South Dakota.—The mean temperature was 59.4°, or about 1.0° below normal; the highest was 108°, at Cherry Creek (P. O. Leslie), on the 1st, and the lowest, 9°, at Watertown, on the 29th. The average precipitation was 0.52, or about 1.02 below normal; the greatest monthly amount, 2.05, occurred at Spearfish, while none fell at Canton.—*S. W. Glenn.*

Tennessee.—The mean temperature was 69.4°, or 0.7° below normal; the highest was 105°, at Pope on the 5th, and the lowest, 24°, at Erasmus on the 30th. The average precipitation was 1.48, or 1.51 below normal; the greatest monthly amount, 5.00, occurred at Greeneville, and the least, 0.23, at Sewanee.—*H. C. Bate.*

Texas.—The mean temperature, determined by comparison of 46 stations distributed throughout the State, was 0.3° below normal. Nearly normal conditions prevailed over the panhandle and along the immediate coast; there was an excess, ranging from 1.2° to 2.5°, over central and west Texas, while there was a deficiency elsewhere, with the greatest, 3.3°, at Sulphur Springs; the highest was 106°, at Paris on the 7th, and the lowest, 40°, at Jacksonville on the 27th and at Mount Blanco on the 29th. The average precipitation, determined by comparison of 53 stations distributed throughout the State, was 1.30 below normal; there was a marked excess over the panhandle and in the vicinity of Camp Eagle Pass, while there was a general deficiency elsewhere, ranging from 1.00 to 4.36, with the greatest deficit in the vicinity of Galveston. The rainfall for September was generally light and very unevenly distributed throughout the State; there was comparatively none over eastern Texas. The greatest monthly amount, 6.50, occurred at Camp Eagle Pass, while none fell at several stations.—*I. M. Cline.*

Utah.—The mean temperature was 65.3°, or 1.9° above normal; the highest was 103°, at St. George on the 1st, and the lowest, 22°, at Woodruff on the 8th. The average precipitation was 0.05, or 0.78 below normal; the greatest monthly amount, 0.70, occurred at Croydon, while none fell at many stations.—*L. H. Murdoch.*

Virginia.—The mean temperature was 67.0°, or 2.2° below normal; the highest was 100°, at several stations on the 6th, and the lowest, 22°, at Hot Springs on the 30th. The average precipitation was 3.51, or 0.09 above normal; the greatest monthly amount, 7.16, occurred at Scottsburg, and the least, 0.36, at Hampton.—*E. A. Evans.*

Washington.—The mean temperature was 61.0°, or 3.5° above normal; the highest was 98°, at Hooper on the 11th and at Centerville on the 26th, and the lowest, 27°, at Cle Elum on the 28th. The average precipitation was 1.39, or about 0.70 below normal; the greatest monthly amount, 3.40, occurred at Fort Canby, and the least, 0.13, at Cheney.—*G. N. Salisbury.*

West Virginia.—The mean temperature was 64.0°, or 1.9° below normal; the highest was 100°, at Point Pleasant on the 5th, and the lowest, 26°, at Terra Alta and Elkins on the 29th and 30th. The average precipitation was 3.65, or 1.04 above normal; the greatest monthly amount, 6.35, occurred at New Martinsville, and the least, 1.65, at Lanes Bottom.—*C. M Strong.*

Wisconsin.—The mean temperature was 57.3°, or 3.2° below normal; the highest was 97°, at Brodhead and Sharon on the 5th, and the lowest, 11°, at Medford on the 30th. The average precipitation was 2.57, or 0.48 below normal; the greatest monthly amount, 5.92, occurred at North Crandon, and the least, 0.20, at Spooner.—*W. M. Wilson.*

Wyoming.—The mean temperature was 57.2°, or 0.5° above normal; the highest was 102°, at Fort Laramie on the 3d, and the lowest, 16°, at Burns on the 25th and 29th. The average precipitation was 0.58, or 0.25 below normal; the greatest monthly amount, 2.44, occurred at Douglas, and the least, 0.04, at Bedford, Burns, Evanston, Hyattville, and Thayne.—*W. S. Palmer.*

SPECIAL CONTRIBUTIONS.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently arrived in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Archives des Sciences Physiques et Naturelles. Genève. 4me série. Tome 8.
Dufour, Ch. Comparaison entre la lumière du soleil et celle de quelques étoiles. P. 209.

