

Heights of rivers above zeros of gauges—Continued.

Stations.	Distance to mouth of river.	Danger line on gauge.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
<i>Lumber River.</i> Fairbluff, N. C.	Miles. 10	Feet. 6	Feet. 1.7	13	Feet. 0.1	23, 24, 29	Feet. 0.8	Feet. 1.6
<i>Lynch Creek.</i> Effingham, S. C.	35	12	6.4	9	2.7	24	3.8	8.7
<i>Potomac River.</i> Harpers Ferry, W. Va. ...	170	16	2.0	12, 18	0.3	1	1.2	1.7
<i>Roanoke River.</i> Clarksville, Va.	155	12	0.5	29	0.1	1, 2, 5-27	0.1	0.4
<i>Sacramento River.</i> Redbluff, Cal.	241	23	1.4	22	0.3	1, 2, 7-15	0.5	1.1
<i>Sacramento River.</i> Sacramento, Cal.	70	25	13.3	24	8.7	1-20	9.6	4.6
<i>Santee River.</i> St. Stephens, S. C.	50	12	3.8	7	-0.3	26, 27	0.9	3.6
<i>Congaree River.</i> Columbia, S. C.	37	15	3.0	28	1.5	1-26	1.6	1.5

Heights of rivers above zeros of gauges—Continued.

Stations.	Distance to mouth of river.	Danger line on gauge.	Highest water.		Lowest water.		Mean stage.	Monthly range.
			Height.	Date.	Height.	Date.		
<i>Wateree River.</i> Camden, S. C.	Miles. 45	Feet. 24	Feet. 7.7	29	Feet. 2.2	24, 25	Feet. 3.2	Feet. 5.5
<i>Savannah River.</i> Augusta, Ga.	130	32	9.4	29	4.8	24	5.7	4.6
<i>Susquehanna River.</i> Wilkesbarre, Pa.	178	14	6.0	29	0.0	1-3	2.0	6.0
<i>Juniata River.</i> Harrisburg, Pa.	70	17	4.9	30	0.7	1	2.8	4.2
<i>W. Br. of Susquehanna.</i> Huntingdon, Pa.	80	24	4.2	3, 10	2.8	1	3.5	1.4
<i>Williamsport, Pa.</i> Williamsport, Pa.	35	20	5.7	29	0.4	1	2.9	5.8
<i>Waccamaw River.</i> Conway, S. C.	40	7	2.1	1, 2	0.2	19-22	0.8	1.9

* Distance to Gulf of Mexico.

SPECIAL CONTRIBUTIONS.

RECENT PUBLICATIONS.

By HERMAN W. SMITH, Librarian, Weather Bureau.

- Argentina Republic—Oficina Meteorologica. Ligeros apuntes sobre el clima de la República Argentina. Buenos Aires, 1889. 4to. xv, 254 pp.
- Austria-Hungary—Hydrographischer Dienst in Oesterreich. Jahrbuch des K. k. hydrographischen Central-Bureau, 1895. Wien, 1897. F.
- Austria-Hungary—Naturhistorisches Landesmuseum von Kärnten. Diagramme der magnetischen und meteorologischen Beobachtungen zu Klagenfurt, 1895-96. Klagenfurt, 1895-1896. F.
- Canada—Ontario—Bureau of Industries. Annual report, 1896. Toronto, 1897. 8vo. 159 pp.
- Chicago—Department of Health. Biennial report, 1895-1896. Chicago, 1897. 8vo.
- Comité International des Poids et Mesures. Procès-verbaux des séances de 1897. Paris, 1897. 8vo. 179 pp.
- France—Département de l'Hérault. Bulletin météorologique, 1896. Montpellier, 1897. 4to. 112 pp.
- France—Département des Bouches-du-Rhône, Commission de Météorologie. Bulletin Annuel, 1896. Marseille, 1897. 4to. 105 pp.
- Germany—Hamburg—Deutsche Seewarte. Segel-handbuch für den Stillen Ozean. Hamburg, 1897. 4to. 916 pp. Beilage zum Segel-handbuch für den Stillen Ozean. Ein Atlas von 31 Karten.
- Great Britain—Devon—Rousdon Observatory. Meteorological observations, 1896. London, 1897. 4to. 35 pp.
- Imperial Russian Geographical Society. Annual report. St. Petersburg, 1897. 8vo. (262) pp.
- Italy—Ufficio Centrale Meteorologico e Geodinamico Italiano. Annali dell' Serie Seconda, Vol. XIV, Parte II, 1892, and Vol. XVI, Parte I, 1894. Rome, 1896. F.
- Java—Meteorological and Magnetical Observatory. Wind and weather, currents, tides, and tidal streams of the East Indian Archipelago. By J. P. Van Der Stok. Batavia, 1897. 13 by 23.5 iv, 208 pp. 55 ch.
- Pfannschmidt, Victor. Klimaunterschiede gleicher Breitengrade. Hamburg, 1892. 8vo. 42 pp.
- Servus, Hermann. Neue Grundlagen der Meteorologie. Berlin, 1897. 8vo. 24 pp.
- United States—Department of the Interior, Geological Survey. Water supply and irrigation papers. Washington, 1897. 8vo.
 - No. 2, Irrigation near Phoenix, Ariz., by A. P. Davis.
 - No. 4, A reconnaissance in southeastern Washington, by I. C. Russell.
 - No. 5, Irrigation practice on the Great Plains, by E. B. Cowgill.
 - No. 6, Underground waters of southwestern Kansas, by E. Haworth.
 - No. 7, Seepage water of northern Utah, by S. Fortier.
 - No. 8, Windmills for irrigation, by E. C. Murphy.
 - No. 9, Irrigation near Greeley, Colo., by D. Boyd.
 - No. 11, River heights, 1896, by A. P. Davis.
- United States—Department of Agriculture, Weather Bureau. The equations of hydrodynamics in a form suitable for application to problems connected with the movements of the earth's atmosphere. By Joseph Cottier. Washington, 1897. F. 8 pp. Reprinted from MONTHLY WEATHER REVIEW, July, 1897.

