

lent storm in Culion on the 15th and San Jose Mindoro during the night of the 15th and 16th. The steamer *Perlak* was in the center of this typhoon only about 9 miles to the W. of south Mindoro, the barometer having fallen at midnight of the 15th to 28.14 inches (714.75 mm.). We have no observations from midnight to 8 a. m. of the 16th, as the barometer with which the observations were made was lost in the storm. But as it was about or not far from 1 a. m. when the vortical calm was observed, we suppose that the barometric minimum was still lower. During the calm the stars could be seen and many birds fell on the ship.

The small typhoon lost much of its energy on striking Mindoro and filled up within the Philippines on the 17th between 13° and 14° latitude N. and near 123° longitude E.

Besides the Philippine depression and typhoon mentioned another typhoon was shown by our weather maps at 6 a. m. of October 1 to the SE. of Tokio in about

141° 30' longitude E., 33° 35' latitude N., moving ENE. The steamer *President Adams* was near the center with a barometric minimum of 29.03 inches (737.35 mm.) at 5 a. m. of October 1. This was the same typhoon mentioned in our article for last month as situated on the 25th of September between Guam and the Philippines moving WNW. On the 26th it took a northerly direction until it recurved to ENE. on the 30th. The steamer *Radnor* met this typhoon to the east of the Loochoos with a barometric minimum of 29.27 inches (743.44 mm.) at 6 a. m. of September 28.

The approximate positions of the center at 6 a. m. of September 24 to 30 were as follows:

24th, 6 a. m.,	142° 10' long. E.,	11° 00' lat. N.
25th, 6 a. m.,	137° 00' long. E.,	13° 40' lat. N.
26th, 6 a. m.,	132° 15' long. E.,	15° 45' lat. N.
27th, 6 a. m.,	130° 50' long. E.,	19° 15' lat. N.
28th, 6 a. m.,	132° 00' long. E.,	23° 10' lat. N.
29th, 6 a. m.,	132° 20' long. E.,	27° 50' lat. N.
30th, 6 a. m.,	133° 40' long. E.,	31° 20' lat. N.

DETAILS OF THE WEATHER IN THE UNITED STATES

GENERAL CONDITIONS

The current month was the first of 1925 having a temperature considerably below the normal. Three anticyclones, each of more than the usual intensity for October, brought unseasonably low temperature to the upper Missouri Valley and the northern Plains States. These anticyclones were well distributed throughout the month, one each occurring in the first, second, and third decades, respectively. Concomitant features were an increase in the number and intensity of cyclonic storms and fairly abundant rainfall in the Rocky Mountain and Plateau regions, the Gulf and southeastern States. The usual details follow.—A. J. H.

CYCLONES AND ANTICYCLONES

By W. P. DAY

The number of low-pressure areas during October was decidedly above the normal. The paths of 23 of these have been plotted on Chart II, a number not often exceeded during a winter month. The storm areas at times followed each other in close succession with but slight intervals of rising pressure between.

High-pressure areas were rather less than the normal in number; 11 which could be definitely traced were plotted on Chart I. Of the three important HIGHS, two were well shown at Fort Simpson, Canada, before reaching the United States. The one which appeared in the Northwest on the 18th, however, was not definitely heralded at Fort Simpson.

FREE-AIR SUMMARY

By L. T. SAMUELS

The large negative temperature departures occurring at certain stations present the most outstanding feature in the average free-air conditions for the month. It is evident from Table 1 that these departures are greatest and of practically equal magnitude at the three northernmost stations, somewhat smaller at Broken Arrow and least at Groesbeck and Due West, the southern and easternmost stations, being practically negligible at the latter place. At the northern stations they remain exceedingly large to the upper limit of the observations which at Ellendale was 5,000 m., while at Broken Arrow and Groesbeck the usual decrease with altitude occurs. The constancy of the abnormally low temperatures

throughout the month at the northern stations is well brought out in the following table by the high percentages of days (i. e., of those on which kite flights were made) having temperatures below normal.

Station	Surface	Meters above sea level				
		1,000	2,000	3,000	4,000	5,000
Ellendale.....	90	97	97	84	83	100
Drexel.....	96	92	81	69	75	-----
Royal Center.....	90	88	89	83	-----	-----
Broken Arrow.....	67	63	50	50	50	-----
Groesbeck.....	52	58	17	33	33	-----
Due West.....	46	44	33	33	-----	-----

Another feature was the abnormally high winds which prevailed at various altitudes in the latter half of the month during which period two pronounced anticyclones passed over the greater portion of the country. The strong winds were not confined to the regions above these HIGHS, however, but prevailed in general over the intervening LOWS as well. Some of the highest velocities recorded during this period are shown below.

Station	Date	Velocity	Direction	Altitude
		M. p. s.	W.	M.
Broken Arrow.....	19	40	-----	6,000
Denver.....	25	36	WNW.	4,600
Drexel.....	28	41	WNW.	5,800
Due West.....	27	36	WSW.	6,000
Do.....	28	39	WSW.	7,000
Ellendale.....	16	40	W.	8,000
Do.....	31	39	WNW.	6,300

The pronounced anticyclone which prevailed at the end of the month was accompanied by record minimum temperatures for October for various altitudes at all aerological stations. As would be expected with such marked deficiencies in the monthly mean temperatures, the average relative humidities were above normal while the vapor pressures were mostly below.

The resultant winds for the month, in keeping with the large negative temperature departures, show unusually pronounced deviations from their normals. In table 2 it will be noted that the normal resultant at Drexel contains an appreciable south component whereas, a large north component is found for this month. At other stations the south component is considerably less pro-