

## WEATHER OF THE MONTH.

## WEATHER OF NORTH AMERICA AND ADJACENT OCEANS.

## NORTH PACIFIC OCEAN.

By F. G. TINGLEY.

Reports at hand indicate that weather conditions over the North Pacific Ocean during the month of June as a whole closely approximated the normal. However, for the first several days the activity noted in May continued, with pressure generally below normal over the eastern half of the ocean, where the North Pacific anti-cyclone is usually well established at this season. At this time, also, reports from vessels in Asiatic waters indicated the existence of a typhoon. There was a disturbance with a well-defined center to the east of Manila on the 1st which moved to the northeastward during subsequent days, traversing the island of Nippon during the 4th and 5th.

On June 6, the American S. S. *City of Berkeley*, Capt. Alex. Watson, from Honolulu for Yokohama (in latitude  $34^{\circ} 32' N.$ , longitude  $153^{\circ} 05' E.$ , at noon of the 6th), came under the influence of this depression. Capt. Watson reports as follows:

"June 6-7, weather showed every sign of a typhoon having occurred. Barometer fairly low; clouds unusually heavy; W.-NW. swell, changing to W.-SW. No gales or heavy wind at ship."

This depression can be traced as far as the Gulf of Alaska, which it reached about the 15th, but apparently none of the reports that have been received is from a vessel that was near the center.

After the 6th, moderately high pressure covered the central and eastern portions of the ocean, the crest rising above the normal maximum of 30.25 inches on several days during the last decade.

A result of this was to freshen the trades between the mainland and the Hawaiian Islands, affecting a number of ships on the route between San Francisco and Honolulu. One vessel, the Dutch S. S. *Batoe*, reports as follows:

"Gale began on the 18th. Lowest barometer 29.94 inches at 8 a. m. of the 20th, latitude  $37^{\circ} 24' N.$ , longitude  $123^{\circ} 34' W.$  End on the 20th. Highest force of wind, 9; shifts, none."

## NORTH ATLANTIC OCEAN.

By F. A. YOUNG.

The average pressure for the month at land stations on the coasts of the Atlantic Ocean, did not as a rule, vary greatly from the normal; except that it was somewhat lower than usual on the east coast of Newfoundland and higher in northern Scotland.

Ordinarily there are fewer days in June in which winds of gale force are encountered over the ocean than in any other month, and the month under discussion was no exception to the general rule over the ocean as a whole, although in three 5-degree squares between the forty-fifth and fiftieth parallels and the twentieth and thirty-fifth meridians, gales were reported on three days, which is slightly above the normal.

According to the reports received, there were about the usual number of days with fog on the Banks of Newfoundland and the American coast, while it was much more frequent off the British coast and in the Azores.

On the 1st there was a low with limited storm area central about 300 miles east of St. Johns, Newfoundland, as shown on Chart IX. The storm log from the American S. S. *Hanover* is as follows: "Gale began May 31. Lowest barometric reading 29.59 inches at 2 a. m. on June 1; position  $41^{\circ} 10' N.$ ,  $46^{\circ} 30' W.$  End of gale on the 1st. Highest force of wind, 9; shifts of wind near time of lowest barometer, N. to NW." This disturbance had moved slowly eastward by the 2d (see Chart X), and on that date a few reports were received from vessels in the easterly quadrants denoting southerly gales. The observer on the American S. S. *Western Star* reports: "Gale began on the 1st. Lowest barometer 29.60 inches at 9 a. m. on the 1st; position  $48^{\circ} 47' N.$ ,  $36^{\circ} 15' W.$  End of gale on the 2d. Highest force of wind 8; shifts SSW. to SSE."

