

Italian S. S. *Citta di Messina*:

Gale began on the 17th, wind SSW., 8. Lowest barometer 29.28 inches at 2 p. m. on the 17th, wind SSW., 8, in latitude 38° 15' N., longitude 12° 20' W. End on the 18th, wind SW. Highest force of wind 10, SW.; shifts WSW.-SSW.

On the 15th the second tropical disturbance of the month appeared, central east of Swan Island, as described elsewhere. Charts VIII to XII show the conditions from the 16th to 20th, inclusive. A number of vessels encountered winds of hurricane force during this period, as shown by the following storm logs:

British S. S. *San Bruno*:

Gale began on the 16th, wind WNW., 7. Lowest barometer 29.57 inches at 3:30 p. m. on the 16th, wind NW., 8, in latitude 18° 03' N., longitude 83° 22' W. End on the 17th, wind NNW., 7. Highest force of wind 11; shifts WNW.-NW.-NNW.

The Honduras S. S. *Ceiba* reports that on the morning of the 17th moderate westerly winds prevailed, barometer 29.55 inches. The wind backed toward the south, and at 7 a. m. on the 18th, in latitude 20° 10' N., longitude 87° 10' W., it was blowing from that quarter with a force of 10, while the barometer had dropped to 29.08 inches. For several hours it continued to blow from the south, with a gradually rising barometer. By 7 p. m. the wind had moderated to SSE., 5, and the barometer read 29.50 inches.

American S. S. *Shenandoah*:

Gale began on the 17th, wind NE. Lowest barometer 29.40 inches at 7:30 p. m. on the 17th, wind WNW., 12, in latitude 20° 05' N., longitude 86° 05' W. End on the 18th, wind SW. Highest force of wind 12; shifts NE.-N.-NW.-WNW.-W.-SW.

The Honduran S. S. *Hibueras* at 10 a. m. on the 18th, in latitude 22° 40' N., longitude 88° 28' W., reported wind NE., 7, barometer 29.74 inches. The wind changed but little in force, backing gradually with slowly falling barometer until noon of the 19th, the observations at that time being, wind NW., 8, barometer 29.63 inches. Sometime between 6 p. m. of the 19th and 6 a. m. of the 20th the wind veered to NE., reaching its maximum force of 12 at the latter hour, when also occurred the lowest barometer reading of 29.42; position, latitude 20° 10' N., longitude 92° 06' W.

On the 20th and 21st there was an area of low pressure near the Bahamas and northeasterly winds of gale force prevailed over the region between the 29th and 35th parallels. Storm logs:

American S. S. *San Bruno*:

Gale began on the 19th, wind NE., 7. Lowest barometer 29.94 inches at 9 a. m. on the 19th, wind NE., 8, in latitude 30° 06' N., longitude 79° 20' W. End on the 20th, wind NE., 7; shifts NE.-ENE.-NE. by E.

American S. S. *Texan*:

Gale began on the 21st, wind NE. Lowest barometer 29.96 inches at 8 a. m. on the 21st, wind NE., 7, in latitude 29° 40' N., longitude 74° 15' W. End on the 21st, wind NE., 5. Highest force of wind 8, NE.; steady from NE.

From the 18th to the 22d moderate to strong gales were the rule over the eastern section of the ocean, and on the 19th there was also a fairly well developed disturbance in the vicinity of Newfoundland. Storm logs:

British S. S. *Cadillac*:

Gale began on the 17th, wind E. Lowest barometer 29.68 inches at 5:45 a. m. on the 18th, wind E., 8, in latitude 48° 19' N., longitude 11° 12' W. End on the 20th, wind NE. Highest force of wind 8, E.; steady from E.

Dutch S. S. *Burgerdijk*:

Gale began on the 18th, wind E. Lowest barometer 29.64 inches at 8 p. m. on the 18th, wind E., 8, in latitude 49° 37' N., longitude 18° 53' W. End on the 22d, wind ENE. Highest force of wind 9; steady ENE.

Danish S. S. *Tongking*:

Gale began on the 19th, wind ENE. Lowest barometer 29.65 inches at 2 a. m. on the 21st, wind ENE., in latitude 46° 50' N., longitude 21° 30' W. End on the 22d, wind E. Highest force of wind 8; steady from ENE.

British S. S. *Stanmore*:

Gale began on the 19th, wind SW. Lowest barometer 29.37 inches at 11:30 a. m. on the 19th, wind SW., 8, in latitude 46° 28' N., longitude 53° 04' W. End on the 19th, wind SW. Highest force of wind 8, SW.; wind unsteady but no shifts.

