MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Señor Manuel E. Pastrana, Director of the Central Meteorologic-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 March, 1900.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
	Feet.	*Inch.*	° *F.*	° *F.*	° *F.*	%	*Inch.*		
Culiacán Rosales (Sinaloa)	112	29.74	90.5	61.7	74.5	58	0.99	n. e.	.....
Durango (Seminario)	6,243	24.01	82.4	36.0	59.5	52	1.40	sw.	w.
Leon (Guanajuato)	5,934	24.28	83.1	41.2	62.1	47	0.74	ssw.	sw.
Merida	50	29.94	102.6	54.0	77.2	59	1.65	se.	n.
Mexico (Obs. Cent.)	7,472	23.04	78.8	39.6	60.6	45	0.63	nw.	sw.
Morelia (Seminario)	6,401	23.96	78.1	43.7	61.5	55	1.17	s.	wsw.
Puebla (Col. Cat.)	7,112	23.36	78.4	41.0	63.5	49	0.01	e.	sw.
Puebla (Col. d. Est.)	7,118	23.33	79.7	41.2	62.2	48	0.06	ene.	sw.
Queretaro	6,070	24.19	80.2	44.1	61.9	52	1.31	e.	w.
Saltillo (Col. S. Juan)	5,399	24.74	78.8	37.2	59.4	69	2.65	s.	sw.
San Isidro (Hac. de Guanajuato)	.....	.....	73.4	55.4	.....	.....	1.29	w.	.....
Silao	6,063	24.26	78.4	48.4	64.8	52	0.84	se.	w.
Zacatecas	8,015	22.50	77.0	35.6	53.8	52	2.41	sw.	e., se.

RECENT PAPERS BEARING ON METEOROLOGY.

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

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received 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:

La Nature. Paris. 28*me Année.*
L. D. La périodicité dans les phénomènes météorologiques. P. 275.
Archives des Sciences Physiques et Naturelles. Genève. 4 *Période. Tome* 9.
Gautier, R. Observations météorologiques faites aux fortifications de Saint-Maurice pendant l'année 1898, résumé. P. 209.
Das Wetter. Berlin. 17 *Jahrg.*
Meinardus, W. Ueber die Methoden der maritimen Klimatologie. (Schluss). P. 49.
Assmann, R. Die Sonnenstrahlung. P. 54.
Petermann's Mitteilungen. Gotha. 46 *Band.*
Stahl, A. F. Teheran und Umgegend, Klima. P. 51.
La Nature. Paris. 28*me Année.*
Plumandon, J. R. L'évolution des cumulus. P. 297.
L'Aerophile. Paris. 8*me Année.*
B. P. Notice sur la télégraphie sans fil au moyen des ondes Hertziennes. P. 33.
Gaea. Leipzig. 36 *Jahrg.*
Klein, H. J. Wetterprognosen auf mehrere Tage und die täglichen Wetterkarten. P. 257.
Ciel et Terre. Bruxelles. 21*me Année.*
Rocquigny, G. de. Les orages en février dans le centre de la France. P. 66.
Sitzungsberichte der kaiserlichen Akademie der Wissenschaften. Berlin. Band. 16.
Ladenburg, A. and Krugel, C. Uber das Krypton. P. 212.
Aeronautical Journal. London. Vol. 4.
—— Lord Rayleigh on "Flight." P. 113.
Smyth, D. M. B. A Theory of Flight. P. 120.
Journal de Physique. Paris. 3me série. Tome 9.
Sagnac, G. Théorie nouvelle de la transmission de la lumière dans les milieux en repos ou en mouvement. P. 177.

Meteorologische Zeitschrift. Wien. Band 17.
Bjerknes, V. Das dynamische Princip der Cirkulationsbewegungen in der Atmosphäre. P. 97.
Bergholz, P. Die Ergebnisse der Beobachtungen der Wolken in Manila in dem internationalen Wolkenjahre. P. 106.
Woeikof, A. Mitteltemperaturen von Ostsibirien. P. 116.
—— Ueber das Hagelschiessen. P. 125.
Polis, P. Ergebnisse der Beobachtungen von Feuchtigkeit und Bewölkung zu Aachen 1873–1897. P. 128.
Trabert, Wilh. Nachträgliche Bemerkung zu dem Referate über die Versuche von Pellat. P. 129.
MacDowall, Alex. B. Gibt es eine zehnjährige Wetterperiode? P. 130.
—— Die Kanonen von Barisal. P. 131.
Hann, J. Resultate der meteorologischen Beobachtungen in British-Nordamerika im Jahre 1898. P. 132.
—— Meteorologische Beobachtungen in Deutsch-Neu Guinea. P. 133.
—— Charles Rabot über Gletscherschwankungen in den arktischen und hochnordischen Gegenden überhaupt. P. 135.
Gruhn, —. Dauer des Sonnenscheins in Meldorf, verglichen mit Hamburg. P. 135.
Hellmann, G. Ueber die Auswerthung der Aufzeichnungen selbstregistrirender Regenmesser.
—— Temperaturmittel für Süd-Afrika. P. 137.
—— Zum Klima des arktischen Nordamerika. P. 139.
—— Hörbarkeit des Schalles in der Luft. P. 139.
Nature. London. Vol. 61.
Aitken, John. Atmospheric Electricity. P. 514.

A PARTIAL EXPLANATION OF SOME OF THE PRINCIPAL OCEAN TIDES.[1]

By R. A. HARRIS, of the United States Coast and Geodetic Survey.

The object of this paper is to state in as brief a manner as possible some of the conclusions reached by the writer respecting the causes of the tides. Owing to the omission of details, the treatment here given will necessarily be very incomplete. The original paper, now in preparation, from which the matter for the present one is abstracted, will appear as an appendix to the Report of the United States Coast and Geodetic Survey for the year 1899–1900.

In approaching the question of the actual causes of the tides, upon which so much labor has been expended and concerning which so much has been written, one may well surmise that the subject does not admit of accurate or complete treatment. It is therefore natural to consider, in the first place, only those sources which would seem to account for the dominant tides in any given region under consideration, and to postpone, perhaps indefinitely, the consideration of those sources whose importance in the production of tides must be relatively small. Considering the actual distribution of land and water, a few computations upon hypothetical cases will suffice to convince one that as a rule the ocean tides, as we know them, are so great that they can be produced only by successive actions of the tidal forces upon oscillating systems each having, as free period, approximately the period of the forces, and each perfect enough to preserve the general character of its motion during several such periods were the forces to cease their action. This greatly simplifies matters. For, having once for all constructed a set of force diagrams for the various latitudes, we have only to discover those regions which have a free period of oscillation about equal to the period of the forces, and to then ascertain at what time the particles should be at elongation in their nearly rectilinear paths. The paths of the particles being practically fixed and determined by the boundary conditions, it becomes possible to disregard the forces arising from the earth's rotation and which vary with the component velocities of the moving particles.

Since some of the natural boundaries of any oceanic region may be indefinite, imperfect, or altogether wanting, serious

[1] Read before the National Academy of Sciences, April 19, 1900.