | New Orleans | Port Limon and return. | 16 39 N | 83 00 W | do. | 5 p., 9 | do. | 29.49 | E | E, 9 | SE | SE, 9 | E-SE. |
| Heredia, Am. S. S. | do. | Puerto Barrios, etc. | 16 49 N | 87 00 W | Sept. 10 | 11:30 a., 10 | Sept. 10 | 29.60 | WSW | S, 10 | SE | —, 10 | WSW-SE-S. |
| Gatun, Hond. S. S. | do. | Ceiba, Honduras, and return. | 18 19 N | 86 42 W | do. | 1 p., 10 | do. | 29.74 | E | ESE, 9 | SE | ESE, 9 | E-S-ESE-SE. |
| Milwaukee, Germ. M. S. | Cobh | New York | 47 10 N | 39 20 W | Sept. 11 | 9:24, 11 | Sept. 11 | 29.75 | SSE | S, 8 | SSW | S, 8 | SE-S-SW. |
| Do | do. | do. | 46 00 N | 42 58 W | Sept. 12 | 9:12, 12 | Sept. 12 | 29.40 | SW | S, 8 | W | S, 8 | SW-S-W. |
| Ambridge, Am. S. S. | Rotterdam | do. | 50 20 N | 30 47 W | do. | 4 p., 15 | Sept. 16 | 29.91 | W | SSW, 7 | WSW | S, 8 | WSW - SSW - SW. |
| Amapala, Hond. S. S. | Ceiba | do. | 19 20 N | 85 50 W | Sept. 14 | 1 a., 14 | Sept. 14 | 29.85 | NNE | NE, — | ESE | —, 8 | NNE-ESE. |
| Wytheville, Am. S. S. | Rotterdam | do. | 49 00 N | 40 52 W | Sept. 22 | 5:20 a., 23 | Sept. 24 | 28.87 | E | NNW, 9 | W-N | NW, 9 | E-SE-NW. |
| Collamer, Am. S. S. | Bordeaux | do. | 48 25 N | 39 15 W | Sept. 23 | 4 p., 23 | do. | 29.11 | SSW | WNW, 8 | W | WNW, 9 | SW-W-WNW. |
| Europa, Germ. S. S. | Cherbourg | do. | 48 49 N | 27 22 W | do. | 6:00, 24 | do. | 29.61 | S | SSE, 9 | W | SE, 9 | 6 points. |
| Belgenland, Br. S. S. | New York | Plymouth | 47 47 N | 31 22 W | do. | 4 p., 23 | do. | 29.37 | S | SSE, 7 | SSE | SSE, 9 | Steady. |
| Cameronia, Br. S. S. | Glasgow | New York | 50 20 N | 43 40 W | do. | 9 a., 23 | do. | 29.17 | ENE | NNW, 9 | W | NNW, 9 | NE-N-NNW. |
| Tiger, Norw. Tk. S. S. | Baton Rouge | Bergen | 52 59 N | 41 12 W | do. | 9:30 a., 24 | do. | 28.65 | N | WNW, 3 | WNW | NNW, 9 | N-WNW. |
| Ala, Am. S. S. | Antwerp | Baltimore | 50 39 N | 26 24 W | do. | 6 a., 24 | Sept. 23 | 29.64 | SE | SE, 8 | S | SE, 9 | SE-S-SSW. |
| Tiger, Norw. Tk. S. S. | Baton Rouge | Bergen | 53 26 N | 39 45 W | Sept. 24 | 5 p., 24 | Sept. 25 | 28.94 | SW | SW, 4 | SW | SW, 8 | SW. |
| Cameronia, Br. S. S. | Glasgow | New York | 44 40 N | 56 37 W | do. | 6:15 a., 25 | Sept. 26 | 29.13 | SSE | SSE, 7 | W | WSW, 9 | SSE-W. |
| Ala, Am. S. S. | Antwerp | Baltimore | 49 44 N | 38 00 W | Sept. 25 | 10:30 a., 26 | Sept. 27 | 29.74 | S | WSW, 7 | W | SW, 9 | S-SW-S. |
| Collamer, Am. S. S. | Bordeaux | New York | 47 02 N | 50 05 W | do. | 3 a., 26 | Sept. 26 | 29.48 | SW | WSW, 8 | W | W, 9 | WSW-W. |
| City of Alton, Am. S. S. | New York | Rotterdam | 42 48 N | 59 30 W | do. | —, 25 | do. | 29.43 | WNW | WNW, 7 | W | W, 8 | Steady. |
| Olna, Br. Tk. S. S. | Port Arthur | Montreal | 48 50 N | 63 54 W | do. | —, 25 | Sept. 25 | 29.14 | NW | WNW, 10 | NW | NW, 10 | Do. |
| Cold Harbor, Am. S. S. | Boston | Manchester, England. | 49 12 N | 43 48 W | Sept. 26 | 9 a., 26 | Sept. 27 | 29.64 | S | SW, 8 | WSW | SW, — | S-SW. |
| George H. Jones, Am. S. S. | Las Piedras | New York | 14 49 N | 71 50 W | Sept. 7 | 11 p., 7 | Sept. 8 | 29.60 | S | S, 8 | SE | S, 8 | WSW-S. |
| Calamares, Am. S. S. | Habana | Cristobal | 17 08 N | 82 04 W | Sept. 9 | 5 p., 9 | Sept. 9 | 29.67 | E | E, 7 | SSE | SE, 8 | E-SE. |
| Alegria, Hond. S. S. | Philadelphia | Port Antonio, Jamaica. | 18 12 N | 77 02 W | Sept. 12 | 2 p., 12 | Sept. 12 | 29.72 | NE | SSE, 11 | SSW | SSE, 11 | NE-SE. |
| Cartago, Am. S. S. | New Orleans | Puerto Barrios | 19 25 N | 85 50 W | Sept. 13 | 4 a., 14 | Sept. 14 | 29.68 | ENE | ENE, 7 | SE | SE, 7 | ENE-SE. |