On the 21st there was a disturbance near latitude 44° N., longitude 45° W., that moved rapidly eastward during the next 24 hours, as by the 22d the center had reached the 35th meridian. Storm log:

British S. S. *Stanmore*:

Gale began on the 21st, wind SE. Lowest barometer 29.27 inches at 6 a. m. on the 22d, wind SW., 8, in latitude 51° 30' N., longitude 39° 49' W. End on the 22d, wind SW. Highest force of wind 10, SE.; shifts SE.-SW.

On the 21st and 22d westerly to northwesterly winds of gale force were encountered off the Spanish coast. Storm log:

Italian S. S. *Argentina*:

Gale began on the 20th, wind S. Lowest barometer 29.15 inches at 6 p. m. on the 21st, wind WNW., in latitude 38° N., longitude 16° W. End on the 23d, wind NW. Highest force of wind 8; shifts not given.

On the 24th and 25th the coast of Nova Scotia was covered by an area of low pressure of limited extent, and on the 26th strong gales were reported over the eastern section of the steamer lanes. Storm logs:

American S. S. *Wildwood*:

Gale began on the 24th, wind S. Lowest barometer 29.88 inches at 4 p. m. on the 24th, in latitude 41° 15' N., longitude 56° W. End on the 25th, wind NE. Highest force of wind 10; shifts S.-NW.

Belgian S. S. *Sunoco*:

Gale began on the 26th, wind S. Lowest barometer 29.77 inches at 3 a. m. on the 26th, wind S., 10, in latitude 49° 16' N., longitude 12° 51' W. End on the 27th, wind WNW. Highest force of wind 10; shifts S.-W.

From the 29th until the end of the month a number of vessels encountered gales of varying intensities in different sections of the ocean north of the 40th parallel. Storm logs:

American S. S. *Wildwood*:

Gale began on the 29th, wind SE. Lowest barometer 30.03 inches at 4 p. m. on the 29th, in latitude 49° N., longitude 31° W. End on the 30th. Highest force of wind 8; shifts S.-ESE.

Dutch S. S. *Prins der Nederlanden*:

Gale began on the 29th, wind NE. Lowest barometer 29.35 inches at 8 a. m. on the 29th, wind NE., in latitude 49° 35' N., longitude 4° 42' W. End on the 30th, wind NE. Highest force of wind 10; steady from NE.

From the 26th to the 31st there was an area of low pressure in the Gulf of Mexico that was of moderate intensity and not accompanied by unusual weather or heavy winds.

NORTH PACIFIC OCEAN.

By WILLIS E. HURD.

The weather over the North Pacific Ocean during October, 1922, exhibited the usual seasonal increase in energy over that of September, though the few reports and other information received from the Far East up to this writing indicated a less number of typhoons. The middle latitude disturbances both east and west, however, showed an increase in energy, and at least one tropical cyclone made itself felt off the west coast of Mexico during the last days of the rainy season.

It is noted in the September report of the Rev. José Coronas, S. J., of the Manila Observatory, that a typhoon which originated on the 25th well to the eastward of the Philippine Islands had entered the China coast on the 29th. Later information indicates that this storm skirted the coast on the 29th and 30th, and that it then moved northeastward over the western part of the Eastern Sea on October 1, entered the Japan Sea on the 2d, and was last heard from over the Okhotsk Sea on the 3d.

The one well-developed typhoon of October of which the Weather Bureau has accurate information (in the absence of the special report from Father Coronas for this month) is that of the 3d to 9th. This storm was apparent as a mere depression over the Marianas on the 3d. It intensified in energy on the 4th and moved westward, but soon recurved and on the 6th and part of the 7th was moving northward along or near the 136th meridian, between the 20th and 28th parallels. During the 7th it swerved toward the northeast, its center touching the southeast coast of Japan on the 8th, and was last seen on the 9th to the eastward of the Kuriles.

Among the Bureau's weather-reporting vessels, the American S. S. *President Lincoln*, Capt. R. Drennan, Observer W. Calcutt, second officer, Honolulu toward Yokohama, was perhaps most heavily involved in this typhoon. From 5 a. m. to 1 p. m. of the 8th the ship was between latitudes 35° and 35 05' N., longitudes 141° 10' and 141° 20' W. The following table, pressure corrected, shows the weather experienced for several hours on that date:

Time.	Wind.	Pressure.	Remarks.
		Inches.	
5 a. m.	ENE. 6	29.09	Light rain, heavy easterly swell.
6 a. m.	ENE. 8-9	28.85	
7 a. m.	NE. 11-12		Barometer oscillating between 28.79 and 28.89 inches.
8 a. m.	NE. 12	28.69-28.89	Heavy rain, high seas.
9 a. m.	NE. 12	28.67-28.79	
10 a. m.	NNE. 12	28.73-28.85	
11 a. m.	N. 11	28.99-29.07	
12 noon	NW. 10-11	29.18	High, confused seas.
1 p. m.	NW. 10	29.33	Very high swells; confused sea.
2 p. m.	NW. 8	29.41	
3 p. m.	W. 7	29.44	
4 p. m.	SW. 5-6	29.46	In lee of land, but swell heavy.

