

inches) were reported by the steamships *Santa Marta* and *Munplace* when both were near the center of the disturbance on the morning of the 25th. While this storm was in progress a strong anticyclone had overspread the southern and eastern portions of the United States.

During the morning of November 25 the steamship *Satoco*, when in the vicinity of 28° N. and 87° W., encountered fresh gales from the east, cloudy weather and heavy seas. The steamship *Tivives*, giving her position as north of the center of the storm, reported barometer 29.94 inches, cloudy weather and fresh northeast gales.

During the next 24 hours the disturbance moved in an east-northeasterly direction attended by moderate to fresh winds, and rising pressure. The disturbance dissi-

pated in the northeast portion of the Gulf of Mexico, near latitude 28° N. and longitude 87° W. on the morning of November 26.

Reports at hand indicate that there was some damage to shipping in this disturbance but no loss of life.

A weak cyclonic depression moving in a southerly direction from the Plains States, reached the southwest portion of the Gulf of Mexico on November 19. There is considerable uncertainty as to its movement during the succeeding 3 or 4 days, but there are indications that it developed in the Gulf, and may be identical with the disturbance previously described.

The synoptic situation over the Gulf of Mexico on the morning of November 25 is shown in chart IX.

## BIBLIOGRAPHY

[RICHMOND T. ZOECH in Charge of Library]

By AMY D. PUTNAM

### 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:

Allen, C. W.

Atmospheric potential gradient observations at the Commonwealth solar observatory, Mount Stromlo, Canberra. Canberra. May 1934. 27 p. tables, diags. 31 cm. (Memoir no. 4 (4th no. of v. 1) of the Commonwealth solar observatory [Australia].)

Breul, Karl Hermann.

Cassell's new German-English dictionary, with a phonetic key to the pronunciation of the German words . . . thoroughly rev. and enl. by J. Heron Lepper and Rudolph Kottenhahn. New York. (1936.)

British Polar year expedition, Fort Rae, N. W. Canada, 1932-33. v. 1. Discussion of results. Meteorology, terrestrial magnetism and aurora, atmospheric electricity. v. 2. Tables. Meteorology, terrestrial magnetism, atmospheric electricity. London. 1937. [v. p.] maps, plates, tables, diags. 32 cm.

Byers, Horace Robert.

Synoptic and aeronautical meteorology. 1st ed. New York & London. 1937. ix, 279 p. illus., maps (part fold.), diags. 23-1/2 cm. Bibliographical foot-notes.

Chicago. University. Dept. of mathematics.

Contributions to the calculus of variations, 1933-37, theses submitted to the Department of mathematics of the University of Chicago. Chicago. 1937. Photolithographed. Each thesis has separate paging.

Conrad, V.

Zum Wasserklima einiger alpiner Seen Österreiches. Wien. 1936. (Austria. Zentralanstalt für Meteorologie und Geodynamik. Publ. nr. 143. Beiheft zu Jahrgang 1930 der Jahrbücher.)

Faber, Oscar, & Kell, J. R.

Heating and air-conditioning of buildings, with some notes on combined electrical generating stations. London. 1936. xiv, 434 p. front., illus. (incl. plans), plates, diags. 24 cm.

France, Henry de.

The modern dowser; a guide to the use of the divining rod and pendulum. Translated by A. H. Bell. London. 1930. xv, 135 p. front., illus., diags. 19-1/2 cm.

The Geographical review (Indexes).

Index to the Geographical review, volumes xvi-xxv, 1926-35; by Arthur A. Brooks. New York. 1936. 373 p. 25 cm.

Gutenberg, B.

Handbuch der Geophysik. Berlin. Band I, Lieferung 4. Prof. Dr. W. Heiskanen: Beobachtung der Schwerkraft. Die Lotabweichungen. Das Problem der Isostasie, etc. 1936.

— Band VII, Lieferung 1. Hesz: Das Eis der Erde. Halbfasz: Seen. Koehne: Das unterirdische Wasser. 1933.

Hamburg. Deutsche Seewarte.

Meereskundliche Beobachtungen auf deutschen Feuerschiffen der Nord- und Ostsee, Jahr 1934. Hamburg. 1935. 62 p. tables, diags. 29 x 36 cm.

Herchenroder, Marc.

Le pluie à l'île Maurice. Port-Louis. 1935. 55 p. figs., maps, tables, diags. 22-1/2 cm.

Hopper, Elizabeth G.

List of periodicals currently received in the library of the United States Department of agriculture June 1, 1936. Compiled by Elizabeth G. Hopper . . . under the direction of Lydia K. Wilkins . . . Washington. 1936. iv, 337 p. 23 cm. (U. S. Dept. of agriculture. Miscellaneous publication no. 245.)

International hydrographic bureau.

Limits of oceans and seas. 2d ed. 1st July 1937. Monte-Carlo. 1937. 25 p. fold. map. 27-1/2 cm. [Special publication no. 23.]