TROPICAL STORMS OF SEPTEMBER, 1931, IN NORTH AMERICAN WATERS

By W. F. McDONALD

September was marked in American tropical waters by no less than seven storms. At least three of these storms reached full hurricane intensity, one of them becoming a major disaster. Tracks of three storms which moved across the Caribbean Sea are illustrated elsewhere in this issue, in connection with a special report on hurricane damage in Porto Rico, the only United States possession to suffer by a hurricane during the month.

The first cyclonic development of the month began north of the Virgin Islands on the 1st, and was of minor intensity. It moved westward during the next six days reaching the western end of Cuba where it recurved northeastward on the 7th. The only gales reported during the progress of this relatively mild disturbance were over Mona Passage on the 2d, but flooding rains which caused great damage and some loss of life in Porto Rico may be attributed to conditions attending this cyclone.

While the first disturbance was in progress, another was developing in the southeastern Caribbean Sea. It was first suspected not far from Barbados on the 6th. The third for the month was also arising almost simultaneously in the Pacific a short distance southeastward from Acapulco, Mexico, where the American steamship *Marian Otis Chandler* encountered a cyclonic gale on the 6th. Both of these disturbances developed into storms of relatively small diameter but of full hurricane intensity as they progressed during the succeeding week.

While these two hurricanes were in simultaneous progress, and approaching the peak of their intensity, the

fourth tropical storm of the month was getting under way over the northern portion of the Leeward Islands on the 9th, and this storm likewise developed full hurricane intensity in its life of approximately a week as it moved westward to lose itself finally over the highlands of central Mexico.

It is of considerable interest, and perhaps of some importance for future studies of hurricanes, to point out that the three storms just mentioned, all of which reached the intensity of severe hurricanes, appear to have developed full severity at about the same time. The first storm ravaged Belize, British Honduras, on the afternoon of September 10, but ships encountering it earlier did not find winds of hurricane force. The second was first encountered as a hurricane of force 12 in the entrance to the Gulf of California on the 11th, and the third passed San Juan with damaging severity about midnight of the 10th-11th. The first two of these storms were in existence for four or five days however, before they reached hurricane intensity, but the third appears to have developed its strength within 36 hours from the time when its presence was first suspected, although it is possible that this storm may have originated still earlier in the little-traveled regions northeast of the Leeward Islands.

That three widely separated storm movements should thus show almost simultaneous increase in intensity may, of course, be pure coincidence, but it is not outside the bounds of probability that some major influence was at work in the weather conditions over the 2,000-mile arc embraced by the equally spaced locations of storms over Porto Rico, the Gulf of Honduras, and the entrance to the Gulf of California. The fact is at least worth recording for possible future reference.

