cold waves appear first in the region northeast of Lake Onega. The wave then moves, in general, southeastward with a velocity of 600 or 700 kilometers per day, forming a long curved band. In most cases the wave finishes in the southeastern part of European Russia, but some could be traced as far as India and the coast of the Pacific Ocean. Professor Sresnevsky adds some theoretical remarks on the mechanics of these cold waves, for which the reader should consult the original German abstract.

## PRIZE OFFERED BY THE GERMAN METEOROLOGICAL SOCIETY.

Dated Berlin, October, 1908.

At the request of Prof. G. Hellman, President of the German Meteorological Society, we publish the following announcement, at the same time expressing the hope that many observers will feel impelled to enter the competition. It is true that the research corps at Mount Weather, Va., are in the most favorable position to compete, but there are available in this country, several sets of the published results of the International Commission for Scientific Aeronautics, and the Editor will gladly do all that he can to aid any of our men in the preparation of a creditable essay in this competition.

### Preisausschreiben der Deutschen Meteorologischen Gesellschaft.

Die Deutsche Meteorologische Gesellschaft schreibt einen Preis von 3000 (drei Tausend) Mark aus für die beste Bearbeitung der bei den internationalen Aufstiegen gewonnenen meteorologischen Beobachtungen, soweit sie veröffentlicht vorliegen.

Bedingungen.

1. Es steht den Preisrichtern frei, geeignetenfalls den Preis zu teilen.
2. An der Preisbewerbung können sich Angehörige aller Nationen beteiligen.
3. Die anonym einzureichenden Bewerbungsschriften sind in deutscher, englischer oder französischer Sprache zu verfassen, müssen einseitig und gut lesbar geschrieben, ferner mit einem Motto versehen und von einem versiegelten Umschlag begleitet sein, der auf der Aussenseite dasselbe Motto trägt und inwendig den Namen und Wohnort des Verfassers angibt.
4. Die Zeit der Eisendung endet mit dem 31. Dezember 1911, und die Zusendung ist an den unterzeichneten Vorsitzenden der Gesellschaft (Geheimen Regierungsrat Professor Dr. G. Hellmann, Berlin W. 56, Schinkelplatz 6) zu richten.
5. Die Resultate der Prüfung der eingegangenen Schriften durch fünf Preisrichter werden 1912 in der Meteorologischen Zeitschrift bekannt gegeben werden.

Der Vorsitzende der Deutschen Meteorologischen Gesellschaft.

Hellmann.

### Translation.

The German Meteorological Society offers a prize of three thousand marks (M. 3,000) for the best discussion of the published observations secured on the dates of the International Ascents [with kites, sounding balloons, and manned balloons].

CONDITIONS.

1. The judges reserve the right to divide the amount of the prize among two or more contestants, if they feel justified in so doing.
2. Contestants may be of any nationality.
3. The essays or memoirs submitted in competition may be written in German, English, or French. The manuscript must be legibly written, on one side of the sheet only, and signed with an anonymous motto. The paper must be accompanied by a sealed envelop bearing the motto on the outside, and containing a slip of paper with the name and residence of the competitor.
4. The competition will close December 31, 1911. The manuscripts should be sent [by registered mail] to the following address:

Geheime Regierungsrat Professor Dr. G. Hellman,
Schinkelplatz 6, Berlin, W. 56., Germany.

5. The memoirs submitted will be examined by five judges and their decision will be announced during 1912 in the pages of the Meteorologische Zeitschrift.

Signed: Hellmann,
President German Meterological Society.

## A CALIFORNIA CLOUDBURST.

By J. S. DOUGLAS, San Emigdio Rancho, Kern Co., California.
[U. S. Geological Survey Press Bulletin, October 12, 1908.]

