by different factors, but it can not be concluded that all high and low parts were connected with rainfall and drought. In this connection it is noteworthy that the tree-growth maximum during the fourteenth century coincides with an exceptional spottedness of the sun (Huntington and Visher, 1922, p. 109) and with the climatic stress, of which there are abundant historical records in the Old World, and which particularly expressed itself in unusually cold winters, cold rainy summers, and devastating storms.

Accordingly, before satisfactory interpretation of the sequoia curves and conclusions from them regarding the climate of the past can be made, it is necessary to have data on temperature, better knowledge of the relation between precipitation and growth of sequoia trees in dry situations, and general knowledge of the rôle for growth played by the radiation of the sun.

Besides being of climatological interest, the sequoia curve is of importance as eventually affording a possibility to extend the Swedish postglacial geochronology up to the present time. This chronology (not yet published), worked out by Ragnar Lidén (1911) in the valley of the River Ångermanälven (63° N.), is based upon annually laminated silty clays deposited in fiords of the Gulf of Bothnia ever since the disappearance of the last ice-sheet. The annual deposit consists of two thin layers, in texture and in color somewhat different, one of which may be essentially deposited in connection with the flood of the rivers during the melting of the snow in spring. By the upheaval of land, amounting to about 920 feet (280 meters), the clays have been gradually raised above sea-level and trenched by the rivers. Those from the last hundreds of years are not yet accessible, and Lidén has had to estimate the length of time that has elapsed since the formation of the youngest measured varve or annual layer.

This gap in the record might be bridged by help of the sequoia curve, for it seems likely that it will show a certain correspondence to the sedimentation curve in Norrland. The climatic stress during the fourteenth century, so distinctly recorded in the sequoia curve, is probably also recorded in the clay deposition. If this prove to be the case, and also other marked fluctuations in the tree curve are found in the clay curve, a connection may be made with high degree of probability, and the length of the postglacial time, which amounts to 8,500 to 9,000 years, exactly determined.

—*A. J. H.*

TORNADO IN SOUTHEASTERN ALABAMA

Mr. P. H. Smyth, meteorologist in charge of the Montgomery, Ala., Weather Bureau station, sends an account of a tornado which occurred in southeastern Alabama on October 25, 1925. This tornado was notable for being one of the most destructive storms of its kind that has occurred in southeastern Alabama, and also as being only the second tornado of record for October within the State.

It was clearly attendant upon the passage of a well-defined wind-shift line in the trough of low pressure connected with a depression the center of which passed northeastward over the Ohio Valley during the night of the 24th–25th, the tornado apparently having been first observed about 2:00 a. m.

The path was 75 to 80 miles long, beginning about 50 miles north of the Alabama-Florida line and extending ENE. to within about 10 miles of the Alabama-Georgia line. It was some 400 yards wide at its widest part.

The number of lives lost was reported to be 18; many persons were injured; property losses were estimated at a quarter of a million dollars.—*B. M. V.*

METEOROLOGICAL SUMMARY FOR SOUTHERN SOUTH AMERICA, OCTOBER, 1925

[Reported by Señor J. B. Navarrete, El Salto Observatory, Santiago, Chile. Translated by B. M. V.]

In the month of October the period of atmospheric disturbances, starting in September, began to decline; rainfall diminished over the whole of the southern part of the continent.

Between the first and the third an important atmospheric depression lay over the southern region, causing bad weather with violent winds and rains between Coquimbo and Magellanes; the most important amounts of precipitation were 18 mm. at Valparaiso, 16 mm. at Talca, 19 mm. at Traiguen, 13 mm. at Valdivia and 14 mm. at Punta Arenas.

On the 4th, in the afternoon, an important V-shaped depression caused electrical storms accompanied by violent squalls and hail in the interior of Aconcagua, Santiago, and O'Higgins Provinces.

Between the 5th and the 10th a large anticyclonic area persisted, characterized by general good weather, with winds prevailingly southeast and rising temperature.

Between the 11th and the 13th a moderate depression caused variable weather and drizzling rain in the central zone.