The history of these three hurricanes will now be discussed in some detail, taking each in its chronological order by date of origin. As stated above, the Belize hurricane appears to have originated over the Windward Islands about the 6th of the month. The first ship's report, establishing conclusively its nature as a pronounced cyclonic depression, comes from the American tanker *Geo. H. Jones* (Captain Cavileer) near latitude 15° N., longitude 70° W., about midnight of the 7th-8th, with the barometer dropping sharply from 29.8 to 29.6, and a gale of force 8. The progress of this disturbance continued steadily west-northwestward during the next two days, with a number of ships reporting barometric decreases and winds at times reaching force 10 to 11, but none experiencing conditions of full hurricane intensity, even on the morning of the 10th in the Gulf of Honduras, where shipping is relatively numerous.

The 10th of September is a festival date in Belize, British Honduras, and the populace was out in holiday mood on the afternoon of that day as the hurricane, still of small extent but of ferocious intensity, moved in upon the town. It raged throughout much of the afternoon, reaching hurricane velocity about 1 p. m., and the center of the storm appears to have passed Belize about 3:30 p. m. Some details, excerpted from a report made by D. A. Fairweather, Government wireless operator at Belize, follow:

The wind began to increase about 11 o'clock from the northeast and by 12:40 p. m. had reached a velocity of 48 miles an hour.

At 1:15 p. m. the velocity was 60 miles and the barometer registered 28.10. Between 1:35 and 2:00 p. m. the wind lulled to 38-48 miles returning to 60 miles an hour at 2:05 p. m. from the north. It crept up to 72 miles an hour at 2:15 p. m., 96 miles at 2:30 p. m., 120 miles at 2:45 p. m. and maintained a velocity of 132 miles an hour from 2:50 to 3 p. m. At 3:05 p. m. the wind dropped to 72 miles and finally to about 12 miles.

At 3:44 p. m. the wind shifted to the southwest and rose suddenly to 80 miles an hour. The anemometer gave way at this juncture.

The winds swept the sea forward over the environs of the port, which is built on exceedingly low ground, choked the mouth of the Belize River with the wreckage of small boats, including six Honduran schooners, piled a 200-ton dredge upon the wharf, and with wreckage as battering rams, smashed into the structures of the town itself. It was a disaster of major proportions, entailing a loss of life that is not definitely known, but probably exceeding 1,500 souls, and a property loss that was estimated in later dispatches at \$7,500,000.

Meanwhile, the third storm of the month was raging as a hurricane over the Gulf of California. As noted above, this storm probably began on the 6th, and was first reported by the American steamer *Marian Otis Chandler*, Captain Sawyer, which encountered a variable to east-northeast gale of force 8, with a lowest barometer of 29.67 inches, in latitude 16° N., longitude 98° W. If so, however, there is a gap in the storm history, owing to lack of reports, for it next appears on the afternoon of the 9th, when, at 8 p. m., the Dutch motorship *Drechdijk* encountered an east-southeast gale of force 8 near $19^{\circ} 30'$ N., $105^{\circ} 35'$ W., followed by conditions which indicated that the disturbance was passing to the northwestward.

A maximum wind of force 10, prior to the regular a. m. observation at the Mexican weather station at Manzanillo, with barometer reading 29.68 inches, marked the position of the disturbance to westward of that station on the morning of the 10th. On the morning of the 11th the British steamer *Astronomer* encountered the storm about $20^{\circ} 30'$ N. and $107^{\circ} 30'$ W. The further progress of the hurricane appears in the report of the American steamship *W. S. Miller*, which experienced a southeast hurricane near 23° N. and 108° W., and barometer down to 29.4 inches, at 9 p. m. of the same date. This was the first report to show that the storm had developed full hurricane intensity.

