BIBLIOGRAPHY

C. FITZHUGH TALMAN, in Charge of Library

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

Bartels, J.
Gezeitenschwingungen der Atmosphäre. Leipzig. 1928. p. 163–210. figs. 24½ cm. (Sonderdr.: Handb. der experimentalphysik, Bd. 25, 1. Teil.)

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Climatic averages for Cristobal-Colon. Averages from 20 years weather records. Cristobal. 1928. 10 p. 30½ cm. [Manifolded.]

Chernyshoff, M. J.
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Fjeldstad, Jonas Ekman.
Contribution to the dynamics of free progressive tidal waves. Bergen. 1929. 80 p. 31 cm. (Norwegian north polar exped. with the "Maud" 1918–1925, sci. results, v. 4, no. 3.)

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Die Trockengebiete Europas und deren Ursachen. p. 353–358. 26 cm. (Sonderab.: Ztschr. Gesellsch. für Erdkunde zu Berlin. Jahrg. 1928, Nr. 9/10.)

Knoche, Walter.
Karten der Januar- und Juli-Bewölkung in Chile. p. 220–224. chart. 26 cm. (Sonderab.: Ztschr. Gesellsch. für Erdk. zu Berlin. Jahrg. 1927, Nr. 4.)

Ortiz, Oscar Rivery.
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Osaka. Meteorological observatory.
Normal report of meteorological observation in Osaka for the forty-three years from 1883 to 1926. pt. 1. Osaka. 1926. 175 p. 26½ cm.

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Die Ursachen der Eiszeit. Berlin. n. d. p. 76–85. 26 cm. (Sitzungsber. preuss. Akad. der Wissensch. 1928. VI. Sitzung phys.-math. Kl. 23. Feb. Mitt. vom 3. Feb. 1927.)

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Polis, P.
Niederschlagskarte des Rheinstromgebietes. Leipzig. 1928. 48 p. 26 cm. (Erläuternder Text.) (Veröffent. met. Observ. Aachen.)
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Sedlmeyer, Karl Ad.
Charakteristiken der Temperatur der Luft und der Meeresoberfläche an der niederländischen Küste. Prag. 1928. p. 223–234. 23 cm. (Arbeiten des geogr. Institutes der deut. Univ. zu Prag. Neue Folge. 6. Heft.)

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Les traversées et tentatives de traversées aériennes de l'Atlantique nord en 1927 au point de vue météorologique. Paris. 1928. 235 p. illus. 33 cm. (Mém. de l'Off. nat. mét. de France. No. 19.)

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SOLAR OBSERVATIONS

SOLAR RADIATION MEASUREMENTS, JUNE, 1929

By HERBERT H. KIMBALL

For reference to descriptions of instruments and exposures, and an account of the method of obtaining and reducing the measurements, the reader is referred to this volume of the REVIEW, page 26.

Table 1 shows that solar radiation intensities averaged slightly below normal values for June at all three stations at which measurements are made.

Table 2 shows an excess in the total radiation received on a horizontal surface at Washington, as compared with the June normal for that station, is close to normal at Madison and Lincoln, and is deficient at Chicago and New York.

Skylight polarization measurements obtained on three days at Washington give a mean of 46 per cent with a maximum of 50 per cent on the 13th. These are close to the corresponding averages for June at Washington. At Madison measurements obtained on six days give a mean of 56 per cent, with a maximum of 61 per cent on the 19th and 29th. These are slightly below the corresponding averages for June at Madison.

TABLE 1.—*Solar radiation intensities during June, 1929*

[Gram-calories per minute per square centimeter of normal surface]

Washington, D. C.

Date	Sun's zenith distance										
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon
	75th mer. time	Air mass									Local mean solar time
		A. M.					P. M.				
	e.	5.0	4.0	3.0	2.0	[1] 1.0	2.0	3.0	4.0	5.0	e.
	mm.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
June 4	6.27	0.60	0.72	0.87	1.06	1.31					5.36
June 11	9.14			0.59	0.86	1.12	0.63				8.81
June 12	11.38			0.38	0.60	1.12					12.68
June 13	15.11		0.70	0.87	1.03	1.26					13.13
June 14	14.60					1.17					17.37
June 17	16.20					1.15					14.10
June 18	16.20			0.76	0.94	1.15					14.60
June 19	15.65				0.76						17.37
Means		(0.60)	(0.71)	0.69	0.88	1.18	(0.63)				
Departures		+0.03	+0.05	−0.06	−0.03	−0.04	−0.28				

Madison, Wis.

June 5	7.29					1.36					7.57
June 8	4.75				0.89						7.87
June 15	10.97				1.01	1.27					12.24
June 19	14.60				1.13	1.39					11.38
June 20	12.68					1.41					8.81
June 21	8.81			0.87							7.29
June 25	9.14		0.75	0.92	1.06	1.31					7.57
June 26	10.21			0.98	1.12	1.38					9.83
June 28	9.83			0.81							10.59
June 29	12.24			0.94	1.07						11.38
Means			(0.75)	0.90	1.05	1.35					
Departures			−0.12	−0.06	−0.05	+0.02					

Lincoln, Nebr.

June 9	13.61		0.49	0.63	0.78	1.07					13.59
June 11	17.37		0.62	0.76	0.98	1.21					19.23
June 13	8.48		0.67	0.85	1.07	1.35	1.14	0.88	0.72		7.57
June 14	9.47		0.72	0.89	1.11	1.39					9.47
June 15	12.68		0.62	0.77	0.93	1.11					10.59
June 19	11.38		0.77	0.94	1.14	1.39	1.01				8.18
June 20	8.18						1.19	1.05	0.88		6.27
June 21	8.81			0.90	1.12	1.40					8.48
June 25	10.21		0.69	0.85	1.07	1.38					8.18
June 28	9.47		0.94	1.03	1.24	1.42	1.07	0.91	0.73		9.47
Means			0.69	0.85	1.05	1.30	1.10	0.95	0.78		
Departures			−0.08	−0.08	−0.05	−0.05	±0.00	+0.04	−0.01		

[1] Extrapolated.