From the 14th to the 22d a large anticyclonic area lay over the central part of the continent, causing steady atmospheric conditions. General fine weather was the rule during the period, with heavy south winds between Chiloe and Arauco and high temperatures over the whole central zone of Chile.

During the 23d and the 24th a depression of some intensity lay over the southern area, causing rains between Valdivia and Magellanes; at Valdivia 11 mm. fell.

Between the 26th and the 28th another cyclonic depression, more important than the previous one, affected the whole southern region of the continent; on this occasion rain and wind storms occurred from Valdivia southward. On the island of Huafo the wind velocity reached 25 m/s. (56 m/h.).

During the last days of the month atmospheric pressure rose over the southern part of the continent, reestablishing the anticyclonic régime, with general fine weather and rise of temperature.

BIBLIOGRAPHY

C. FITZHUGH TALMAN, Meteorologist 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:

Australia. Commonwealth bureau of meteorology.
Australian meteorological observer's handbook, 1925. Melbourne. [pref. 1925.] 171 p. illus. 24½ cm.

Bailly de Merlieux, Charles François.
Résumé complet de météorologie . . . Paris. 1830. x, 332 p. plates (fold.) 12½ cm.

Bowie, Edward H.
Meteorology, an aid in warfare. p. 300–304. illus. map. 30½ cm. [Discussion by Charles F. Marvin, p. 302–304.] (Military engineer, Washington, v. 17, no. 94, July–Aug. 1925.)

Fassig, Oliver L.
Rainfall and temperature of Cuba. Washington. 1925. 32 p. diagr. 26½ cm. (With the cooperation of the National observatory of Cuba.) (Tropical plant research foundation. Bull. no. 1.)

Hambleton, James I.
Effect of weather upon the change in weight of a colony of bees during the honey flow. Washington. 1925. 52 p. illus. 23½ cm.

Harvey, H. W.
Hydrography of the English channel. p. 60–89. illus. plate. 26½ cm. [Con. perm. internat. pour l'explor. de la mer. Rapports et procès-verbaux de réunions. v. 37. Rapport Atlantique. 1924. Copenhague. Août, 1925.]

Hoxmark, Guillermo.
Las condiciones climatológicas y el rendimiento del trigo. Estudio hecho con las observaciones de los 12 años comprendidos entre 1912–1923. Buenos Aires. 1925. 43 p. figs. 23 cm. (Rep. Argentina. Min. de agric. Sec. propaganda e informes. Cir. no. 501. Agosto 24, 1925.)

Jury, A., & Dedebant, G.
Les types de temps au Maroc. Paris 1925. 44 p. illus. 31 cm. (Mem. de l'Office nat. mét. de France, no. 13.)

Meteorography, or the perpetual weather almanac. Edinburgh. 1841. 26 p. plates. 15 cm.

Purdy, E. S.
Psychrometrical observations taken at Fascher Darfour . . . 1876. Cairo. 1877. 15 p. 23 cm.

Quaternary climates: Geologic history of Lake Lahontan, by J. Claude Jones; On the Pleistocene history of the Great Basin, by Ernest Antevs; The big tree as a climatic measure, by Ernest Antevs; Tree growth and climatic interpretations, by Ellsworth Huntington. Washington. 1925. v, 212 p. illus. plates. fold. map. 25½ cm. [Carnegie institution of Washington. Pub. no. 352.]

Sanson, J.
Notice climatologique sur Tours pendant les années 1900 à 1924. (Température.—Précipitations.) Paris. 1925. 48 p. figs. 31½ cm. (Mem. de l'Office nat. mét. de France. no. 12.)

Visher, Stephen S.
Australian hurricanes and related storms. p. 80–84. 24½ cm. (Repr.: Official year book of the Commonwealth [Australia] no. 16, 1923.)
Some effects of tropical cyclones. p. 139–150. illus. 26 cm. (Repr.: Journ. geogr., v. 24, Apr., 1925.)
Tropical cyclones of the Pacific. Honolulu. 1925. 163 p. illus. 26 cm. (Bernice P. Bishop museum. Bull. 20.)

RECENT PAPERS BEARING ON METEOROLOGY

The following 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 and other communications bearing on meteorology and cognate branches of science. This is not a complete index 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.