Late on the afternoon of the 11th the French steamer *Korrigan III*, lying in port at La Paz, Lower California, experienced the preliminary northeast gales of the approaching hurricane. The report of the first officer R. Moya of the *Korrigan III*, Capt. S. Meza, furnished to Mr. E. W. Easton, American vice consul at Mazatlan, Sinaloa, gives definite information as to the severity of the storm in this vicinity. By 2 a. m. of the 12th the wind in the harbor of La Paz was blowing with force 12 from the north, and the pressure was falling. At 3 a. m. the reading of the barometer on the *Korrigan III* reached 28.74 inches, followed for some minutes by greatly diminished wind. At 3:35 a. m. the wind came from the south and soon rose to force 10, as the hurricane center passed.

There was no great damage in La Paz as the hurricane passed, but with its further movement up the peninsula of Lower California, on the morning of September 12 it caused the American steamship *Colombia* to go aground on Santa Margarita Island as she became involved in the winds and possibly the unusual currents attending the hurricane's progress. This ship, a passenger liner en route from New York to San Francisco, carried 234 passengers and crew, all of whom were safely removed through able seamanship of the officers of the stranded vessel and the rescuing ship *San Mateo*, of the United Fruit Line. There was hope at first that the ship might be salvaged, but continued heavy weather prevented, and the vessel, abandoned on the 13th, broke up under stress of the seas developed during the following week by

the succeeding storm movement. More than \$150,000 in gold and silver, carried by the *Colombia*, was later recovered, but the remainder of the cargo, including personal belongings of the passengers, seems to have been a total loss.

As the hurricane moved farther northward it was reported in press dispatches to have caused exceedingly high tides on the 13th at Guaymas and Santa Rosalia, Mexico, with approximately 50 lives lost by drowning in the 9-foot inundation of the latter town. From this point the storm seems to have diminished and dissipated, probably moving inland over the State of Sonora.

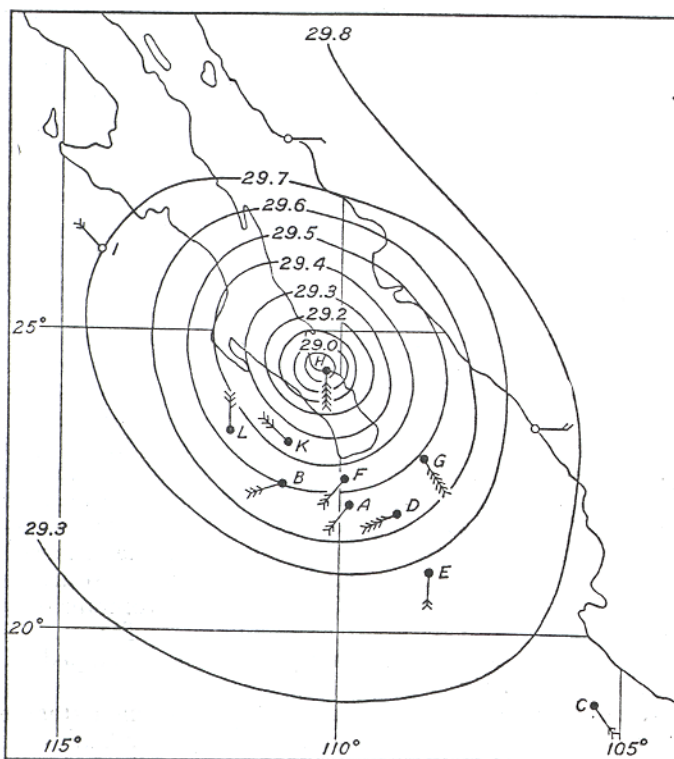


FIGURE 1.—Observations from vessels and near-by coast stations in the hurricane of Sept. 12, 1931, at Greenwich noon. Storm center just west of La Paz. Letters signify the following vessels: A, American steamer City of Elwood; B, American steamer Sea Thrush; C, British steamer Astronomer; D, American steamer San Raphael; E, American steamer Chattanooga City; F, American steamer Muntropic; G, American steamer W. S. Miller (position approximate); H, French steamer Korrigan III (4 a. m. in port at La Paz); I, American steamer President Van Buren; K, American steamer San Felipe; L, American steamer Nebraska.

The wind and barometer conditions reported from several vessels caught in this storm on the early morning of September 12 (about Greenwich noon) are charted in Figure 1 to indicate the location and intensity of the hurricane at that time.