Ives, James Edmund, & Gill, W. A.

Measurements of ultraviolet radiation and illumination in American cities during the years 1931 to 1933. Prepared by direction of the surgeon general. Wash. 1937. 36 p. incl. tables, diags. 23 cm. (U. S. [Treasury dept.] Public health service. Bulletin no. 233.) "References": p. 35-36.

Kelley, Grace Osgood.

The classification of books; an inquiry into its usefulness to the reader. New York. 1937. 200 p. 20 cm. (Issued also as thesis (Ph. D.) University of Chicago.) Bibliography: p. [131]-148.

Krumme, Oskar.

Frost und Schnee in ihrer Wirkung auf den Boden im Hochtaunus. Frankfurt-am-Main. 1935. 71 p. figs., tables, plates, diags. 24 cm.

Kulhbrodt, Erich, & Reger, Josef.

Deutsche atlantische Expedition auf dem Forschungs- und Vermessungsschiff "Meteor" 1925-27. Wissenschaftliche Ergebnisse. Band XV. Die aerologischen Methoden und das aerologische Beobachtungsmaterial. Berlin & Leipzig. 1933. viii, 305 p. maps, plans., plates, tables, diags. 29 cm.

— Beilagen. v. p. Berlin & Leipzig. 1933.

Meinander, Runar.

Studien über den täglichen Temperaturgang in Europa. Helsingfors. 1936. 165 p. map, tables, diags. 24 cm. (At head of title: Societas scientiarum fennica. Commentationes physico-math. IX. 3.)

Nippoldt, A.

Erdmagnetismus, Erdstrom und Polarlicht. Berlin. 1937. 128 p. illus., maps, tables, diags. 16 cm.

**Pennsylvania railroad company.**

History of the floods of March 1936, and January 1937. Office of the chief engineer . . . Compiled by Charles W. Garrett. Philadelphia, Pa. [c1937.] 150 p. illus., fold. plates, fold. maps, fold. tables. 31½ cm.

**Pickwell, Gayle Benjamin.**

Weather. Natural history studies. Los Angeles. 1937. x, 170 p. illus., plates., maps. 30 x 23½ cm.

**Rittmann, Alfred.**

Vulkane und ihre Tätigkeit. Mit 25 Abbildungen und einer Tafel. Stuttgart. 1936. vii, 188 p. illus., fold. plates, diags. 22½ cm.

**Roediger, G., & Steppes, O.**

Wetterkunde und Einführung in die Merreskunde für die Zwecke der Navigation. Berlin. 1933. 86 p. illus., maps, tables, diags. 24½ cm.

**Scarborough, James Blaine.**

Numerical mathematical analysis. Baltimore & London. 1930. xiv, 416 p., diags. 25 cm.

**Scott, Harold W.**

The Montana earthquakes of 1935. Butte, Mont. 1936. vi, 47 p. illus., tables, 9 plates, part fold. (incl. maps, diags.) 27½ cm. (Montana. Bureau of mines and geology. Memoir no. 16.) Rotaprinted.

**U. S. Coast & geodetic survey.**

Cartography. Lambert projection tables for the United States, by Oscar S. Adams, geodetic computer . . . Washington. 1918. 243 p. incl. tables, diags. 24½ cm. (Special publication no. 52.) (Serial No. 89. Department of commerce. U. S. Coast and geodetic survey. E. Lester Jones, superintendent.)

**U. S. Federal aviation commission.**

Federal aviation commission. Message from the President of the United States transmitting pursuant to law, a report of the Federal aviation commission containing its recommendations of a broad policy covering all phases of aviation and the relation of the United States thereto . . . Washington. 1935. vii, 254 p. 23½ cm. (74th Cong., 1st sess. Senate. Doc. 15.)

**Uyeda, R., & others.**

Notes on correlations between the upper wind and the meteorological elements. Tokyo. 1935. [p. 107-147.] figs., tables, diags. 26½ cm. [Tokyo. Imperial university. Journal of the Faculty of science, sect. 1, vol III, pt. 2.]

**Visser, S. W.**

On a period of 27 months in the rainfall. Amsterdam. 1937. p. 513-517. figs., tables, 26 cm. (Reprinted from Proceedings: Koninklijke akademie van wetenschappen te Amsterdam. v. XL, no. 6, 1937.)

**SOLAR OBSERVATIONS**

**SOLAR OBSERVATIONS DURING NOVEMBER 1937**

By CHARLES M. LENNAHAN

For a description of instruments employed and their exposures, the reader is referred to the January 1935 REVIEW, page 24.

Table 1 shows that the solar radiation intensities averaged above normal, on the whole, at Washington, Madison, and Blue Hill; and close to normal at Lincoln.