Meteorologische Zeitschrift. Wien. Band 16.
Polis, P. Die Strömungen der Luft in den barometrischen Minima und Maxima. P. 337.
Valentin, J. Einige Ergebnisse der Aufstiege der österreichischen Luftballons bei der internationalen Simultanfahrt am 24 März, 1899. P. 353.
——— Resultate der Meteorologischen Beobachtungen im Kondeland. P. 361.
Ferdinand, E. L. Purpurrother Regenbogen vor Sonnenaufgang. P. 365.
Czermak, P. Zur Psychrometerfrage. P. 365.
Folgheraiter, G. Ueber die Säkularvariation der magnetischen Inklination in früheren Jahrhunderten. P. 367.
Stoney, G. Die Menge des Sauerstoffs in der Atmosphäre im Vergleich zu jener in der Erdkruste. P. 371.
——— Hagel zu Madrid. P. 372.
Kutschig, E. v. Temperatur der Elbe bei Aussig. P. 372.
Hann, J. Zur Meteorologie der Küste von Senegambien. P. 373.
——— Zwei Hegelwetter. P. 376.
Trabert, Wilh. Neuere Versuche von Pellat zur Stütze der Exnerschen Theorie der Luftelektricität. P. 377.
Schmidt, A. Ueber die Ursache der Magnetischen Stürme. P. 385.
Polis, P. Die Strömungen der Luft in der barometrischen Minima und Maxima (Schluss). P. 397.
——— Die Temperaturen von Sonne und Mond. P. 412.
Hann, J. Regenfall zu Tokio. P. 417.
Do. Klima von Tucuman. P. 418.
Do. Der tägliche Gang des Barometers in Nordamerika. P. 420.
Do. Blitzphotographie. P. 422.
Hann, J. Klima von Carcarana, Argentina. P. 423.
Chabot J. J. T. Ueber die Grünstrahlung beim sogenannten Sonnenuntergang. P. 425.
——— Ausserordentliche Kälte in den Vereinigten Staaten in Februar, 1899. P. 427.

Nature. London. Vol. 60.
Stromeyer, C. E. Remarkable Lightning Flashes. P. 520.
Backhouse, T. W. Ribbon Lightning. P. 520.
Lockyer, W. J. S. Dark Lightning Flashes. P. 570.

Symon's Monthly Meteorological Magazine. London. Vol. 34.
[Symons, G. J.] Meteorological Extremes. II Temperature. P. 129.

Proceedings of American Society of Civil Engineers, New York Vol. 25.
Seddon, J. A. River Hydraulics. [Methods and results of study of data on the Mississippi and tributaries.] P. 619.

Comptes Rendus. Paris. Tome 129.
Chauveau, A. B. Sur la variation diurne de l'électricité atmosphérique. P. 500.
Poincare, A. Écarts barométriques sur le méridien du Soleil aux jours successifs de la révolution tropique de la Lune. P. 529.

Das Wetter. Berlin. 16 *Jahrgang.*
Bornstein, Prof. Dr. Ueber Witterungsdienst. [Concluded.] P. 193.
Davis, W. M. Die Cirkulation der Atmosphäre. P. 201.
——— Ueber künstliche Regenerzeugung. P. 205.
Weise. Wolkenbildung, Regen und Wald. [Continued.] P. 209.

Journal of the Franklin Institute. Philadelphia. Vol. 148.
Leduc, A. and Sacerdote, Paul. Notes on gaseous mixtures. Translated by B. F. Asherwood. (From Comptes Rendus de l'Académie, 1898. P. 218 and 338.) P. 303.
Marvin, C. F. The kite as an instrument of meteorological research. P. 241.

Quarterly Journal of the Royal Meteorological Society. London Vol. 25.
Brodie, F. J. Prolonged Deficiency of Rain in 1897 and 1898 [in England.] P. 181.
Mellish, H. Soil Temperature. P. 238.

Scientific American Supplement. New York. Vol. 48.
Bigelow, F. H. International Cloud Work of the Weather Bureau. P. 19,885.
——— Hurricane in Guadeloupe. P. 19,895.

Scientific American. New York. Vol. 81.
Bacon, J. M. Sound, Reflection and Refraction. P. 246.

National Geographic Magazine. Washington. Vol. 10.
Henry A. J. Variation in Lake Levels and Atmospheric Precipitation. P. 403.

Geographic Journal. London. Vol. 14.
Arctowski, H. The Antarctic Climate. P. 413.

Memorias de la Sociedad Científica "Antonio Alzarte." Mexico. Tome 13.
Anda, M. and Gomez, A. Le climat du Mexique en 1895 [Continued.] P. 353.

Ciel et Terre. Bruxelles. 20me Année.

Ventosa, V. La direction du vent et la scintillation. [Concluded.] P. 328.

Ridder, J. P. de. L'abeille et la pluie. P. 337.

Arctowski, H. Résultats préliminaires des observations météorologiques faites pendant l'hivernage de la *Belgica*. III Roses des vents: Phénomènes atmosphériques. P. 353.