The fourth of the seven storms originating in September, first reported over the waters north of the Leeward Islands on the 9th, passed Porto Rico as a small but well-developed hurricane on the night of the 10th–11th. A report of its movement along the north coast of Porto Rico and of its characteristics at that time will be found elsewhere in this issue. The next definite report of its progress is from the Honduran steamship *Alegria*, which was in harbor at Port Antonio, Jamaica, on the 12th, and experienced typical hurricane conditions with wind shifting from northeast to southeast and of force 8 to 11 during that afternoon, but without extreme depression of the barometer.

Only one further gale report is at hand for this storm as it continued to travel due westward across the Caribbean Sea, namely that from the American steamship

Cartago which reported a moderate gale, shifting from east-northeast to southeast, in $19^{\circ} 25' N.$, $85^{\circ} 50' W.$, early on the 14th. After this date the disturbance moved on across Yucatan and evidently into the lower Gulf of Campeche, finally passing inland over or near the city of Vera Cruz at 4 a. m. of September 16.

A special report received from Ing. Ernesto Dominguez, in charge of the meteorological observatory at Vera Cruz, gives the following facts: Preliminary evidences of the approach of the hurricane became unmistakable on the 15th, with a moderate northerly wind, increasing without a rise but rather a fall in the barometer. By afternoon the wind became gusty and was sufficiently strong by nightfall to make it necessary to close the port. By midnight the violence of the wind had risen to near hurricane force with the barometer dropping decidedly after 10 p. m., but the direction of the wind continued rather steadily from the north-northwest up to the time of barometric minimum, 29.43 inches, about 4 a. m., at which time there was a shift to east-northeast, indicating that the center of the disturbance moved inland to the south of the observatory.

The clouds were overrunning the surface wind, however, at 2 a. m., being from an easterly direction already at that hour. With the shift of the surface wind to easterly just before 4 a. m., there was an increase in force, and the maximum velocity was attained a little after 5 a. m., when 42.5 m. p. s. (95 m. p. h.) was recorded. The report states that this velocity established a record for Vera Cruz.

There appears to have been no damage of great consequence in the city of Vera Cruz, but news dispatches reported the loss of a number of small ships outside of the harbor, the largest of which was the 800-ton Mexican steamer *Dos Equis*, which sank with all hands lost, including a number of passengers.

This was the third and last storm movement of the month on the Atlantic side of the continent, with but one storm previously occurring on the Pacific coast. Before the Vera Cruz hurricane had crossed Yucatan, however, the second Pacific cyclone and the fifth tropical storm development of the month was in progress.

This cyclone closely followed its predecessor of a week before, appearing near $15^{\circ} N.$, $100^{\circ} W.$, early on the 14th, but it failed to develop the intensity of the first Pacific storm. At 8 a. m. of the 15th the American steamer *Willboro*, near $18^{\circ} N.$, $104^{\circ} W.$, met with a southeast gale of force 10, the highest noted for the storm. The lowest barometer reading reported was 29.54 inches, from the American steamer *San Felipe* in $17^{\circ} 45' N.$, $103^{\circ} 25' W.$, at 4 p. m. of the 14th. The last gale reported in connection with the storm was of fresh force and occurred near $20^{\circ} N.$, $106^{\circ} W.$ on the 17th. Thereafter the disturbance, as indicated by reports, seems to have been of slight force, yet it is quite possible that its accompanying seas were sufficiently rough to cause the final breaking up of the *Colombia* between the 18th and 20th.

The last two developments of the month, both in the Pacific, apparently originated in the same locality, about three or four hundred miles south of Acapulco, Mexico, and moved northwestward, approaching the peninsula of Lower California, to lose themselves finally by passing inland over extreme northwestern Mexico.

The earlier of the two and the sixth tropical disturbance of the month in American waters was first shown by observations on the 20th, when the British motor ship *Seminole* reported a barometer of 29.64 inches and fresh east gale near $17^{\circ} 43' N.$, $103^{\circ} 19' W.$ On the 21st the American steamer *Suriname* had a strong gale from ESE. near 19°

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[By the Marine Division, W. F. McDONALD in charge]

NORTH ATLANTIC OCEAN

By W. F. McDONALD

The pressure situation.—The first half of October, 1931, over the North Atlantic Ocean and adjacent continental areas was characterized by a pressure distribution which was quite stable in its large outlines. An extensive but moderate HIGH dominated the Atlantic between the United States and Spain, but a series of Lows maintained a pressure trough from Labrador to northern Scandinavia during the first two weeks of the month. In general the track of the centers of individual Lows was similar to that followed by the disturbances of the latter part of September and including that period there was about five weeks of remarkably persistent pressure distribution.