In the upper reaches of San Emigdio Canyon, Kern County, Cal., cloudbursts have at many places stript the mountain slopes bare of their forest cover and swept great trees and masses of rock many miles from their source. Just where the creek breaks from the hills is the hacienda of San Emigdio Rancho, and the superintendent of the rancho, J. S. Douglas, who has had ample opportunity to observe the cloudbursts, gave the following description to H. R. Johnson, of the United States Geological Survey.

The cloudburst * * * issued from Cloudburst Canyon into San Emigdio Canyon about 8 miles above this ranch house. I had been expecting the occurrence, as the premonitory signs had been very pronounced for two or three days previously, viz, immense masses of white snowy clouds in the forenoons, changing in color to inky blackness in the afternoons, with the accompaniment of thunder. The weather was sultry, with occasional gusts of cool wind rushing *down* the canyon, an unusual occurrence during the day in summer time.

Some time before [the wave of mud and water] made its appearance, probably fifteen minutes, its dull and heavy roar could be heard from up the canyon, quite distinct from and rising above all the other noises of the storm and reminding me of breakers against a rocky shore. As it issued from the narrow mouth of Cloudburst Canyon into the comparatively broad one of San Emigdio, it was accompanied by a cloud of dust occasioned by the breaking up of huge masses of dry soil torn from projecting points in its rush down the canyon.

Through the dust glimpses would be had of great piles of drift with an occasional tree turning end over end * * *.

After reaching the main canyon it spread to a width of probably 200 yards, and after descending about one-half mile came to a full stop, only to be succeeded in a few moments by another wave larger and swifter than the first. There was no dust about this or any of the succeeding waves, but immense masses of rock, many of which must have weighed several tons, were apparently dancing along, light as corks on the surface, being supported by the rocky mass beneath.

This wave extended about one-half mile farther down the canyon than the first, when it also came to a stop, having spread to the full width of the canyon (about one-fourth mile here).

In a few moments another wave of mud swept by, followed by others at intervals of a few minutes, each succeeding wave getting thinner and traveling with greater velocity than the preceding ones, until finally in about half an hour it was mud no longer, but a steady rush of a yellow foaming torrent, at first probably 100 yards wide in the main canyon, gradually reducing its width and increasing its depth and swiftness as it washed out a channel in the soft mud.

In answer to your question as to the distance and size of rocks moved by cloudbursts, I will give you a description of one which lies on the bank of the creek close to this house. It is a sandstone bowlder which has come from 7 miles above and as near as it can be measured, owing to its irregular shape, gives the following dimensions: Height 8 feet, length 16 feet, width 12 feet. On the plains (the San Joaquin Valley) about 5 miles east of here, in sec. 22, T. 11 N., R. 21 W., several masses much larger than this can be seen. These were brought down the Pleito Canyon by cloudbursts.

Commenting on this description Mr. Johnson says:

The interesting point about the cloudburst described above is its ebb and swing. It has been further learned that the first wave which brings down the coarsest débris often forms a dam at or near the canyon's entrance. It is as a result of the impact between the later waves and

this débris dam that the greatest damage usually occurs, since the breaking of the dam at its weakest point usually results in the formation of new deep gulches in unexpected places, down which the liberated water and sludge rush toward the flatter marginal slopes of the fan, dividing and again dividing into smaller, less well-defined channels as they go. So far as observed, the end point of these cloudbursts is to be found in the thin irregular flows of mud left upon the lower slopes of the fans. These are in some places thick enough to obliterate the low bunchy grasses across which they have spread, and are characterized by a homogeneous, regularly cracked surface and an even, fine grain. Such thin, irregular mud beds are known by the well diggers of the region as "slickens."

## RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

**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. Most of them can be lent for a limited time to officials and employees who make application for them. Anonymous publications are indicated by a ——.**

**[Aiginetos, Demetrios.]** *Αἰγινῆτος, Δημήτριος.*
*Τὸ κλίμα τῆς Ἑλλάδος. Ἐν Ἀθῆναις.* 1908. 2 v. 8°.

**Angström, Knut.**
...Einige fundamentale Sätze betreffs der Absorption und der Absorptionsspektrum der Gase. Uppsala. 1908. 13 p. 8°. (Archiv. för matematik, astronomi och fysik... Band 4, n:o 30.)