The British S. S. *Shabonee*, Capt. I. D. Llewellyn, bound from Japan toward San Francisco, also encountered the typhoon on the 8th in 38° 20' N., 148° E. At noon the master received a warning from Japan that a typhoon was to the southwestward. The ship's barometer was then 29.53 inches, corrected; wind south, force 6. At 6 p. m. the pressure was 29.27; wind 8 from south; very threatening in the WSW.; sea high and confused. To quote:

9 p. m. Barometer 29.05 inches, still falling rapidly. Decided ship was in the direct path of the storm. Headed her to the southeast, then south, keeping her on starboard tack so as to edge her into the right-hand semicircle and be able to take advantage of the west wind. Wind south 10. Fierce squalls.

10 p. m. Barometer 28.92 inches. Mountainous cross seas; terrific squalls. Glass still falling. Wind SSW., force 10-11, commencing to haul.

11 p. m. Barometer 28.80 inches. Wind hauling to westward; terrific squalls. High cross sea anywhere from SE. to west.

Midnight. Barometer 28.80 inches, steady. Wind west, 10 to 11. Mountainous seas. Decided storm center had crossed our stern and gone away to the north. Ship in good trim. Decided to take advantage of fair wind and run. Put the ship head east.

On October 28 a tropical depression which appeared over the Marianas moved northward to or near the Bonin Islands on the 31st. No information is at hand as to its intensity.

An important tropical cyclone developed in the Mexican region this month. Nothing has reached the Weather Bureau concerning it except through the medium of the press and a weather report from the American S. S. *Mystic*. According to the Los Angeles Evening World, of October 20, 1922, the British S. S. *Bermuda*, Norfolk of the Orient, via Portland, Oreg., was involved in this hurricane on October 15, while passing Cape San Lucas. The ship was considerably damaged by the encounter and was forced to limp up the coast into port for repairs. The *Mystic*, Capt. J. W. Kirchner, New Orleans toward San Francisco, was in latitude 20° 56' N., longitude 108° 57' W., at 2 p. m., after an hour becalmed in the storm center, when the wind suddenly came on in a northwest hurricane, with corrected pressure reading of 28.46 inches. The captain is reported to have said:

This is one of the biggest barometer drops I have seen since I have been at sea. * * * The wind blew 120 miles an hour. I have never seen anything like it. * * * The hurricane lasted for 12 hours and was purely a local affair, as far as I could ascertain by wireless. We were hove to for 12 hours with full steam ahead, and then could not keep her head to wind.

From the 9th to the 11th, between 11° and 15° N. and 88° and 98° W., north-northeasterly to west-northwesterly gales, force 7-8, were reported by two steamships, but direct evidences of cyclonic activity in connection therewith are wanting.

In the issue of the New York Maritime Register for November 8, 1922, appears the following item, the exact reference to which is obscure:

SAN SALVADOR, Oct. 31.—Several vessels have foundered in a gale along the Pacific coast.

Several continental storms entered the ocean from Asia during the month. After passing northeastward these either died out or combined with the Aleutian Low and struggled eastward as the Low fluctuated from Bering Sea into the Gulf of Alaska. On the 16th-17th a storm from China entered the Eastern Sea and was central on the 18th east of Japan, whence it moved northeastward into the ocean. It was closely followed by another storm from the Japan Sea. These cyclones gave moderate gales in their respective areas over the western part of the ocean during the 17th, 18th, and 19th.

The Aleutian Low became locally strong over the western Aleutians on the 3d. It moved eastward over the Gulf of Alaska on the 4th and 5th, then re-developed over the western area on the 6th. From this time until the 9th it exhibited a storm area of considerable proportions which caused strong gales over the northern routes for some distance east and west of the 180th meridian. On the 6th, near latitude 53° 40' N., longitude 164° W., the U. S. S. *Bear*, Commander C. S. Cochran, Observer Henry Coyle, cruising in Alaskan waters, was in this storm area. At 10 a. m. the barometer read 29.04 inches (corrected), wind shifting from SSE. to SW., force 9. To quote:

At noon, October 7, SW. 9, 29.09 inches. Barometer at 29.06 inches for practically 24 hours, wind SW. 9-10. From 10 a. m., when we entered the area of lowest barometer, it cleared from overcast and rain, and from then on until the finish of the gale it was never overcast, but waves of blue sky and passing rain squalls, accompanied by heavy wind, alternately passed over. The storm blew out about 4 p. m. of the 8th.

The highest wind force reported during this period was 11 from a westerly direction, observed by the American S. S. *West Kader* near 50° 13' N., 171° 48' W., on the 3d. This steamship, eastward bound from Japan, experienced rough weather from September 30 to October 7, between longitudes 165° E. and 147° W., on the northern route.