CLIMATOLOGICAL DATA FOR JAMAICA, W. I.

Through the kindness of Mr. Maxwell Hall, of Montego Bay, Jamaica, the meteorological service of that colony has acceded to the request of the Editor for the prompt communication of an abstract of the very interesting climatological

records of that highly important West Indian service. The climatological summary for November, 1897, furnished by Mr. Hall, through his assistant, Mr. Robert Johnstone, of the Meteorological Office, is reproduced in the following table. For descriptive details of the stations and instruments see pages 308 and 356.

Jamaica, W. I., climatological data, November, 1897.

	Morant Point Lighthouse.	Negril Point Lighthouse.	Kingston.	Kings House.	Castleton Gardens.	Hope Gardens.	Stony Hill Reformatory.	Hill Gardens (Cin. Plant.)
Latitude	17° 56'	18° 16'	17° 58'	.....	18° 13'	.....	.....	18° 05'
Longitude	76° 10'	78° 23'	76° 48'	.....	76° 50'	.....	.....	76° 39'
Elevation (feet)	8	33	50	400	580	600	1,400	4,907
Mean barometer { 7 a. m.	29.918	29.925	29.981	.....	29.588	.....	.....	25.355
{ 3 p. m.	29.862	29.861	29.862	.....	29.563	.....	.....	25.331
Mean temperature { 7 a. m.	81.5	75.3	72.7	.....	70.7	.....	.....	60.5
{ 3 p. m.	83.9	83.1	83.8	.....	80.2	.....	.....	65.3
Mean of maxima .....	.....	86.1	86.6	.....	84.3	.....	.....	69.8
Mean of minima .....	.....	71.4	71.2	.....	66.3	.....	.....	57.3
Highest maximum .....	.....	89	90.7	.....	88	.....	.....	75
Lowest minimum .....	.....	67	68.7	.....	62	.....	.....	54
Mean dew-point { 7 a. m. ....	.....	72.1	68.5	.....	68.0	.....	.....	56.3
{ 3 p. m. ....	.....	72.3	71.0	.....	72.4	.....	.....	61.5
Mean relative humidity { 7 a. m. ....	.....	90	87	.....	90	.....	.....	83
{ 3 p. m. ....	.....	71	66	.....	76	.....	.....	85
Monthly rainfall (inches)	4.10	4.32	0.43	.....	12.68	.....	.....	11.09
Average daily wind movement .....	.....	189.0	84.5	.....	.....	.....	.....	30.8
Average wind direction { 7 a. m.	*	ne.	n.	.....	.....	.....	.....	e.
{ 3 p. m.	ne.	var.	var.	.....	.....	.....	.....	se.
Average hourly velocity { 7 a. m. ....	.....	8.1	6.3	1.3	.....	.....	.....	.....
{ 3 p. m. ....	.....	11.0	11.5	3.0	.....	.....	.....	.....
Average cloudiness (tenths):								
7 a. m. { Lower clouds	3.0	0.5	0.1	.....	.....	.....	.....	.....
{ Middle clouds	2.4	1.9	0.1	.....	.....	.....	.....	.....
{ Upper clouds	1.1	4.1	2.8	.....	.....	.....	.....	.....
3 p. m. { Lower clouds	3.0	4.2	1.5	.....	.....	.....	.....	.....
{ Middle clouds	1.4	2.6	1.4	.....	.....	.....	.....	.....
{ Upper clouds	0.9	1.0	2.3	.....	.....	.....	.....	.....