In the middle of October, however, there was a decided change in the pressure situation beginning with the development of a minor tropical disturbance about the 13th over the Bahama group. Immediately thereafter, a LOW appeared suddenly in mid-Atlantic near the Azores, and an extensive trough formed simultaneously, extending from the Florida Straits northward to Hudson Strait. This developed into a deep LOW off the middle Atlantic coast in the next few days.

After the 16th, a succession of well-developed low-pressure areas crossed the Atlantic between latitudes 30° and 50° N., with the result that the normal ocean high-pressure area was disrupted. During the last half of the month, HIGHS were more transitory, and the only stable high-pressure conditions prevailed over the far northern portion of the ocean and along the European coast.

The resultant barometric averages for the month as a whole (see Table 1) revealed again, as in the previous month, above-normal pressures in the northeastern Atlantic, but central in this case over the British Isles. There was a deficiency from the Azores to New England and also from the Azores southwestward over the Caribbean Sea, with a slight excess of pressure over the Gulf of Mexico.

Gales and disturbances.—Gales were reported on the Atlantic on 22 days in October, and winds of gale force at some time in the month from nearly every part of the ocean north of a line from Turks Island to Lisbon. A few days at the opening and at the close of the month were comparatively quiet. Two to three day intervals on the 12–13th, 15–17th, 21–22d, and 26–28th, comprised the most widespread storminess, the 12–13th being perhaps the most disturbed period. On the latter dates, gales were encountered (well off the American coast) from latitude 30° northeastward to mid-Atlantic in latitude 60°. Winds of hurricane force were experienced on the 13th by the German ship *New York*, enroute westward

near latitude 45° N., longitude 43° W. This was the highest wind reported during the month.

Gales of force 11 were reported on several dates from the main trans-Atlantic steamer route, and whole gales with some frequency between the 9th and 22d. Shipping was but slightly hampered, however, and no major damage to marine commerce has been reported, although several small ships were in distress, and the 100-ton motor ship *Canusa* (British) was lost near the Bahamas about the 15th.

Two barometric depressions, apparently weak tropical disturbances in origin, appeared over the region of the Bahamas, the first between the 12th and 15th and the second about a week later. The first development produced no high winds so far as reports in hand indicate, but the second caused moderate to fresh gales on the 20th and 22d as it moved northeastward into the middle-western part of the Atlantic.

The latter storm development appears to have been the major factor in producing the predominant cyclonic conditions of the last decade of October. Its progress at successive stages is shown in four charts (VIII to XI) dated at 2-day intervals during the life of the disturbance, beginning with October 22.

The stormiest days on the main trans-Atlantic routes were the 3d and the 7th to the 10th and the 13th to the 15th, inclusive. Winds of whole gale force were reported at places along the routes on each of those days, and hurricane force was encountered by the German ship *New York*, westbound near longitude 25°, on the night of the 8th, and also by the Belgian steamer *Emanuel Nobel*, eastbound on the 13th, in the same area. A number of liners reported delays in crossing due to the heavy weather of this period. A British schooner of 190 tons had to be abandoned by her crew of seven on November 17th in mid-Atlantic due to the long continued storminess of the preceding weeks.

At the beginning of the month a mild disturbance over the western Caribbean Sea produced a distinctive cyclonic circulation which was reported of gale force on the 2d by the Panamanian ship *San Blas*, but the disturbance failed to develop a definite center of low pressure. About a week later, another gale was experienced in the western Caribbean, and news dispatches reported extraordinary rains and storm damage in Honduras, but these appear to have been due to an intensification of the trade winds rather than to a true tropical disturbance.

Gales and tropical disturbances.—As might have been expected from the general pressure situation outlined above, the stormiest part of the Atlantic during November was north of latitude 45° and east of longitude 30°, in the region which was most persistently under the influence of deep barometric depressions. However, gales occurred on a few days in other areas westward to the Grand Banks, and thence southwestward toward the Bahamas.

