higher than the normal in 1897; the deviations in the month of May reached 8° to 11° C. at St. Petersburg; the monthly mean being the highest that had been observed in one hundred and fifty years; it was the same case at Archangel, according to a series of observations for eighty years. On the other hand, the spring and the beginning of the summer of 1899 were, in the northwest portions of Russia, much colder than usual; in the month of May there were days having a deviation of from 5° to 8° C., and the temperature was below the normal during twenty-one *consecutive* days.

From these results it may be concluded that Lake Ladoga, which undoubtedly belongs to the type of temperate lakes, according to the classification of Prof. F. A. Forel, is placed in this series very near to the line which separates this type from that of the polar lakes, which always have an inverse thermic stratification.

The stratum where the thermic fall is due to the diurnal variation of the temperature of the shallow strata is produced was lower down in 1897 than in 1899. This is well explained by the fact that in 1897 the entire mass of the water of the lake was much warmer than in 1899.

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 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:

Annales de Chimie et de Physique. Paris. 7me séries. Tome 22.
Violle, J. Rapport sur la radiation, présenté au comité météorologique international, à Saint-Pétersbourg, en 1899. Pp. 329–370.

Gaea. Leipzig. 37 *Jahrg.*
Wollny, E. Ueber den Einfluss der Pflanzendecken auf die Wasserführung der Flüsse. (Schluss). Pp. 220–223.
Klein, H. J. Strenge Winter. Pp. 223–233.

Annalen der Physik. Leipzig. Vierte folge. Band 4.
Pockels, F. Zur Theorie der Niederschlagsbildung an Gebirgen. Pp. 459–480.

Himmel und Erde. Berlin. 13 *Jahrg.*
Assmann, R. Die modernen Methoden zur Erforschung der Atmosphäre mittels des Luftballons und Drachen. (Schluss folgt). Pp. 241–260.

Nature. London. Vol. 63.
—— Red Rain. Pp. 471–472
Pellew, E. Variations of Atmospheric Electricity. P. 491.

Symon's Meteorological Magazine. London. Vol. 36.
Curtis, R. H. Pressure of the Wind. (Concluded). Pp 17–19.

American Journal of Science. New Haven. 4th series. Vol. 11.
Penfield, S. L. Stereographic Projection and its Possibilities from a Graphical Standpoint. Pp. 1–24, 115–144.
Bigelow, Frank H. The Magnetic Theory of the Solar Corona. Pp. 253–262.

Popular Science Monthly. New York. Vol 58.
Dexter, E. G. Suicide and the Weather. Pp. 604–617.
Cochrane, C. H. Recent Progress in Aerial Navigation. Pp. 616–624.

Astrophysical Journal. Chicago. Vol. 13.
Nichols, E. F. On the Heat Radiation of Arcturus, Vega, Jupiter, and Saturn. Pp. 101–141.

Annales de Géographie. Paris. 1901.
Woeikof, A. De l'influence de l'homme sur la terre. (Premier article). P. 97–114.

Zeitschrift für Gewässerkunde. Leipzig. Band 3.
Wollny, E. Ueber den Einfluss der Pflanzendecken auf die Wasserführung der Flüsse. Pp. 345–362.

Comptes Rendus. Paris. Tome 132.
Arctowski, Henry. Sur les périodes de l'aurore australes. Pp. 651–654.

La Nature. Paris. 29me année.
Plumandon, J. R. Le tir au canon contre la grêle. Pp. 266–267.

Meteorologische Zeitschrift. Band 18. *Wien.*
Mohn, H. Einige Bemerkungen über die Schwerekorrektionen der Barometerhöhen. P. 49–53.
Woeikof, A. Platzregen und grosse tägliche Regenmengen. Pp. 53–75.
Schreiber, —. Beiträge zur Hagelthеorie. Pp. 58–70.
—— Vorläufige Mittheilung über die internationale Ballonfahrt vom 8 November, 1900. P. 71.
—— Vorläufige Mittheilung über die internationale Ballonfahrt vom 10 Januar, 1901. P. 71.
Valentin, J. Temperatur-Beobachtungen der österreichischen Ballons bei der internationalen Fahrt vom 8 November, 1900. P. 72.
Hann, J. Klima der Westküste von Marokko, Mogador. P. 76.
Lachmann, G. Ueber eine merkwürdige Blitzform. P. 80.
Kassner, C. Bequeme Berechnung der Koëfficienten der Bessel'schen Formel. P. 81.
Kassner, C. Eine Analogie der irisirenden Wolken.. P. 82.
—— Resultate der meteorologischen Beobachtungen in Belle Isle (Neufundland). P. 83.
—— Zum Klima von Syra. P. 83.
—— Versuche über den Verlust der Ladung elektrischer Flüssigkeiten durch Verdämpfung. P. 84.
Elster, J. Messungen der elektrischen Zerstreuung in der freien atmosphärischen Luft an geographisch weit von einander entfernt liegenden Orten. P. 85.
Wedell-Wedellsborg, P. S. Notiz über die Ursachen der säkulären Variationen des Erdmagnetismus. P. 88.
Halm, J. Breitenvariation, Erdmagnetismus und Sonnenthätigkeit. P. 89.
Taudin-Cabot, J. J. Grüstrahlung. P. 90.
—— Zum Klima des arktischen Nordamerika. P. 90.
Mac Dowall, Al. B. Säkulare Schwankung? P. 92.
Chistoni, C. Ueber den Regenfall in Modena 1830–1896. P. 93.
Prohaska, K. Feuerkugel in Pöllau, Steiermark.
Hepites, Stefan. Ausserordentlicher Regenfall in Rumänien. P. 94.
—— Druckfehler-Berichtigungen. P. 95.

