

WEATHER OF NORTH AMERICA AND ADJACENT OCEANS.

NORTH ATLANTIC OCEAN.

By F. A. YOUNG.

The average pressure for the month was considerably below normal at St. Johns, Newfoundland, while at land stations on the Atlantic coast of Canada and the United States, as well as in the Bermudas and West Indies, the departures were small. In the Azores the pressure was somewhat lower than usual, while in the British Isles the negative departures were unusually large, due to periods of atmospheric depression in the first and last decades of the month.

The number of days with fog was apparently not far from normal over the Grand Banks and off the American coast. It was reported on three days in the Gulf of Mexico, being comparatively rare over the remainder of the ocean.

The abnormally stormy weather that has prevailed over the North Atlantic since August, continued during February, and in the middle and eastern sections of the ocean the number of days with winds of gale force was in excess of anything experienced in years. In each of the two 5-degree squares between latitudes 45° to 50° and longitude 25° to 35°, gales were observed on 14 days, or 50 per cent, as compared with a normal percentage of 22, as shown on the Pilot Chart, and the figures for the two squares immediately to the east were only slightly less. A number of vessels reported from 4 to 8 separate disturbances in their voyage across the Atlantic, some of them being exceptionally severe, with highest force of wind from 11 to 12, Beaufort scale. The western section of the ocean fared considerably better than the middle and eastern, while in the vicinity of the American coast, the weather conditions were not far from normal.

On the 1st and 2d there was a fairly well-developed disturbance over the middle and eastern sections of the ocean, with moderate to strong westerly and southerly gales in the southern and eastern quadrants, respectively. Storm log follows:

French S. S. Rochambeau:

Gale began on the 1st, wind SE. Lowest barometer 29.33 inches at 9 p. m. on the 1st, wind WSW., 10, in latitude 47° N., longitude 39° 50' W. End on the 2d, wind WNW. Highest force of wind 11 WSW.; shifts WSW.-WNW.

On the 3d there was an area of low pressure of limited extent central near latitude 45°, longitude 50°; this drifted slowly eastward and developed into an exceptionally severe and widespread disturbance, accompanied by rain, hail, and snow.

Charts VIII to XIII show the conditions for the period from February 5 to 10, inclusive. Storm logs:

Danish S. S. Oscar II:

Gale began on the 3d, wind SSW. Lowest barometer 29.03 inches at 5 a. m. on the 5th, wind SSW., 10, in latitude 59° 02' N., longitude 9° 41' W. End on the 5th, wind SW. Highest force of wind 10, SSW.; shifts SSW.-SW.

Danish S. S. Arkansas:

Gale began on the 3d, wind S. Lowest barometer 29.09 inches at 6 p. m. on the 6th, wind NW., 10, in latitude 46° N., longitude 31° 55' W. End on the 7th, wind NW. Highest force of wind 11; shifts NW.-WNW.-NW.

Belgian S. S. Carlier:

Gale began on the 4th, wind SSE. Lowest barometer 28.88 inches on the 7th, wind WNW., in latitude 47° 53' N., longitude 28° 10' W. End on the 8th, wind NNW. Highest force of wind 12; steady WNW.

American S. S. Blair:

Gale began on the 4th, wind SW. Lowest barometer 29.20 inches at noon on the 8th, wind W., 6, in latitude 39° 48' N., longitude 32° 53' W. End on the 9th, wind W., 6. Highest force of wind 10, W.; shifts WSW.-W.

American S. S. Mount Clay:

Gale began on the 8th, wind SE. Lowest barometer 28.94 inches at 6 p. m. on the 8th, in latitude 47° 23' N., longitude 23° 02' W. End on the 10th, wind W. Highest force of wind 12; shifts SE.-W.

On the 5th northeasterly winds of gale force, with comparatively high barometric readings were reported from a limited region in the vicinity of Hatteras, and also off the Mexican coast, near Tampico.

At Greenwich mean noon on the 7th, Horta, Azores, reported a barometric reading of 29.48 inches, and a westerly wind, force 10, with a maximum velocity during the past 12 hours of 90 miles an hour.

On the 11th there was a well-developed disturbance central near latitude 42° N., longitude 45° W., that moved slowly eastward, accompanied by hail and snow. Storm logs:

Danish S. S. Arkansas:

Gale began on the 11th, wind S. Lowest barometer 29.09 inches at 6 a. m. on the 11th, wind SSW., 8, in latitude 43° N., longitude 43° 30' W. End on the 13th, wind NW. Highest force of wind 12; shifts S.-SSW.-W.

Belgian S. S. Carlier:

Gale began on the 11th, wind SSE. Lowest barometer 28.49 inches on the 11th, wind SW., in latitude 45° 29' N., longitude 40° 25' W. End on the 13th, wind WNW. Highest force of wind 12; shifts SW.-WSW.