——— Circulation de l'air dans les cyclones et les anticyclones. P. 370.

L'Aerophile. Paris. 7me année.

Besancon, G. Résultats obtenus á l'aide des ballons-sondes de MM. Hermite et Besançon. P. 99.

Proceedings of the Royal Society. London. Vol. 65.

Wilson, C. T. R. Comparative Efficiency, as Condensation nuclei, of positively and negatively charged Ions. P. 289.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made partly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological observations at Honolulu, September, 1899.

The station is at 21° 18′ N., 157° 50′ W.

Pressure is corrected for temperature and reduced to sea level, and the gravity correction, —0.06, has been applied.

The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force or amounts of cloudiness, connected by a dash, indicate change from one to the other.

The rainfall for twenty-four hours has always been measured at 7:30 p. m., not 1 p. m., Greenwich time, on the respective dates.

The rain gage, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 43 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Temperature.		During twenty-four hours preceding 1 p. m., Greenwich time, or 2:30 a. m., Honolulu time.									Total rainfall at 9 a. m., local time.
				Temperature.		Means.		Wind.		Average cloudiness.	Sea-level pressures.		
		Dry bulb.	Wet bulb.	Maximum.	Minimum.	Dew-point.	Relative humidity.	Prevailing direction.	Force.		Maximum.	Minimum.	
	*	†	†			‡	‡		§				
1	29.98	74	67	84	76	63.3	60	ne.	2-4	5	30.06	29.96	0.03
2	29.95	74	66.5	82	72	63.3	64	ne.	2-4-0	6-2	30.01	29.92	0.05
3	30.00	75	67	84	71	62.7	61	ne.	2	3	30.02	29.92	0.00
4	30.03	74	67	84	74	63.0	60	ne.	3	2	30.05	29.98	0.00
5	29.98	73	67.5	85	74	62.7	61	ne.	3	2	30.06	29.95	0.06
6	29.98	72	68	84	71	64.5	65	ne.	4	5	30.02	29.94	0.04
7	30.04	75	69	84	72	64.7	67	ne.	4	4	30.06	29.98	0.03
8	30.04	75	69	84	72	65.5	65	ne.	4	1	30.08	30.00	0.00
9	29.97	76	69	85	74	65.0	65	nne.	3	2-5	30.06	29.97	0.00
01	29.90	75	68	83	75	63.7	62	nne.	3	4-8	29.97	29.88	0.02
11	29.92	74	68.5	81	75	65.0	68	nne.	3	7-4	29.96	29.89	0.08
12	29.90	77	71.5	83	73	68.5	75	ne.	1	8	29.96	29.90	0.03
13	29.89	75	67.5	84	76	68.5	72	ne.	3	8	29.96	29.89	0.00
14	29.85	70	67.5	84	75	65.0	63	ene.	4-0	4-0-4	29.93	29.84	0.01
15	29.87	72	67	85	69	65.7	69	se-ne.	2	5	29.91	29.81	0.00
16	29.93	75	67.5	84	72	63.3	63	nne.	3-4	3	29.97	29.86	0.00
17	29.94	74	68	85	74	62.5	59	ne.	3	2	29.98	29.91	0.01
18	29.94	74	66.5	84	73	63.5	63	ne.	3	3	29.98	29.91	0.03
19	29.94	75	67.5	82	71	62.3	60	nne.	3	5	30.00	29.90	0.01
20	29.99	75	67.5	83	73	63.3	61	nne.	3	6	30.02	29.94	0.01
21	29.98	72	68.5	83	74	64.5	66	nne.	3	6	30.05	29.97	0.04
22	29.98	75	69	81	72	67.3	77	ne.	2-5	6	30.03	29.95	0.14
23	29.95	74	68	83	73	66.7	70	ne.	4	3	29.99	29.93	0.06
24	30.00	75	68.5	84	71	65.0	64	ne.	2	2-4	30.05	29.95	0.00
25	30.05	75	68	83	75	65.3	65	ne.	2	7	30.07	29.99	0.00
26	29.98	72	68	84	75	63.7	63	ne.	2-4	9	30.09	29.96	0.08
27	29.93	73	67.5	81	71	67.5	74	ne.	2	7-3	29.99	29.91	0.01
28	29.94	73	67	84	72	64.3	64	ne.	2	3	29.99	29.90	0.00
29	30.02	75	67.5	84	73	63.3	62	ene.	2	2	30.06	29.94	0.00
30	30.08	70	68.7	84	75	63.7	62	ene.	4	4	30.09	29.97	0.06
Sums	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Means	29.96	73.9	67.9	83.5	73.1	64.6	65.0	.....	2.9	4.5	30.015	29.927	0.80
Departure	0.00	.....	.....	.....	.....	—2.0	—2.0	.....	.....	+0.5	.....	.....	—1.35

Mean temperature for September, 1899 (6+2+9), ÷3=77.1°; normal is 77.3°. Mean pressure for September (9+3) ÷ 2 is 29.967; normal is 29.969.