Table 2 shows an excess in the amount of total solar and sky radiation received on a horizontal surface during the month at all stations except Washington, Twin Falls, Riverside, and Friday Harbor.

Polarization observations made at Madison on 4 days give a mean of 58 percent with a maximum of 60 percent on the 9th; both values are below normal.

TABLE 1.—Solar radiation intensities during November 1937

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

**WASHINGTON, D. C.**

Date	Sun's zenith distance										Local mean solar time	
	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										
		A. M.					P. M.					
e	5.0	4.0	3.0	2.0	* 1.0	2.0	3.0	4.0	5.0	e		
1937	mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	
Nov. 3	3.45	0.86	0.96	1.14							3.15	
Nov. 4	4.37	.69	.78	.94			1.12	1.01	0.93	0.68	2.74	
Nov. 8	5.79						1.28				5.56	
Nov. 9	10.21						1.41	1.24	1.10	1.03	4.16	
Nov. 10	4.96						1.14				3.30	
Nov. 17	5.56				1.02		1.19				3.99	
Nov. 22	2.37	.80	.95	1.05	1.26						1.96	
Nov. 23	2.37	.59	.71	.89	1.19		1.21	1.08	.92	.69	2.26	
Nov. 24	2.74	.90	1.08	1.20	1.38		1.35				2.62	
Nov. 29	3.15						1.12	.95	.71	.71	2.74	
Nov. 30	4.37	.67	.86	1.02	1.32			.86	.70	.56	3.64	
Means		.75	.89	1.04	1.26		1.25	1.06	.92	.73		
Departures		.00	+.02	+.03	+.07		+.07	+.05	+.07	-.01		

TABLE 1.—Solar radiation intensities during November 1937—Con.

**MADISON, WIS.**

Date	Sun's zenith distance										Local mean solar time	
	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										
		A. M.					P. M.					
e	5.0	4.0	3.0	2.0	* 1.0	2.0	3.0	4.0	5.0	e		
	mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.	
Nov. 3	2.49									1.16	2.74	
Nov. 9	4.37		0.80	1.05	1.33						4.16	
Nov. 10	5.16		1.02	1.20	1.32						5.56	
Nov. 12	4.57			.89	1.10						4.96	
Nov. 22	1.52	1.01	1.21								1.96	
Nov. 30	.96	.93	1.08	1.28							1.52	
Means		(.97)	1.03	1.10	1.28					(1.16)		
Departures		(+.08)	+ .03	-.05	-.03					(+.04)		

**LINCOLN, NEBR.**

Nov. 2	3.64	1.05	1.17	1.26	1.43	1.58					3.99
Nov. 11	4.75	.81	.96	1.09	1.28	1.65					4.37
Nov. 12	5.36					.72					3.30
Nov. 13	4.37	.90	1.06	1.09							3.30
Nov. 20	1.20	1.21	1.29	1.42	1.57		1.57	1.39	1.29		1.45
Nov. 25	4.75	.79	.99	1.17	1.41			1.27	1.27	1.06	4.16
Nov. 26	3.81	1.04	1.15	1.26	1.44		1.40	1.20	1.05	.96	4.96
Nov. 27	2.26	1.04	1.15	1.26	1.44					1.06	1.96
Nov. 29	1.67			1.14	1.44			1.21	1.03		1.78
Means		.97	1.10	1.20	1.43	(1.62)	1.23	1.27	1.12	1.01	
Departures		+.05	+.07	+.02	+.07	(+.06)	-.12	+.09	+.08	+.08	

**BLUE HILL, MASS.**

Nov. 1	2.8	0.72	0.88	1.04	1.32						3.0
Nov. 3	3.3	.96	1.05	1.16	1.31					1.21	1.09
Nov. 4	3.6	.90	1.01	1.14	1.30						3.2
Nov. 7	3.3			1.06	1.13		1.13	0.95	.85		4.4
Nov. 9	9.9							1.27	1.07	.96	8.2
Nov. 10	3.3	.48	.65	.96	1.29		1.28	1.21	1.11	1.05	4.0
Nov. 11	1.6	1.02	1.14	1.27	1.41		1.40	1.29	1.14	1.06	1.8
Nov. 16	4.8		.92	1.10	1.34						4.2
Nov. 18	4.8						1.26	1.14	1.06	1.01	4.2
Nov. 22	2.4	.93	.99	1.05	1.24						2.4
Nov. 23	2.2	1.09	1.18	1.27	1.44		1.43	1.29	1.14	1.00	1.9
Nov. 29	5.4		1.06	1.15	1.40		1.40	1.14	1.00		3.2
Nov. 30	3.0	.99	1.02	1.11	1.20		1.20	1.11	1.05	.92	3.2
Means		.88	.99	1.12	1.31		1.30	1.15	1.04	1.02	
Departures		-.09	-.06	-.02	+.03		+.03	+.01	+.04	+.15	

\* Interpolated.