From the 3d to the 5th no gales were reported, and fog occurred on all three days off the European coast, and on the 3d in the vicinity of Halifax, N. S. On the 6th, two vessels about 200 miles east of the Virginia Capes reported southerly gales of about 50 miles an hour, with moderate weather over the rest of the ocean, and fog off the Nantucket shoals and over the southern steamer routes, near the fiftieth meridian. From the 7th to the 10th there was another period of nearly normal conditions, with fog over the Banks of Newfoundland on all four days, and off the coast of France on the 7th.

On the 11th there was a well-developed low central near latitude  $48^{\circ} N.$ , longitude,  $15^{\circ} W.$ , with gales between the center and the 23d meridian, as shown on Chart XI. The storm log from the American S. S. *Saguache* is as follows: "Gale began on the 10th. Lowest barometer 29.17 inches on the 11th; position  $49^{\circ} 54' N.$ ,  $14^{\circ} 42' W.$  End of gale on the 12th. Highest force of wind 9; shifts of wind SE-N-NW." On the 12th the Belgian S. S. *Sierra Madre* encountered a moderate westerly gale while about 500 miles east of Bermuda. The storm log states: "Gale began on the 12th. Lowest barometer 29.80 inches at 5 a. m. on the 12th; position  $33^{\circ} 35' N.$ ,  $53^{\circ} 40' W.$  End of gale on the 13th. Highest force 8; shifts of wind SW-W." On the 12th and 13th fog was reported over the steamer lanes between the fortieth and fiftieth meridians. From the 14th to the 16th moderate winds were the rule, with fog at the Azores and over the western part of the steamer lanes on the 14th and 15th, and in the vicinity of the British Isles on the 16th.

The American S. S. *Abbeville* ran into a southwesterly gale on the 17th while a short distance north of Bermuda, as shown by the storm log. Gale began on the 16th. Lowest barometer 29.70 inches, at midnight of the 16th; position  $36^{\circ} 07' N.$ ,  $64^{\circ} 30' W.$  End of gale on the 18th. Highest force of wind 8; shifts of wind, steady. On the 19th there was a disturbance of some force and limited area over the eastern part of the steamer lanes; the storm log of the British S. S. *Stanmore* is as follows: "Gale began on the 19th. Lowest barometer 29.20 inches at 10 a. m. on the 19th; position  $49^{\circ} 39' N.$ ,  $26^{\circ} 00' W.$  End of gale on the 20th. Highest force of wind 10; shifts of winds SSW.-NW. by W." This low drifted slowly eastward, and on the 20th the center was near latitude  $51^{\circ} N.$ , longitude  $20^{\circ} W.$  The observer on the British S. S. *Penmorvah* states in the storm log: "Gale

began on the 19th. Lowest barometer 29.36 inches at 4 p. m. on the 19th; position 50° 54' N., 20° 44' W. End of gale on the 20th. Highest force of wind 10; shifts of wind SW.-W.-NW.

During the next 24 hours this depression remained nearly stationary, gradually filling in, as on the 21st. The American S. S. *Munra* was the only vessel to report winds of gale force. Her storm log is as follows: "Gale began on the 19th. Lowest barometer 29.59 inches at 4 a. m. on the 19th; position 48° 16' N., 18° 00' W. End of gale on the 21st. Highest force of wind, 8; shifts of wind, SW.-W." From the 22d to the 27th moderate conditions prevailed with the Azores high well developed during the greater part of the period. On the 22d and 23d fog occurred off the Banks of Newfoundland and from the

24th to the 27th over the middle section of the southern steamer routes. On the 28th there was a LOW of considerable extent central somewhere near latitude 55° N., longitude 22° W. (see Chart XII); it was impossible, however, to locate it accurately on account of lack of observations up to date. The storm log from the Danish S. S. *Arkansas* is as follows: "Gale began on the 27th. Lowest barometer 29.40 inches at midnight on the 27th; position, 53° 30' N., 28° 55' W. End of gale on the 28th. Highest force of wind 10; shifts of wind W.-WNW." This disturbance apparently moved but little during the next 24 hours, decreasing in intensity, and on the 30th only light to moderate winds were reported, with fog in mid-ocean.