Annalen der Hydrographie und maritimen Meteorologie. Berlin. 53. Jahrgang. August, 1925.
Castens, Gerhard. Bord-Gesundheitswesen and Meteorologie. p. 267–268.
Castens, Gerhard. Eigenartige Isolinien. p. 266.

Bulletin astronomique. Paris. t. 3, fasc. 2, 1923.
Mascart, Jean. Sur la masse de l'atmosphère. p. 331–336.

Ecology. Brooklyn. v. 6. October, 1925.
McDougall, Eric. The moisture belts of North America. p. 325–332.

Engineering news-record. New York. v. 95. November 5, 1925.
Burton, V. R. Snow drift prevention and control on highways, based on a state-wide snowfall survey—prevention and control of drifts advocated as best and most economical way of keeping roads clear. p. 752–754.

France. Académie des sciences. Comptes rendus. Paris. t. 181. 1925.
Hobbs, William Herbert. L'asymétrie de la circulation atmosphérique. p. 289–290. (17 août.)
Cabannes, J., & Dufay, J. Mesure de l'altitude de la couche d'ozone dans l'atmosphère. p. 302–304. (24 août.)
Hubert, Henry. Les nuages de la saison des pluies en Afrique occidentale, p. 427–429. (5 oct.)

Franklin institute. Journal. Philadelphia. v. 200. 1925.
Humphreys, W. J. The way of the wind. p. 279–304. (Sept.)
Coade, E. N., & Merrymon, Wm. W. Atmospheric electric observations taken at the University of Chicago during the total eclipse of January 24, 1925. p. 497–500. (Oct.)
Erikson, Henry A. Observations on residual ionization in a closed vessel, taken at Biwabic, Minnesota, during the solar eclipse of January 24, 1925. p. 505–506. (Oct.)
Swann, W. F. G. Atmospheric electric observations taken at Yale university during the total eclipse of January 24, 1925. p.489–496. (Oct.)
Zeleny, Anthony. Observations on the variations of the potential gradient of the atmosphere taken at the University of Minnesota during the time of the eclipse of January 24, 1925. p. 501–504. (Oct.)

Geografiska annaler. Stockholm. Årg. 7. H. 1–2. 1925.
Ångström, Anders. On radiation and climate. p. 122–142.

Hemel en dampkring. Den Haag. 23 jaargang. October, 1925.
Dorno, C. Metingen van de zonne- en hemelstraling ten dienste der geneeskunde. p. 253–264.

Ibérica. Tortosa. Año. 12. 15 agosto 1925.
Linari, A. F. El huracán de octubre de 1914 y el Observatorio de Belén en la Habana. p. 124–126.

International institute of agriculture. International review of the science and practice of agriculture. Rome. New ser. v. 3. July–September, 1925.
G., W. S. Rain grown cotton and climate. p. 819–820. [Abstr. from Journal of the textile industry.]
International commission of agricultural meteorology. International institute of agricultural ecology. p. 766–781.
Z., G. Investigations on the environmental conditions which influence plant life, made in the laboratory and experimental ground of Prof. Dojharenko at the Moscow Agricultural Academy. p. 798–811. [Discusses various meteorological factors and instruments for observing them.]

Marine observer. London. v. 2. 1925.
Allen, W. E., & Bolingbroke, F. Meteorology and cable work. p. 154–156. (Oct.)
Durst, C. S. The barometer. p. 177–182. (Nov.)

Meteorologia pratica. Montecassino. Anno 6. Luglio-agosto 1925.
Crestani, Giuseppe. Sul funzionamento dell pluviografo a galleggiante "Palazzo." p. 164–170
Grablovitz, Giulio. Periodicità diurna dei terremoti e della pioggia. p. 153–158.
Marini, Ludovico. I risultati delle osservazioni di vento alle quote superiori in relazione alle correnti generali dell'atmosfera e alle dipendenze dalle disposizioni bariche. p. 159–163.

Meteorological magazine. London. v. 60. October, 1925.
Durward, J. Trajectories of upper air currents. p. 217–219.
Russell, Spencer. Frequency of mammato-cumulus cloud. p. 214.
Shaw, Sir Napier. Hugo Hildebrand Hildebrandsson. p. 205–206. [Obituary.]
The soaring flight of the albatross. p. 216–217.