The center of activity of the Aleutian Low was over the Gulf of Alaska from the 16th to the 25th, displaying con-

siderable energy, especially during the last half of the period, and several vessels reported moderate to strong gales. After a lull, the low again intensified on the 28th and 29th.

The North Pacific HIGH continued with remarkable steadfastness throughout the month, and seems to have been unbroken except for a depression, of little consequence so far as known, between Hawaii and San Francisco on the 14th and 15th.

Pressure at Dutch Harbor was below normal for the month, showing a marked change from September. The average pressure, based on p. m. observations, was 29.47 inches, as compared with a normal of 29.70 inches. The change from the preceding month was -0.49 inch. The highest pressure, 30.12 inches, occurred on the 15th; the

lowest, 28.50 inches, on the 7th. At Midway Island pressure was above normal, the average for the month being 30.06 inches, as compared with a normal of 30.01 inches. The highest pressure, 30.20 inches, occurred on the 15th; the lowest, 29.88 inches, on the 27th. At Honolulu the departure from normal was very small, being, approximately, $+0.01$ inch. The average pressure for the month, based on a. m. and p. m. observations, was 30.01 inches. The highest, 30.08 inches, occurred on the 2d; the lowest, 29.89 inches, on the 28th.

Fog was reported on several days, most frequently in high latitudes east of the 180th meridian. There was a considerable decrease in its observance over that of September.

NOTES ON WEATHER IN OTHER PARTS OF THE WORLD.

Mexico.—MEXICO CITY, October 22.—Reports received here from Vera Cruz, Progreso, Tampico, Tuxpan, and other ports indicate that the storm which has swept the Gulf of Mexico during the last few days has done considerable damage to shipping. Several small vessels were sunk.

The Ward liners *Esperanza* and *Morro Castle* are still outside Vera Cruz unable to enter the harbor after having fought the waves for two days.—*New York Herald, October 23, 1922.*

MEXICO CITY, October 13.—The cold wave which has persisted in the Valley of Mexico for the past two days has seriously damaged the corn and bean crops, according to the reports received by the department of agriculture. In some places ice is said to have formed—an almost unheard-of condition here.—*Washington Evening Star, October 13, 1922.*

France.—CHERBOURG, October 29.—The worst Atlantic storm in years, with blinding snow and winds, is delaying all steamships in and out of Cherbourg. The wind and heavy seas in the harbor caused the steamship *Welcome* to collide with the United States liner *President Polk*, damaging the former. The *Saxonia* is two days late, and the *President Harding* is reported damaged by the tempest at Queenstown.

The *Homeric* was forced to seek the protection of the sea wall in order to disembark the passengers, who report an extremely rough passage. The steamship *Wisserting*, from the United States, will be required to remain in Cherbourg for repairs.—*Washington Post, October 30.*

British Isles.—October was generally cold and fairly dry in most parts of England, with a large amount of easterly wind, and was in marked contrast to the warm and bright weather experienced in the corresponding month of last year.—*Nature, London, November 4, 1922, p. 612.*

Italy.—ROME, October 20.—Rome and the surrounding region was suffering to-day from the effects of an

unusually severe storm which lasted 30 hours, and during which lightning caused several fires and the heavy rainfall flooded basements in various parts of the city.

The Tiber overflowed its banks outside the city, inundating a considerable extent of the countryside, driving hundreds of families out of their homes and putting the railway line between Rome and Pisa out of commission.—*Washington Evening Star, October 20.*

Russia.—RIGA, October 22.—The Russian armored cruisers *Rossiya* and *Gromoboi* and several other vessels have been lost in a storm in the Baltic Sea.—*New York Herald, October 23.*

India.—CALCUTTA, October 4.—Floods in northern Bengal have taken an enormous toll of life, according to passengers on the first train to reach here from Darjeeling in eight days.

It is impossible to estimate the extent of the disaster at present, but the travelers estimate that several thousand persons have been drowned in the affected area, other thousands made homeless and destitute, and valuable crops destroyed. The floods are said to be the worst in the history of Bengal.

Many refugees are living in hovels constructed on high land. An outbreak of cholera is adding to the difficulties of the relief workers.—*Washington Evening Star, October 4, 1922.*

Hawaii.—HONOLULU.—Hawaii, "land of sunshine," has just enjoyed what the sugar planters of the islands are happy to refer to as a "million-dollar rain." The downpour, torrential on many of the islands, lasted for almost 12 hours, and, coming as it did at a critical season of the year for sugar, brought untold relief to those who have invested their principal capital in the chief staple of the Territory. As a result of the rain the planters predict an increase in valuation of the sugar crop which may multiply the million-dollar mark several times over.—*Chicago Tribune, October 22, 1922.*