**Astrophysical journal.**
A general index. Chicago. 1908. 133 p. 8°.

**Austria. Hydrographischer Dienst.**
Jahrbuch...13. Jahrgang. 1905. Wien. 1907. f°.

**Behre, Otto.**
Das Klima von Berlin. Eine meteorologisch-hygienische Untersuchung. Berlin. 1908. 159 p. 8°.

**Bendel, Johann.**
Wetterpropheten. Regensburg. 1904. 166 p. 8°. (Naturwissenschaftliche Jugend- und Volksbibliothek. 7 Bändchen.)

**Canada. Department of the interior.**
Canada's fertile northland... Ottawa. 1907. 139 p. 4°.
Maps. Canada's fertile northland. Ottawa. 1907. 5 maps.

**Ciofalo, Michele.**
Il clima di Termini dedotto dalle osservazioni meteorologiche del periodo 1880–1906. Termini. 1907. 72 p. f°.

**Climate and health [of Sao Paulo].**
*In* The state of Sao Paulo, Brazil. Statistics and general information, 1903. Department of agriculture, commerce, and public works of the state of Sao Paulo (Brazil). Sao Paulo. 1904. p. 12–18. 12°.

**Contreras, Juan N.**
Meteorologia practica. Nuevos metodos de prediccion. 2 parts. Mexico. 1907, 1902. 328, 54 p. 8°. 12°.

**Crelle, A. L.**
Dr. A. L. Crelle's Rechentafeln... Neue Ausgabe. Berlin. 1907. n. p. f°.

**Dairen (South Manchuria). Meteorological observatory.**
Report of the meteorological observations made at the Japanese meteorological stations in Manchuria. 1906. Dairen. [1908.] v. p. f°.

**Fairbanks, Harold W.**
The great earthquake rift of California. *In* Bulletin of the California physical geography club. Oct., 1907. Oakland. p. 1–8.

**Ficker, Heinz v.**
Zur Meteorologie von West-Turkestan. Wien. 1908. 35 p. f°. (Besonders abgedruckt aus dem 81. Bande der Denkschriften der mathematisch-naturwissenschaftlichen Klasse der Kaiserlichen Akademie der Wissenschaften.)

**Findeisen, F.**
Praktische Anleitung zur Herstellung einfacher Gebäude-Blitzableiter. 2d ed. Berlin. 1907. vi, 126 p. 8°.

**Freybe, Otto.**
...Klima- und Witterungskunde. Hannover. 1908. iv, 71 p. 12°. (Bibliothek der gesamten Landwirtschaft. Hrsg. von der Karl Steinbrück. 10. Band.)

**Geographisches Jahrbuch.**
31. Band, 1908. Gotha. 1908. ix, 493 p. 8°.

**Gerdien, H.**
...Untersuchungen über die atmosphärischen radioaktiven Induktionen. Berlin. 1907. 75 p. 4°. (Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen. Mathematisch-physikalische Klasse. Neue Folge. Band 5. Nro. 5.)

**Great Britain. Meteorological committee.**
3d annual report. London. 1908. 164 p. 8°.

**Greim, G.**
Schätzung der mittleren Niederschlagshöhe im Grossherzogtum Hessen im Jahre 1905 und Vergleichung der Niederschlagshöhen des Grossherzogtum im Jahrfünft 1901–5. Darmstadt. 1906. p. 59–64. 8°. (S.-A. Notizbl. Ver. Erdk. 4 Folge. Heft 27. 1906.)

**Hellman, G[ustav].**
...Meteorologische Volksbücher. Ein Beitrag zur Geschichte der Meteorologie und zur Kulturgeschichte. Berlin. 1895. 68 p. 4°. (Sammlung populärer Schriften herausgegeben von der Gesellschaft Urania zu Berlin. no. 8.)