On the 15th westerly to northwesterly gales prevailed over the region between the 55th meridian and American coast, extending as far south as the 30th parallel. By the 16th the storm area had contracted somewhat, as it did not reach west of the 67th meridian, although the northern, eastern, and southern limits were about the same as on the previous day. Storm logs:

American S. S. Editor:

Gale began on the 15th, wind NW. Lowest barometer 29.45 inches at 8 a. m. on the 15th, wind NW., 8, in latitude 35°, longitude 61° 20' W. End on the 16th, wind NW. Highest force of wind 10, NW.; steady NW.

French S. S. Roussillon:

Gale began on the 15th, wind WSW. Lowest barometer 28.96 inches at 6 p. m. on the 16th, wind W., 11, in latitude 41° 12' N., longitude 59° 25' W. End on the 15th, wind WNW. Highest force of wind 11; shifts W.-WNW.-NW.

From the 15th until the end of the month heavy weather prevailed over the eastern section of the ocean, although the extent and intensity of the storm area varied somewhat from day to day. Storm logs follow:

Dutch S. S. Wioldrecht:

Gale began on the 16th, wind WNW. Lowest barometer 29.43 inches at 10 a. m. on the 17th, wind NNW., 9, in latitude 46° 27' N., longitude 25° 18' W. End on the 18th, wind WNW. Highest force of wind 10, WNW.; steady WNW.

Belgian S. S. Emanuel Nobel:

Gale began on the 17th, wind NW. Lowest barometer 28.73 inches at 10 a. m. on the 17th, wind SW., 10, in latitude 49° N., longitude 32° W. End on the 18th, wind W. Highest force of wind 10; shifts SW.-NNW.

American S. S. West Haven:

Gale began on the 17th, wind SSW. Lowest barometer 28.64 inches at 5 a. m. on the 23d, wind W., 7, in latitude 45° 50' N., longitude 24°

13' W. End on the 23d, wind WNW. Highest force of wind 11; shifts W. by S.-W. by N.

British S. S. *Paul Paix*:

From the 15th, in latitude 51° 16' N., longitude 11° 47' W., to the 26th in latitude 39° 54' N., longitude 32° 56' W., a series of strong westerly gales with mountainous seas and violent squalls, sometimes of hurricane force, with rain and hail from NW. and W. and torrential rain from SW. Barometer ranged from 29.14 inches (lowest), in latitude 51° 07' N., longitude 13° 35' W., at 2 a. m. on the 16th to 30.16 inches (highest) in latitude 39° 34' N., longitude 32° 50' W., at 7 p. m. on the 26th.

American S. S. *Tripp*:

Gale began on the 18th, wind W. Lowest barometer 29.38 inches at noon on the 19th, wind NW., 9, in latitude 45° 25' N., longitude 10° 27' W. End on the 20th, wind W., 6. Highest force of wind 10, NNW.; shifts S.-SW.-W.-NW.

French S. S. *Chicago*:

Gale began on the 19th, wind W. Lowest barometer 28.73 inches at 2:35 a. m. on the 23d, wind W., 10, in latitude 48° 05' N., longitude 31° 52' W. End on the 26th, wind NW. Highest force of wind 11, W.; shifts W.-NW.

British S. S. *City of Shanghai*:

Gale began on the 18th, wind W. Lowest barometer 29.69 inches at 4 a. m. on the 19th, wind W., 9, in latitude 37° 28' N., longitude 12° 30' E. End on the 22d, wind W. Highest force of wind 11; steady W.

Dutch S. S. *Venezuela*:

Gale began on the 20th, wind WNW., 9. Lowest barometer 29.35 inches on the 23d, wind WNW., 11, in latitude 41° 26' N., longitude 25° 37' W. End on the 25th, wind NW., 6. Highest force of wind 11, WNW.; shifts WNW.-NW.

British S. S. *Chickahominy*:

Gale began on the 24th, wind WSW. Lowest barometer 28.95 inches at 3 p. m. on the 24th, wind WSW., in latitude 51° 38' N., longitude 26° W. End on the 25th, wind WSW. Highest force of wind 10; steady WSW.

British S. S. *Valacia*:

Gale began on the 25th, wind S. Lowest barometer 28.25 inches at 3:30 a. m. on the 26th, wind SW., 12, in latitude 49° 40' N., longitude 12° 24' W. End on the 26th, wind WNW. Highest force of wind 12; shifts SW.-W.