CLIMATOLOGY OF COSTA RICA.

Communicated by H. PITTIER, Director, Physical Geographic Institute.

TABLE 1.—*Hourly observations at the Observatory, San Jose de Costa Rica, during February*, 1901.

Hours.	Pressure.		Temperature.		Relative humidity.		Rainfall.		
	Observed, 1901.	Normal, 1889–1900.	Observed, 1901.	Normal, 1889–1900.	Observed, 1901.	Normal, 1889–1900.	Observed, 1901.	Normal, 1889–1900.	Duration, 1901.
	660+ *Mm.*	660+ *Mm.*	° *C.*	° *C.*	%	%	*Mm.*	*Mm.*	*Hrs.*
1 a. m.	4.75	4.02	16 82	16.31	78	83	0.0	0 0	0.00
2 a. m.	4.37	3.56	16.31	16.05	81	84	0.0	0.0	0.00
3 a. m.	4.15	3.35	16.04	15.81	81	84	0 0	0.0	0.00
4 a. m.	4.17	3.31	16.17	15.67	80	84	0.0	0.1	0.00
5 a. m.	4.34	3.55	16.00	15.56	80	84	0.0	0.0	0.00
6 a. m.	4.74	3.94	15.51	15.43	84	84	0.0	0.1	0.00
7 a. m.	5.04	4.34	16.26	16.11	80	82	0.0	0.0	0.00
8 a. m.	5.30	4.67	18.65	18. 8	66	74	0.0	0.0	0.00
9 a. m.	5.62	4.90	21.18	20.45	57	66	0.0	0.0	0.00
10 a. m.	5.72	4 90	23.41	22.70	53	60	0.0	0.0	0.00
11 a. m.	5.42	4.53	24.94	23.89	49	57	0.0	0.0	0.00
12 m.	4.90	4.08	26.01	24.79	46	55	0.0	0.0	0.00
1 p. m.	4.21	3.57	26.27	25.18	48	54	1.0	0.0	0.33
2 p. m.	3.61	3 01	25.84	24 96	49	55	0.2	0.0	0.33
3 p. m.	3.36	2.58	24.86	24.24	54	58	0.0	0.1	0.00
4 p. m.	3.37	2.58	23.29	22.77	59	60	0.0	0.1	0.00
5 p. m.	3.58	2.76	21.16	21.16	66	68	4.3	0.1	0 67
6 p. m.	3.97	3.13	19.56	19.49	72	74	3.0	0.0	1.00
7 p. m.	4.46	3.65	18.76	18.35	76	79	0.1	0.1	0.08
8 p. m.	4.85	4.10	18 28	17.90	76	80	0.0	0.1	0.06
9 p. m.	5.24	4.44	17.91	17.46	77	81	0.0	0.7	0.00
10 p. m.	5.42	4.63	17.56	17.12	76	82	0.0	0.1	0.00
11 p. m.	5.44	4.61	17.38	16.74	77	83	0.0	0.0	0.00
Midnight	5.19	4.36	16.93	16.51	79	84	0.0	0.0	0.00
Mean	664.63	663.86	19.80	19.27	69	73	.....	.....	.....
Minimum	661.70	659.35	12.30	8.20	25	.....	.....	.....	.....
Maximum	667.70	667.72	31.60	32.00	98	.....	4 3	.....	.....
Total	.....	.....	.....	.....	.....	.....	8.6	1.5	2.41

REMARKS.—The barometer is 1,169 meters above sea level. Readings are corrected for gravity, temperature, and instrumental error. The dry and wet bulb thermometers are 1.5 meters above ground and corrected for instrumental errors. The hourly readings for pressure, wet and dry bulb thermometers, are obtained by means of Richard registering instruments, checked by direct observations every three hours from 7 a. m. to 10 p. m. The hourly rainfall is as given by Hottinger's self-register, checked once a day. The standard rain gage is 1.5 meters above ground.