**Hesse. Grossherzogliches hydrographisches Bureau.**
Deutsches meteorologisches Jahrbuch 1907. Darmstadt. 1908. 59 p. f°.

**Klengel, Friedrich.**
Die Niederschlagsverhältnisse von Deutsch-Südwestafrika. Leipzig. 1908. 72 p. 8°.

**Kienast, Hermann.**
Das Klima von Königsberg i. Pr. Teil. 3. Der jährliche Gang der Lufttemperatur, dargestellt auf Grund der Beobachtungen aus den Jahren 1848–1906. Königsberg. 1907. 45 p. f°.

**McAdie, Alexander G.**
Frost, snow, and dew. First paper. *In* Sunset magazine. San Francisco. Feb., 1908. p. 336–338.
Earthquake weather. *In* Bulletin of the California physical geography club. Oakland. Oct., 1907. p. 8–9.

**Mainka, C.**
Kurze Uebersicht über die modernen Erdbeben-Instrumente und einige Winke für die Konstruktion solcher. Berlin. 1907. 32 p. 4°.
Ueber die neueren Arbeiten im Observatorium der Kaiserlichen Hauptstation für Erdbebenforschung in Strassburg i. Els. Haag. 1907. 11 p. 4°.

**Maryland geological survey.**
[General report.] v. 6, 1906. Baltimore. 1906. 578 p. 4°.

**Mauritius. Royal Alfred observatory.**
Annual report...1907. n. p. 1908. 18 p. f°.

**Mill, Hugh Robert.**
British rainfall 1907. London. 1908. 100 [200] p. 8°.

**New South Wales. Royal society.**
Journal and proceedings...1907. v. 41. Sydney. 1908. xii, 218, xxvi p. 8°.

**Physikalische Verein.**
Jahresbericht...1906–7. Frankfurt am Main. 1908. 110 p. 8°.

**Regulamento do Serviço meteorologico de S. Paulo.**
*In* Boletim de agricultura. 9 sér. Maio N. 5. Anno de 1908. Sao Paulo. 1908. p. 381–385. 8°.

**Roumania. Institutul meteorologic.**
Buletinul lunar al observatiunilor meteorologice. Anul 15, 1906. Bucuresti. 1907. 252 p. f°.
Same. Anul 16, 1907. Bucuresti. 1908. 263 p. f°.

**Saxony. Königliches sächsisches meteorologisches Institut.**
Deutsches meteorologisches Jahrbuch. 1903. Dresden. 1908. 180 (94) p. f°.

**Scheiner, J[ulius].**
Populäre Astrophysik. Leipzig. 1908. vi, 718 p. 30 pl. 8°.

**Schubert, Johannes.**
Das Klima von Ostpreussen. Eberswalde. 1908. 18 p. 12°.
Landsee und Wald als klimatische Faktoren. Leipzig. 1908. p. 688–694. 8°. (Sonderabdruck aus den 13. Jahrgange der Geographischen Zeitschrift.)

**Siam society.**
Rainfall records of the kingdom of Siam. (Journal of the Siam society. v. 4, part 2.) Bangkok. 1907. [60] p. 8°.

**Southern Rhodesia. Statist.**
Report on meteorology. London. 1908. 24 p. f°.

**Urriola, Ciro L.**
Sur les variations de la température... Panama. 1908. 26 p. 8°.

**Walter, A.**
On the influence of forests on rainfall and the probable effect of "déboisement" on agriculture in Mauritius. Mauritius. 1908. 51 p. f°.

**Wyoming climate.**
*In* Cheyenne, Wyoming, the city of opportunity. Issued by the Industrial club of Cheyenne. Cheyenne. [1908.] p. 20–21. 12°.

**Zöppritz, August.**
Prognosen aus den Gestirnstellungen für das Jahr 1908. Stuttgart. [1908. 34 p.] 8°.

## RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Librarian.

**The subjoined titles have 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**

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