NOTES ON WEATHER IN OTHER PARTS OF THE WORLD.

*British Isles.*—" \* \* \* conspicuous events were the frequent thunderstorms which occurred between the 10th and 20th, and the almost entire absence of any very hot days.

"For the first time in 1920, the total monthly rainfall was generally deficient over the British Isles, exceeding the average only in small isolated areas, particularly in the south of England and Wales. \* \* \*

"The general rainfall expressed as a percentage of the average was: England and Wales, 99; Scotland, 65; Ireland, 78. \* \* \*

"In London (Camden Square) the mean temperature was 61.5° F., or 1.3° F. above the average. \* \* \*"

*Mediterranean region.*—"Very high temperatures were experienced [during the middle and latter half of the month]. \* \* \*"

*India.*—"In India the southwest monsoon set in on June 2 in Malabar and penetrated inland a few days later. It was weak at first in most parts (except Burma, Assam, and Central India)." <sup>1</sup>

*Africa.*—"The monsoon appears to have set in vigorously in Africa, for sudden rises of the Nile at Roseires and Mongalla have brought the water to its normal level." <sup>1</sup>

*Australia.*—"In Australia copious rains have continued to fall, and there is now a prospect of abundant herbage for stock. In the possible wheat belt of New South Wales the rain has enabled an unusually large acreage to be brought into cultivation. At the close of the month snow fell for the first time on record at Albany, in the interior of West Australia (latitude 35° south), probably in the rear of an Antarctic reversed V depression." <sup>1</sup>

<sup>1</sup> The Meteorological Magazine, July, 1920, pp. 133, 136.

DETAILS OF THE WEATHER OF THE MONTH IN THE UNITED STATES.

CYCLONES AND ANTICYCLONES.

By R. HANSON WEIGHTMAN, Meteorologist.

*Cyclones.*—Alberta LOWS were by far the most numerous and secondaries were infrequent. The table shows the number of LOWS by types.

LOWS.

	Alberta.	North Pacific.	South Pacific.	Northern Rocky Mountain.	Colorado.	Texas.	East Gulf.	South Atlantic.	Central.	Total.
June, 1920.....	7.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	13.0
Average number 1892-1912.....	3.3	0.8	0.4	0.8	1.2	0.4	0.2	0.3	1.1	8.4

*Anticyclones.*—The number of HIGHS was slightly below the average. The number of HIGHS by types is shown in the table.

HIGHS.

	North Pacific.	South Pacific.	Al-ber-ta.	Plateau and Rocky Mountain region.	Hudson Bay.	Total.
June, 1920.....	2.0	0.0	3.0	0.0	0.0	5.0
Average number 1892-1912.....	1.6	0.6	1.9	0.9	0.5	5.5

THE WEATHER ELEMENTS.

By P. C. DAY, Climatologist and Chief of Division.

[Weather Bureau, Washington, Aug. 2, 1920.]

PRESSURE AND WINDS.

The pressure during June exhibited the stagnant condition usual to the warmer months of the year, and the cyclonic and anticyclonic movements were in the main but poorly defined (See Charts II and III). As is usual in June, pressure was moderately high over the southeastern districts and in the far Northwest (See Chart VII), but this distribution varied materially during the month. The first week had rather low pressure with rain over much of the East and Southeast, particularly near the Atlantic coast, high pressure prevailing at the same time in the Central Valleys and far western districts. The high pressure drifted slowly into the more eastern States overspreading the Southeast during the latter part of the first and the early part of the second decades. At the same time there was a general reduction in pressure over the interior portions of the country where temperatures had very generally risen to or above the normal for the season.

During the latter part of the second decade pressure increased in the far Northwest and there was a change to lower barometer readings over the Gulf and Atlantic coast districts with local storm areas and very general precipitation in the districts from the Mississippi Valley eastward. During the greater part of the last decade the high over the North Pacific coast was maintained but