*This pressure is as recorded at 1 p. m., Greenwich time. †These temperatures are observed at 6 a. m., local, or 4:30 p. m., Greenwich time. ‡These values are the means of (6+9+2+9) ÷ 4. §Beaufort scale.

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Senor Manuel E. Pastrana, Director of the Central Meteorologico-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the Boletin Mensual. An abstract, translated into English measures, is here given, in continuation of the similar tables published in the MONTHLY WEATHER REVIEW since 1896. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published on our Chart IV.

Mexican data for August, 1899.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
	Feet.	Inch.	° F.	° F.	° F.	%	Inch.		
Colima	.....	.....	89.6	69.8	.....	.....	.....	.....	.....
Culiacán Rosales (E. d. S.)	112	29.69	98.6	73.4	85.8	73	4.35	ne.	.....
Durango (Seminario)	6,243	24.05	91.4	56.1	72.1	55	0.79	sw.	e.
Guanajuato	6,761	23.70	82.6	55.0	66.7	62	4.98	ne.	ne.
Leon (Guanajuato)	5,934	24.30	84.4	50.4	68.4	64	2.93	se.	ne.
Mexico (Obs. Cent.)	7,472	23.06	77.9	50.0	61.9	69	5.13	nw.	ne.
Morelia (Seminario)	6,640	23.98	76.5	54.9	63.5	80	5.90	e.	e.
Puebla (Col. Cat.)	7,112	23.36	77.0	49.8	66.7	77	5.85	e.	se.
Saltillo (Col. S. Juan)	5,399	24.78	87.8	63.0	75.2	57	0.78	nnw.	ne.
San Isidro (Hac. de Guanajuato)	.....	.....	78.4	67.1	.....	.....	4.72	se.	.....
Silao	6,063	24.28	79.7	58.8	70.3	64	4.46	ene.	ese.

Mexican data for September, 1899.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
	Feet.	Inch.	° F.	° F.	° F.	%	Inch.		
Colima	1,600	28.27	93.9	63.3	77.7	76	9.51	sw.	ssw.
Culiacán Rosales (E. d. S.)	112	29.71	100.8	74.7	86.5	67	2.50	ne.	.....
Leon (Guanajuato)	5,934	24.35	81.3	46.2	65.5	67	4.53	s.	e.
Mexico (Obs. Cent.)	7,472	23.10	74.1	44.6	60.1	70	6.68	n.	ne.
Morelia (Seminario)	6,401	23.98	75.2	48.9	61.7	78	6.67	se.	e.
Oaxaco	5,164	25.08	91.8	50.0	67.1	82	5.69	nw.	ne.
Puebla (Col. Cat.)	7,112	23.38	75.2	44.4	64.9	81	6.01	n.	ne.
Saltillo (Col. S. Juan)	5,399	24.86	80.6	50.0	66.7	69	4.26	n.	sw.
San Isidro (Hac. de Guanajuato)	.....	.....	75.2	64.4	.....	.....	7.72	.....	.....
Silao	6,063	24.32	76.8	54.5	68.0	62	4.65	ene.	ese.
Zapotlan (Seminario)	5,078	25.12	81.0	52.0	67.8	67	7.53	n.	se.

THE ORIGIN, PATHS, AND LIMITING ZONES OF THE TYPHOONS OF THE ORIENT.

(An address by Paul Bergholz, Director of the Meteorological Observatory at Bremen. Read before the Section of Physics and Meteorology at the seventy-first meeting of German scientists, Munich, September 19, 1899. Translated by the Editor.)

In 1897 a work was published[1] in which there is brought together and skilfully combined into a whole all the extensive material relative to the hurricanes of the Tropics that had, up to that time, been collected by the observatories at Hongkong, Tokio, Manila, and Shanghai. Especially numerous are the observations collected in Manila, because there is scarcely a single large atmospheric disturbance that develops in the waters of the Orient that does not make itself felt in the Philippines. Scattered through the book, as was appropriate since it had a purely practical object, are some general considerations relative to the origin, the paths, and the zones of hurricanes. We will at present examine these views more closely but, of course, can not reproduce the extensive tabular material.[2]

[1] Baguios ó Ciclones Filipinos. Estudio Téorico-Practicó por el P. José Algué, S. J., Director del Observatorio. Manila, 1897.

[2] Compare Bergholz, "Die Orkane des Fernen Ostens." Max Nössler, Bremen und Shanghai, 1899.