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:

Banerji, B. N.
Meteorology of the Persian Gulf and Mekran. Calcutta. 1931. 65 p. plates. 24½ cm.

Braun, Gustav.
Grundzüge der Physiogeographie. Mit Benutzung von W. M. Davis, Physical geography und der deutschen Ausgaben. Zum Gebrauch beim Studium und auf Exkursionen ... 3e Aufl. Leipzig. 1930. Band 1. Spezielle Physiogeographie. Band 2. Allgemeine vergleichende Physiogeographie. illus. 20½ cm.

Dudley, Jane, *comp.*
Winter crystals and other marvels ... Whitinsville. [c1929.] 127 p. illus. 19½ cm.

Evgenov, N.
Les resultats des observations aérologiques reçues par les levers de cerfs-volants sur le navire hy drographique "Taimyr," faites en 1913–1915. Leningrad. 1931. 45 p. illus. 25 cm. (Observ. hydro-mét. des expéd. hydrog. Mat. de l'Expéd. hydrog. de l'océan glacial du Nord 1910–15.) [Author and title in Russian and French. Text in Russian.]

Gherardelli, L.
Il dominio glaciale nella valle d'Aosta e sua influenza sul regime dei deflussi. Indagini preliminari. Roma. 1931. 15 p. figs. plates (fold.) 26½ cm. (Uff. idrog. del Po. Pubb. N. 10. Fasc. 5°.)

Giandotti, Mario.
La magra eccezionale nal bacino Padano dell'anno 1922 e la grande piena del Po dell'anno 1926. Roma. 1931. 113 p. fig. plates (part fold.) 32 cm. (Uff. idrog. del Po. Parma.)

[Great Britain] Meteorological office.
Fishery barograph. A note on the use of the barograph in anticipating gales, and instructions for the care and maintenance of barographs lent to fishing communities. London. 1931. 9 p. fig. plate. 24½ cm. (M. O. 333.)
Gazetteer of British meteorological stations used in the preparation of synoptic reports. London. 1931. unp. illus. 23 cm. (M. O. 319.)
Meteorological services for aviation. p. 41–50. fig. plates. 25 cm. (Reprint of chapter III. of the "Air Pilot.") (Form 2456. Revised July, 1929.)

International commission for the exploration of the upper air.
Procès-verbaux des séances de la réunion de la Commission internationale pour l'exploration de la haute atmosphère, tenue à Madrid mars 1931. (Edition ruéliminaire.) 33 p. 24½ cm.

International geodetic and geophysical union. *Section scientific hydrology.*
Note e comunicazioni della sezione nazionale italiana. Venezia. 1931. 55 p. figs. plates (fold.) 30½ cm. (Bulletin no. 16.)
Notes et comunications. Venezia. 1931. 44 p. plates. 30½ cm. (Bulletin N. 17.)

McEwen, George Francis.
Mathematical theory of the vertical distribution of temperature and salinity in water under the action of radiation, conduction, evaporation, and mixing due to the resulting convection. Derivation of a general theory, and illustrative numerical applications to a tank, a lake, and a region of the North Pacific Ocean. Berkeley. 1929. p. 199–306. figs. plates. 27½ cm. (Bull. Scripps inst. ocean., Tech. ser. v. 2, no. 6.)

Michigan University. *Greenland expeditions, 1926–1931.*
Reports of the Greenland expeditions of the University of Michigan (1926–1931) William Herbert Hobbs, director ... Ann Arbor. 1931. pt. 1. Aërology, expeditions of 1926 and 1927–1929, S. P. Fergusson, editor. front. illus. plates. tables. diagrs. 28 cm.

Mörikofer, W.
Anregungen zur Frage der Dosierung bei Sonnenbestrahlungskuren. p. 682–689. figs. 24½ cm. (Strahlentherapie. 40. Bd. (1931).)
Die Forschungsstation auf dem Jungfraujoch (3457 m.). Wien. 1931. 8 p. figs. plate (col.). 28 cm. (Sonderab.: Jahresber. Sonnblick-Ver. 39. 1930.)