TABLE 2.—*Solar and sky radiation received on a horizontal surface*

[Gram-calories per square centimeter of horizontal surface]

Week beginning—	Average daily radiation							Average daily departure from normal				
	Washington	Madison	Lincoln	Chicago	New York	Twin Falls	Fresno	Washington	Madison	Lincoln	Chicago	New York
1929	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
June 4	542	584	423	491	404	556	627	+56	+67	−105	+70	−8
June 11	634	384	576	276	398	695	673	+132	−115	+40	−136	−10
June 18	518	539	616	410	382	887	762	+46	+19	+56	−4	−17
June 25	460	542	607	346	313	802	726	−52	+2	+19	−96	−88
Excess or deficiency since first on year on July 1								+609	−1,246	−628	−133	−3,388

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. C. S. Freeman, Superintendent U. S. Naval Observatory. Data furnished by Naval Observatory, in cooperation with Harvard, Yerkes, and Mount Wilson observatories. The differences of longitude are measured from central meridian, positive west. The north latitudes are plus. Areas are corrected for foreshortening and are expressed in millionths of sun's visible hemisphere. The total area, including spots and groups, is given for each day in the last column]

Date	Eastern standard civil time	Heliographic			Area		Total area for each day
		Diff. long.	Longitude	Latitude	Spot	Group	
1929	*H. m.*	°	°	°			
June 1 (Naval Observatory).	10 52	−62.0	16.6	+13.5		46	
		+21.0	99.6	+17.5		22	
		+58.5	137.1	+14.5	417		485
June 2 (Naval Observatory).	12 28	−46.0	18.5	+13.5	15		
		−39.5	25.0	−19.0		77	
		+72.0	136.5	+14.5	432		524
June 3 (Naval Observatory).	11 44	−84.5	327.1	−9.5	123		
		−35.5	16.1	−15.5	6		
		−33.0	18.6	+13.5	22		
		−25.0	26.6	−16.0	12		
		+17.5	69.1	+11.0	9		
		+23.5	75.1	−16.5	6		
		+85.0	136.6	+14.0	463		641
June 4 (Naval Observatory).	11 36	−78.0	320.5	+5.5		216	
		−69.0	329.5	−8.5		139	
		−20.0	18.5	+13.5	15		
		+32.0	70.5	+10.5		25	
		+38.0	76.5	−17.0	9		404
June 5 (Naval Observatory).	11 10	−68.5	317.0	+6.5		262	
		−55.5	330.0	−9.0		185	
		−6.5	19.0	+13.0	9		
		+50.0	75.5	−17.5		123	579
June 6 (Naval Observatory).	11 21	−78.0	294.1	−18.5	123		
		−55.0	317.1	+6.0		201	
		−42.5	329.6	−9.0		216	
		+18.0	30.1	−10.0	9		
		+65.0	77.1	−17.5		231	780
June 7 (Naval Observatory).	11 25	−68.5	290.4	+24.5	15		
		−64.5	294.4	−18.5	93		
		−40.5	318.4	+6.0		139	
		−28.5	330.4	−9.0		262	
		+32.5	31.4	−11.0	3		
		+77.0	75.9	−17.5		340	852
June 8 (Harvard)	12 42	−50.5	293.0	−18.5		148	
		−24.5	319.0	+7.0	166		
		−13.0	330.5	−8.5	466		780
June 9 (Naval Observatory).	14 33	−36.5	294.2	−19.0	93		
		−12.5	318.2	+5.5		108	
		0.0	330.7	−9.5		355	556
June 10 (Naval Observatory).	11 21	−30.0	289.2	−7.0		15	
		−25.5	293.7	−18.5	108		
		+0.5	319.7	+6.5		123	
		+13.0	332.2	−8.5		293	539
June 11 (Naval Observatory).	11 21	−78.0	228.0	−11.0	77		
		−75.0	231.0	+13.0	108		
		−45.5	260.5	−4.0		56	
		−11.5	294.5	−19.0	93		
		+2.5	308.5	+9.5		31	
		+14.0	320.0	+6.5		80	
		+25.5	331.5	−8.5		309	754
June 12 (Naval Observatory).	11 26	−64.5	228.2	−11.5		93	
		−62.0	230.7	+13.5	108		
		−32.0	260.7	−4.5		93	
		−5.0	287.7	−7.0		77	
		+1.0	293.7	−19.0	86		
		+27.0	319.7	+7.0		77	
		+39.5	332.2	−8.0		324	858
June 13 (Naval Observatory).	11 30	−82.0	197.4	−17.0	201		
		−51.5	227.9	−11.0	62		
		−48.0	231.4	+13.5	77		
		+10.0	289.4	−6.0	31		
		+14.5	293.9	−19.5	77		
		+38.0	317.4	+9.5		46	
		+39.0	318.4	+7.0	62		
		+54.0	333.4	−8.5		293	849
June 14 (Naval Observatory).	11 23	−68.5	197.7	−16.5	139		
		−38.5	227.7	−11.0	62		
		−35.0	231.2	+13.5	62		
		+23.0	289.2	−7.5		62	
		+28.0	294.2	−19.5	46		
		+52.5	318.7	+7.0	62		
		+52.5	318.7	+9.5		37	
		+65.0	331.2	−8.5		247	717