* ne. by n.

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Señor Mariano Bárcena, Director, and Señor José Zendejas, vice-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 *Boletín Mensual*; an abstract translated into English measures is here given in continuation of the similar tables published in the MONTHLY WEATHER REVIEW during 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 November, 1897.

Stations.	Altitude.		Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
	Feet.	Inch.	Max.	Min.	Mean.			Wind.	Cloud.
Artega (Coahuila)...	5,414	86.7	82.0	83.0	0.28				
Barousse (Coahuila)...	1,656	28.28	93.4	57.4	75.9	74	0.05	sw. sw.	
Collma (Sem.).....	6,241	34.10	85.1	28.4	60.6	40	0.98	sw. sw.	
Durango.....	5,994	24.36	79.5	34.9	61.2	49	0.05	s.	
Leon.....	4,948	.....	.....	.....	64.4	.....	.....	T.
Magdalena (Sonora)...	50	29.99	95.0	59.7	75.9	77	4.05	ne. e.	
Merida (Yucatan)...	7,472	23.12	73.8	39.2	57.7	60	0.30	ne. ne.	
Mexico (Obs. Cent.)...	1,626	28.34	91.4	41.0	66.4	63	3.23	e. se.	
Monterey.....	6,401	24.02	78.8	41.7	61.5	64	0.13	ssw w.	
Morelia (Seminario)...	5,164	25.12	84.2	40.6	66.2	60	0.32	ne. ne.	
Oaxaca.....	7,112	28.39	79.5	31.1	63.0	55	0.43	ne. e.	
Puebla (Col. Cat.)....	6,070	24.25	78.4	37.9	61.3	55	0.08	e. n.	
Queretaro.....	5,399	24.93	81.0	41.5	61.2	62	0.08	sw. n.	
Saltillo (Col. S. Juan)...	6,202	24.21	75.6	41.5	59.2	64	0.07	ne. se.	
Silao (Guanajuato)....	6,063	24.35	74.8	46.4	63.3	59	0.01	ene. sw.	
Toluca (Mexico).....	8,612	22.00	.....	.....	55	1.07	.....	ene. ese.
Torreón (Coahuila)...	8,720	83.1	50.2	63.1	.....	0.00	.....	.....
Tuxtla (Chiapas).....	1,864	28.17	92.8	54.7	75.0	71	0.04	nw. nnw.	
Vaqueria (Coahuila)...	.....	85.3	32.0	59.7	.....	0.16	.....	.....
Zacatecas.....	8,015	32.58	77.0	39.0	58.8	57	0.54	e. e.	
Zapotlan (Jalisco)...	5,078	24.99	81.7	47.1	67.6	53	0.29	se. sw.	

BRIGHT METEOR.

By H. A. HAZEN.

On November 3, 1897, at 21:15 (9:15 p. m.) eastern standard time, a very brilliant meteor (nearly half the apparent diameter of the moon) was seen in Washington, D. C., due west from the corner of Massachusetts avenue and Tenth street NW. Its course was vertically downward for about 12°, disappearing at 15° above the horizon. The path at first was narrow, then came a series of dashes, followed by a continuous streak, constantly increasing in brilliancy till it flashed out extremely bright and whitish, when it instantly disappeared. The point of greatest brightness and disappearance formed the lowest apex of an almost equilateral triangle with Vega, Alpha Lyræ, and Altair, Alpha Aquilæ, though a little nearer the latter.

MILTON G. RENOE.