Palumbo, Luisa.
Eliofania e nebulosità. Subiaco. n. d. 11 p. figs. 26 cm. (Estr.: Met. prat. Anno 12, N. 2. 1931. IX.)

Potter, Leslie S.
Navigation of the air and meteorology. New York. 1931. xvii, 233 p. front. maps. diagrs. 22½ cm. "First edition."

Tsukuda, K.
On the mean atmospheric pressure, cloudiness and sea surface temperature of the North Pacific Ocean. Kobe. 1930. p. 163–201. plates. 26 cm. (Repr.: Mem. Imp. mar. observ. v. 2, No. 4.)

Ward, Robert LeC.
Railroads versus the weather, p. 137–166. 25½ cm. (Repr.: Proc. Amer. phil. soc., v. 70, no. 2, 1931.)

Zi-ka-wei. Observatory.
Observatory of Zi-ka-wei. [Paris.] n. d. unp. illus. 28½ cm.

SOLAR OBSERVATIONS

SOLAR RADIATION MEASUREMENTS DURING AUGUST, 1931

By HERBERT H. KIMBALL, In Charge Solar Radiation Investigations

For a description of instruments employed and their exposures, the reader is referred to the January, 1931, REVIEW, page 41.

Table 1 shows that solar radiation intensities at Washington averaged below the normal values for August, and that at Madison and Lincoln they were above the normal.

Table 2 shows an excess in the total solar radiation received on a horizontal surface at Lincoln and Chicago, close to the August average at Madison, New York, and Fresno, and a deficiency at Washington, Pittsburgh, Twin Falls, and La Jolla.

Skylight polarization measurements made on 2 days at Washington gave 54 for the percentage of polarization, which is slightly below the August average. At Madison, polarization measurements made on 6 days give a mean of 62 per cent with a maximum of 70 per cent on the 11th, which are close to the corresponding averages for Madison in August.

A CHANGE IN WEEKLY AVERAGES FOR DAILY TOTALS OF SOLAR RADIATION AT FRESNO, CALIF.

Difficulty was experienced in standardizing the Moll pyrheliometer recording on an Engelhard microammeter at the time it was installed at Fresno, Calif., in October, 1928. In July, 1931, this pyrheilometer was received back at the central office in Washington, exposed beside an Eppley thermoelectric pyrheliometer, and the records from the two compared. The results show that the reduction factor determined at Fresno in 1928 was too high, the ratio of the new to the old factor being 0.94. Therefore, all pyrheliometer records for Fresno, Calif., obtained previous to July 23, 1931, the date when a new instrument was installed, should be multiplied by 0.94. Weekly means for Fresno heretofore in use have been so reduced.

TABLE 1.—*Solar radiation intensities during August, 1931*

[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.*
Aug. 6	19.23			0.51	0.77						15.11
Aug. 7	17.37		0.51	0.64	0.87						15.11
Aug. 17	15.65			0.67	0.89	1.21					11.81
Aug. 24	10.97				1.11	1.36					10.59
Aug. 31	14.10		0.50	0.68	0.92	1.39					12.24
Means			(0.50)	0.62	0.91	1.32					
Departures			−0.16	−0.13	−0.01	+0.10					

Madison, Wis.

Aug. 3	11.81		0.79								12.68
Aug. 4	15.11					1.25					12.24
Aug. 5	14.60				0.97						14.10
Aug. 6	18.59		0.50	0.55	0.82						15.11
Aug. 10	10.21				1.19						9.83
Aug. 11	8.81	0.80	0.88	1.01	1.21	1.46	1.21				7.29
Aug. 13	10.21			0.96	1.17	1.35					6.50
Aug. 21	8.81		0.90	1.07	1.20	1.40	1.13				7.29
Aug. 28	10.59			1.08	1.17						7.87
Aug. 29	7.04			1.08	1.22	1.42					6.02
Means		(0.80)	0.77	0.96	1.12	1.38	(1.17)				
Departures		+0.05	−0.06	+0.03	+0.03	+0.07	+0.10				

Lincoln, Nebr.