OCEAN GALES AND STORMS, NOVEMBER, 1931

| Vessel | Voyage | | Position at time of lowest barometer | | Gale began | Time of lowest barometer | Gale ended | Lowest barometer | Direction of wind when gale began | Direction and force of wind at time of lowest barometer | Direction of wind when gale ended | Highest force of wind and direction | Shifts of wind near time of lowest barometer |
|-----------------------------|--------------------|------------------|--------------------------------------|-----------|------------|--------------------------|------------|------------------|-----------------------------------|---|-----------------------------------|-------------------------------------|--|
| | From— | To— | Latitude | Longitude | | | | | | | | | |
| NORTH ATLANTIC OCEAN | | | | | | | | | | | | | |
| San Blas, Pan. S. S. | Castilla | Boston | 16 40 N | 85 30 W | Nov. 1 | 6 a., 2... | Nov. 2 | 29.78 | WSW... | WNW, — | NW... | WSW, 9... | WSW-WNW. |
| Dresden, Ger. S. S. | Galway | New York | 51 11 N | 27 01 W | Nov. 3 | Noon, 3. | Nov. 3 | 29.04 | WNW... | —, 11... | WNW... | NW, 11... | |
| Saccarappa, Am. S. S. | Sluiskill | Charleston | 47 00 N | 13 12 W | Nov. 2 | 7 a., 3. | Nov. 4 | 29.32 | SSW... | SW, 9... | W... | SW, 10... | SSW-WNW. |
| Seminole, Br. S. S. | Ellesmere Port. | Baton Rouge | 51 43 N | 6 38 W | ... | Mdt., 3. | ... | 29.07 | S... | SW, 10... | W... | SW, 10... | SSW-W. |
| Santa Marta, Am. S. S. | Honduras | New York | 17 00 N | 86 57 W | Nov. 3 | 4 a., 4... | do | 29.85 | WNW... | NW, 8... | N... | NW, 8... | WNW-N. |
| Manistee, Br. S. S. | Liverpool | Jamaica | 47 03 N | 16 59 W | Nov. 5 | 8 p., 6... | Nov. 9 | 28.97 | S... | WNW, 10... | W... | —, 10... | WNW-NW. |
| Tachira, Am. S. S. | New York | Venezuela | 25 41 N | 68 48 W | Nov. 7 | 10 a., 7... | Nov. 10 | 29.78 | NE... | NE, 8... | ENE... | NE, 9... | NE-ENE. |
| Oranian, Br. S. S. | Halifax | Bristol Channel. | 47 21 N | 49 47 W | ... | 8 a., 7... | Nov. 7 | 29.21 | W... | W, 3... | NNW... | NW, 10... | |
| Emanuel Nobel, Belg. S. S. | Philadelphia | Manchester | 43 55 N | 45 22 W | Nov. 8 | Mdt., 8. | Nov. 9 | 29.57 | NW... | NW, 10... | NW... | —, 10... | NW-NNW. |
| Brabeholm, Swed. S. S. | Newcastle-on-Tyne. | Portland, Me. | 55 20 N | 29 54 W | ... | 10 p., 8. | Nov. 10 | 28.22 | SE... | NE, 4... | NW... | NW, 11... | NE-N. |
| New York, Ger. S. S. | Cherbourg | New York | 49 00 N | 24 42 W | ... | 2 p., 8. | ... | 28.74 | S... | —, 10... | NW... | —, 12... | S-W-NW. |
| Kattegat, Ger. M. S. | Batum | Hamburg | 46 40 N | 6 31 W | Nov. 5 | —, 8. | Nov. 8 | 28.02 | WSW... | W, 8... | N... | WSW, 10... | W-NW. |
| Southern Prince, Br. M. S. | New York | Rio de Janeiro. | 30 44 N | 60 57 W | Nov. 8 | 4 a., 9... | Nov. 9 | 29.77 | ENE... | NE, 9... | SSE... | NE, 9... | NE-SE. |
| Carlier, Belg. S. S. | Antwerp | New York | 49 20 N | 21 10 W | ... | 2 p., 9... | Nov. 10 | 29.09 | WSW... | W, 11... | WNW... | NW, 11... | WSW-WNW. |