Milton G. Renoe was born at Manassas, Va., and was educated at Brentsville Academy near Manassas and subsequently at the University of Virginia at Charlottesville. Before entering the Weather Service he was a teacher in the public schools. He enlisted in the Signal Service (now Weather Bureau) on May 23, 1889; was promoted to 1st class private June 10, 1890; in July, 1891, he (with others) was transferred to the position of Observer, Weather Bureau, by virtue of the act transferring the Weather Service from the War Department to the Department of Agriculture. Shortly after July, 1896, he was again promoted and assigned to duty as official in charge of the station at Cheyenne, Wyo., as well as Director of the Wyoming Section of the Climate and Crop Service. Prior to his assignment as official in charge at Cheyenne, he had served as assistant at the following named stations: Baltimore, Albany, Savannah, and Philadelphia. He was an especially careful and painstaking person, and during his connection with the service was five times commended for accuracy in his meteorological work. He died at Cheyenne on the evening of December 16, 1897, at the age of 35. His services in the Weather Bureau distinguished him as a highly valued employee.

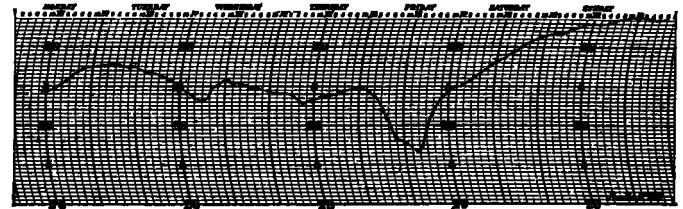
A WINTER BAROGRAPH CURVE FROM THE SOUTH PACIFIC OCEAN.

By ROBERT DE C. WARD (dated Harvard College Observatory, Southern Station, Arequipa, Peru, S. A., October 1, 1897).

Barograph curves from the southern oceans are comparatively so rare that they possess a considerable degree of interest under any circumstances. That interest naturally

increases if the record represents the pressure conditions registered during a particularly stormy period, and which are remarkable by reason of their sudden changes or other peculiarities. The accompanying plate is a reproduction of a barograph curve obtained during a winter voyage recently made by the writer through the Strait of Magellan and up the west coast of South America as far as Corral, Chile (latitude 39° 52' S.; longitude 73° 17' W.). The instrument, a small sized Richard Freres barograph, was hung by a spiral spring from the ceiling of the stateroom, and was prevented from excessive swinging during rough weather by three cords tied to the handle of the instrument and made fast to hooks fixed at convenient distance in the walls. This method of swinging the barograph was found to answer very well, and a continuous series of excellent curves was obtained on the writer's whole voyage from New York to Peru, by way of Rio de Janeiro, Montevideo, the Falkland Islands, and the Strait of Magellan.

The sheet here reproduced was put on the barograph at noon on Monday, August 2, 1897, when the steamer (the *Luzor*, of the Kosmos Line) was in the Strait of Magellan about 20 miles east of Punta Arenas, and it was removed at 8.15 a. m. on Monday, August 9, when the ship was at anchor in the harbor of Corral. The greater part of the week was exceptionally stormy and the pressure curve is so striking that the writer has thought it might interest the readers of the MONTHLY WEATHER REVIEW to see a reproduction of it.



Tracing from the Richard barograph for the week from Monday, noon, August 2, to Monday, 8 a. m., August 9, 1897, on the steamship *Luzor*, between Punta Arenas and Corral, Chili.

The following record of the weather experienced during the week in question, although unfortunately very incomplete as regards instrumental data, may be sufficiently full to enable those who care to do so to examine the barograph trace intelligently.

Monday, August 2.—The morning was stormy, with frequent snow and rain squalls, wind west-northwest, the velocity reaching 35 miles an hour during some of the squalls. At 8.30 a. m. the temperature was 38° and the sky was nearly overcast with nimbus clouds. About noon (temperature 42.1°, clouds strato-cumulus, $\frac{5}{6}$) the wind changed to the south, with a velocity of 45 miles, and the sky cleared rapidly. The barometer, it will be noted, rose during the afternoon and evening, and until about 5 a. m. on August 3. The wind died down toward sunset, and the early part of the evening was clear and calm. At 10.15 p. m. the ship left Punta Arenas for the west, the weather being fine and the wind southwest, force 3.

(It should be noted that the irregularity in the pressure curve shortly after 9 p. m. was due to an accidental jarring of the instrument.)

Tuesday, August 3.—At 4 a. m. the wind was west, force 3, and it blew steadily from west-northwest, force 4 to 7, from shortly after 4 a. m. until about 4 p. m. The force increased during the day, and after 3 p. m. was between 7 and 9. Frequent rain or snow squalls continued all day and night. At 8 a. m. the temperature was 43.2°; wind velocity 25 miles an hour; clouds, nimbus 10. At noon the temperature was 45°, and the velocity of the wind 30 miles. As the wind was in-