Aug. 3	14.10	0.71	0.84	0.96	1.13	1.34	1.13	0.93	0.79	0.65	15.11
Aug. 4	16.79		0.82	0.93	1.09						14.60
Aug. 10	9.83	0.86	0.99	1.12	1.25	1.41					9.14
Aug. 11	9.83				1.26	1.46					12.68
Aug. 19	13.13						1.09	0.90	0.75	0.65	15.65
Aug. 22	10.21		0.74	0.89	1.07	1.30	1.08	0.89			11.38
Aug. 28	7.04						1.17				6.27
Means		(0.78)	(0.85)	0.98	1.16	1.38	1.12	0.91	(0.77)	(0.65)	
Departures		+0.11	+0.07	+0.08	+0.08	+0.08	+0.05	+0.02	+0.02	−0.04	

[1] Extrapolated.

TABLE 2.—*Total solar radiation (direct+diffuse) received on a horizontal surface*

[Gram-calories per square centimeter]

	Washington	Madison	Lincoln	Chicago	New York	Twin Falls	Pittsburgh	Gainesville	Fresno	La Jolla	Miami	New Orleans
	AVERAGE DAILY TOTALS											
1931	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
July 30	460	461	526	422	386	514	462	----	661	360	633	347
Aug. 6	410	447	468	340	283	528	336	----	614	305	573	431
Aug. 13	423	465	549	372	315	464	397	530	637	296	530	298
Aug. 20	265	455	534	408	309	513	275	424	597	401	570	269
Aug. 27	392	390	495	300	378	498	322	435	468	287	528	367
	DEPARTURES FROM WEEKLY NORMALS											
July 30	+5	−2	+4	+52	+18	−86	−7	----	+29	−32	----	----
Aug. 6	−25	−12	−22	−16	−63	−69	−66	----	−87	−59	----	----
Aug. 13	−5	+23	+60	+10	−9	−32	+48	+43	+41	−89	----	----
Aug. 20	−139	+19	+41	+45	−1	−64	−28	−43	+29	−13	----	----
Aug. 27	−23	−17	+38	−44	+65	−56	+20	+12	−74	−110	----	----
Accumulated departures on Sept. 2, 1931	−44	+3,115	+770	−840	−1,190	−3,212	−2,094	----	−140	−6993	----	----