French S. S. *Paris*:

Gale began on the 25th, wind SSE. Lowest barometer 28.15 inches at 2 a. m. on the 26th, wind SW., 8, in latitude 49° 36' N., longitude 15° 11' W. End on the 27th, wind NW. Highest force of wind 12; shifts SW.-W.-WNW.

On the 19th an area of low pressure was central about 300 miles east of St. Johns, N. F., with westerly gales in the southern quadrants. This low moved rapidly northeastward and by the 21st had joined forces with the eastern disturbance. Storm log:

Danish S. S. *Hellig Olav*:

Gale began on the 19th, wind SSW. Lowest barometer 29.25 inches at 8 a. m. on the 19th, wind SSW., 8, in latitude 44° 18' N., longitude 45° 08' W. End on the 21st, wind WNW. Highest force of wind 9; shifts SSW.-WNW.

On the 24th winds of gale force were encountered in mid-ocean as far south as the 33d parallel, as shown by following storm log:

Italian S. S. *Alberta*:

Gale began on the 24th, wind WNW. Lowest barometer 29.47 inches at 10 p. m. on the 24th, in latitude 32° 34' N., longitude 50° 10' W. End of gale on the 25th, wind N. Highest force of wind 9; shifts WSW.-N.

On the 27th there was a moderate disturbance off the Virginia coast that moved eastward with a fairly rapid rate of translation and on the 28th was central near the Bermudas. Storm log:

Italian S. S. *Alberta*:

Gale began on the 27th, wind SW. Lowest barometer 29.77 inches at 10:30 p. m., on the 27th, in latitude 34° 40' N., longitude 60° 15' W. End on the 28th, wind SW. Highest force of wind 10; shifts WSW.-NW.

NORTH PACIFIC OCEAN.

By WILLIS E. HURD.

In comparison with the tempestuous weather prevailing over the North Atlantic Ocean during February, 1923, that over the North Pacific was apparently much quieter. Ordinary winter gales were of frequent occurrence over the northern routes, but only a few dangerous storms occurred. The one pronounced storm of this character was that which began on the night of the 12th, and continued through the 13th and 14th. This gale swept the coast of British Columbia, Washington, and Oregon, several vessels being wrecked in the neighborhood of Cape Flattery, including the British S. S. *Tuscan Prince*, off Vancouver Island. On the night of the 13th the Weather Bureau station at Tatoosh Island reported a maximum wind velocity of 86 miles per hour from the northeast. The high winds were accompanied by heavy rain or snow, which contributed greatly to the danger at sea. The American S. S. *Colusa*, in dock at Tacoma on the 14th, reported 18 inches of snow on deck. This storm covered a wide expanse of the eastern part of the ocean.

From the 11th to the 28th of the month the Canadian S. S. *Canadian Inventor*, Capt. R. P. Roberts, was on a voyage from Japan to San Francisco. The observer, Mr. W. A. Attwell, thus described the weather experienced:

Weather and general conditions experienced usual to the month; dull and gloomy, with very little fine weather. Rough to heavy sea a part of the time, but not really very bad or worse than might be looked for during winter months. Very little storm or fog.

At Honolulu the weather up to the 19th was cool and sunny, but cloudiness and rain characterized the weather of the remainder of the month. The winds were prevailing from the northeast and generally light, the average hourly velocity being only 6.7 miles per hour, as compared with the 19-year average of 8 miles for February. The one momentous occurrence to the Hawaiian Islands was the tidal wave which swept the east coasts and did considerable damage on the 3d, due to a seismic disturbance in the Pacific Ocean.

To the eastward of Hawaii the weather was generally good, and few gales occurred between there and the western coast of North America from California southward, except during the 14th to 16th. The American S. S. *Mahukona*, Capt. J. W. R. Steward, Kahului toward San Francisco, reported an entire and unusual absence of the trade winds on the trip, which began with the 9th.

From present information regarding the weather in Asiatic waters, the high-pressure area extending eastward from China was persistent until the 10th, and was again pronounced and steady after the 20th. Some moderate storm conditions occurred in this area during the interval, but most of the continental disturbances of the month entered the ocean from Manchuria and Siberia. On the 6th a depression appeared to the eastward of Luzon. It was over or near the Bonin Islands and southern Japan on the following day, whence it moved rapidly east-northeastward and combined with a great low-pressure area, which on the 8th and 9th was central approximately in longitude 165° E., between latitudes 35° and 40° N. Practically the whole central part of the ocean, or between 150° E. and 170° W., approximately, was at this time swept by gales, varying in force up to 10 as indicated by the vessel reports. The American S. S. *Broad Arrow*, Woosung, China, toward San Francisco, encountered moderate to whole gales on the 9th and 10th, with lowest pressure 28.51 inches, corrected, wind SW. 10, on the 9th, in latitude 38° 06' N.,