| Clairton, Am. S. S. | New York | Manchester | 50 50 N | 17 00 W | Nov. 7 | 4 a., 10... | ... | 28.66 | SSW... | W, 7... | W... | W, 10... | SSW-W. |
| Vincent, Am. S. S. | Havre | New York | 48 25 N | 11 02 W | Nov. 9 | 4 a., 10... | Nov. 11 | 28.85 | WSW... | WSW, 10... | WSW... | WSW, 10... | Steady. |
| Wytheville, Am. S. S. | Rotterdam | Boston | 50 55 N | 21 50 W | Nov. 12 | 5 a., 13... | Nov. 14 | 28.78 | S... | —, 10... | W... | W, 10... | S-SW-W. |
| Emanuel Nobel, Belg. S. S. | Philadelphia | Manchester | 50 31 N | 21 33 W | Nov. 13 | —, 13... | ... | 28.88 | S... | S, 10... | W... | SSW, 12... | S-SW-W. |
| Europa, Ger. S. S. | Cherbourg | New York | 49 17 N | 23 14 W | Nov. 12 | 2 a., 13... | Nov. 15 | 28.87 | S... | —, 10... | ENE... | WNW, 11... | S-SW-W. |
| Tuscarora, Br. S. S. | Glasgow | Galveston | 50 27 N | 18 08 W | Nov. 13 | 7 a., 13... | Nov. 14 | 29.32 | SSW... | SSW, 11... | S... | —, 11... | S-SW-W. |
| Schenectady, Am. S. S. | Copenhagen. | Portland, Me. | 58 45 N | 8 00 W | ... | 4 p., 13... | Nov. 21 | 29.19 | SSE... | S, 8... | NW... | NW, 11... | S-SW. |
| Forthbank, Br. S. S. | New Orleans. | Canal Zone. | 15 38 N | 81 15 W | ... | 4 p., 14... | Nov. 14 | 29.84 | ENE... | E, 7... | ESE... | E, 9... | E-ESE. |
| West Chataha, Br. S. S. | Havre | Havre | 44 16 N | 44 15 W | Nov. 14 | 11 p., 14... | ... | 29.44 | NNW... | SSW, 10... | NW... | SSW, 10... | SSW-NW. |
| Aquitania, Br. S. S. | New York | Southampton | 41 32 N | 56 21 W | Nov. 15 | 4 p., 15... | Nov. 17 | 30.06 | NW... | NW, 8... | NW... | NW, 9... | NW-NNW. |
| West Quechee, Am. S. S. | Hamburg | Galveston | 40 20 N | 22 44 W | Nov. 22 | Noon, 22. | Nov. 22 | 29.39 | SSE... | NE, 9... | NNW... | —, 9... | SSE-E-NNW. |
| Ponce, Am. S. S. | New York | Porto Rico | 31 15 N | 70 18 W | Nov. 23 | 8 p., 23... | Nov. 24 | 29.81 | E... | E, —... | ESE... | ESE, 10... | E-ESE. |
| Prusa, Am. S. S. | Galveston | Barcelona | 30 42 N | 68 42 W | ... | 3 p., 23... | ... | 29.90 | ENE... | ENE, —... | E... | —, 10... | |
| Gulf Hawk, Am. S. S. | Las Piedras. | Philadelphia | 26 19 N | 75 16 W | Nov. 24 | Noon, 24. | ... | 29.52 | SW... | SW, 7... | N... | W, 10... | SW-W. |
| City of Hamburg, Am. S. S. | Hamburg | Baltimore | 49 04 N | 27 03 W | Nov. 22 | Noon, 25. | Nov. 27 | 29.24 | S... | W, 8... | W... | —, 10... | W-NW. |
| Bremen, Ger. S. S. | Cherbourg | New York | 47 06 N | 37 18 W | Nov. 30 | Mdt., 30 | Dec. 1 | 28.98 | SSE... | —, 12... | NW... | —, 12... | |
| Aden Maru, Jap. S. S. | Fowey, England. | Portland, Me. | 46 53 N | 38 55 W | Nov. 29 | 8 p., 3. | ... | 29.15 | S... | SW, 11... | WNW... | SW, 12... | S-SW-WNW. |
| Bellflower, Am. S. S. | Avonmouth | Baltimore | 51 35 N | 23 43 W | Nov. 30 | 3 a., 30. | Nov. 30 | 29.68 | SSE... | SSE, 8... | NW... | SSE, 10... | SSE-NNW. |