POSITIONS AND AREAS OF SUN-SPOTS

[Communicated by Capt. J. F. Hellweg, Superintendent United States Naval Observatory. Data furnished by Naval Observatory, in cooperation with Harvard, Yerkes, Perkins, 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	
1931	*h*	*m*	°	°	°			
Aug. 1 (Naval Observatory)	10	56	+ 2.0	78.2	+7.5		46	
			+9.0	85.2	−6.5		62	108
Aug. 2 (Perkins Observatory)	10	37	−50.0	13.1	+3.0		117	
			−3.0	60.1	+20.0		93	
			+9.0	72.1	+23.0		70	
			+17.5	80.6	+4.5	40		
			+19.5	82.1	+20.0		62	382
Aug. 3 (Naval Observatory)	10	39	−38.0	11.9	+4.0		31	
			+22.0	71.9	−9.0		93	
			+27.0	76.9	+8.0		46	
			+39.0	88.9	−7.5	6		
			+55.0	104.9	−18.0	6		182
Aug. 4 (Naval Observatory)	10	37	−26.0	10.7	+5.0	31		
			+2.0	38.7	−18.0	3		
			+37.0	73.7	−10.0		62	
			+45.0	81.7	+7.0	12		
			+50.0	86.7	−7.5	6		114
Aug. 5 (Naval Observatory)	11	18	+50.5	73.6	−9.5		93	93
Aug. 6 (Naval Observatory)	10	41	−62.0	308.2	−7.0		31	
			+3.0	13.2	+10.5	9		
			+62.0	72.2	−9.5		62	102
Aug. 7 (Naval Observatory	10	41	+79.0	76.0	−10.0		62	62
Aug. 8 (Naval Observatory)	10	37	+58.0	41.8	−22.0	6		6
Aug. 9 (Naval Observatory)	10	35		No spots				
Aug. 10 (Naval Observatory)	10	43		No spots				
Aug. 11 (Mount Wilson)	18	20	+44.0	343.9	+3.0	5		5
Aug. 12 (Yerkes Observatory)	15	6		No spots				
Aug. 13 (Naval Observatory)	12	38		No spots				
Aug. 14 (Mount Wilson)	17	0		No spots				
Aug. 15 (Naval Observatory)	12	2	−62.0	188.5	+10.0	9		
			−49.5	201.0	−19.0	6		
			−36.0	214.5	−8.0	6		21
Aug. 16 (Naval Observatory)	10	44	+1.0	239.0	−11.5	9		9
Aug. 17 (Naval Observatory)	10	44	+15.0	239.8	−11.0		93	93
Aug. 18 (Naval Observatory)	10	44	+28.5	240.0	−10.5		93	93
Aug. 19 (Yerkes Observatory)	14	20	+41.6	237.9	−10.6	21		
			+42.9	239.2	−10.2	2		
			+46.3	242.7	−9.6	6		
			+47.4	243.8	−10.1	6		
			+48.6	244.9	−9.6	3		
			+49.2	245.5	−10.8	12		50
Aug. 20 (Yerkes Observatory)	12	55	+53.8	237.7	−10.5	20		
			+54.9	238.8	−11.1		14	
			+55.0	238.9	−10.3	6		
			+63.0	246.9	−9.9	18		58
Aug. 21 (Yerkes Observatory)	10	33	+66.1	238.1	−10.9	7		
			+66.9	238.9	−11.5	21		
			+67.1	239.1	−10.6	5		
			+75.7	247.7	−9.5	34		67
Aug. 22 (Perkins Observatory)	12	25		No spots				
Aug. 23 (Perkins Observatory	10	55		No spots				
Aug. 24 (Naval Observatory)	10	45		No spots				
Aug. 25 (Naval Observatory)	10	40	−24.5	94.6	+3.0	15		15
Aug. 26 (Naval Observatory)	11	40	−80.0	25.3	+3.5	31		
			+38.0	143.3	−3.0	9		40
Aug. 27 (Naval Observatory	11	9	−70.0	22.4	+3.0	46		
			−42.0	50.4	+1.0	3		
			+8.5	100.9	+4.0	15		
			+32.5	124.9	−1.0	6		
			+52.0	144.4	−3.5	3		73
Aug. 28 (Naval Observatory)	12	48	−55.0	23.3	+3.0	77		
			−36.0	42.3	−8.0	31		
			+8.0	86.3	+5.0	19		127
Aug. 29 (Naval Observatory)	11	26	−85.0	340.8	+4.5	15		
			−42.0	23.8	+3.0	62		
			−24.0	41.8	−9.0		19	
			+21.5	87.3	+4.5		15	111
Aug. 30 (Naval Observatory)	10	46	−79.0	334.0	+5.5	9		
			−69.0	344.0	+4.5	15		
			−29.0	24.0	+3.0	62		
			−10.5	42.5	−9.0		15	101
Aug. 31 (Naval Observatory)	10	46	−62.0	337.7	+6.0	6		
			−55.0	344.7	+4.5	6		
			−26.0	13.7	+11.0		93	
			−17.0	22.7	+3.0	31		136
Mean daily area for August								66