Météorologie. Paris. n. s. t. 16. 1925.
Bureau, Robert. Les atmosphériques et le front polaire. p. 7–16. (Janv.-fév.)
Goutereau, Ch. Contribution à la climatologie de la Mer Rouge. Côtes orientales de l'Afrique. Madagascar. p. 17–22. (Janv.-fév.)
Rigotard, Marcel. Un observatoire à créer au sud de l'Océan Indien dans l'Ile de la Réunion. p. 31–35. (Janv.-fév.)
Rougetet. Le mistral. p. 23–30. (Janv.-fév.)
Ångström, Anders. L'enregistrement continu de la radiation et son influence sur les problèmes géographiques. p. 81–85. (Mars–avril.)
Brazier, C. E. Le pyrhéliomètre à compensation électrique de K. Angstrom. p. 76–80. (Mars–avril.)
Clark, J. Edmund, Margary, Ivan D., & Marshall, Richard. La coopération internationale pour les recherches phénologiques. p. 65–69. (Mars–avril.) [Transl. from Nature.]
Le pluviomètre "Ville de Paris" modèle 1923. p. 86–87. (Mars–avril.)

Meteorologische Zeitschrift. Braunschweig. Band 42. 1925.
Arendt, Th. Zur jährlichen Periode der Niederschlagsmengen im Harz. p. 324–330. (Aug.)
Defant, A. Vorsicht bei der Deutung von Korrelationen nicht gleichzeitiger Mittelwerte. p. 319–320. (Aug.)
Elsner, G. v. Der Winter 1924/25. p. 310–317. (Aug.) [Abnormally mild winter in Europe.]
Grobe, G. Ein bemerkenswerter Blitzschlag auf dem Brocken. p. 323–324. (Aug.)
Knoch, K. Polar- und Tropikluft nach Registrierungen der Temperatur und der relativen Feuchtigkeit auf dem Atlantischen Ozean. p. 297–302. (Aug.)
Markgraf, Hans. Die gegenseitigen Beziehungen der luftelektrischen Elemente. p. 321–323. (Aug.)
Wagner, A. Aerologische Untersuchungen in Indien. p. 302–310. (Aug.)
Bjerknes, J. Bemerkungen zur Frage der Beschleunigungen an atmosphärischen Diskontinuitätsflächen. p. 359–363. (Sept.)
Hartmann, Wilhelm. Trübungsfaktor für kurzwellige Sonnenstrahlung und atmosphärische Vorgänge. p. 337–344. (Sept.)
Keller, H., & Fischer, Karl. Abflussverhältnis, Abflussvermögen und Verdunstung von Flussgebieten Mitteleuropas. p. 348–354. (Sept.)
Kerner, Fritz v. Ein Hagelwetter auf der Insel Brazza. p. 365–366. (Sept.)
Kerner, Fritz v. Jahreszeitliche Verschiebung der Niederschlagsminimums im obersten Inntale. p. 366–367. (Sept.)
Kerner, Fritz v. Kartographische Darstellung der Veränderlichkeit der jährlichen Niederschlagsperiode. p. 363–365. (Sept.)

Kerner, Fritz v. Ube die "nicht reale" Poltemperatur im reinen Seeklima. p. 357–358. (Sept.)
Kurrik, W. Neue Zugstrassen der Zyklonen. p. 344–348. (Sept.)
Preussische Akademie der Wissenschaften. Deutsche Meteorologische Gesellschaft. p. 354–355. (Sept.) [Address of Preuss. Akad. der Wissenschaften to Dr. G. Hellmann on the occasion of the 50th anniversary of his doctorate. Reviews his work.]
Süring, R. Hugo Hildebrand Hildebrandsson. p. 355–357. (Sept.) [Obituary.]
Fischer, Karl. Die Wirkung eines inneren Wasserkreislaufs auf die Beziehungen zwischen Niederschlag, Abfluss, und Verdunstung. p. 397–399. (Okt.)
Köppen, W. Der Winter 1924/25. p. 395–396. (Okt.)
Mügge, R. Über Temperaturschwankungen in der Stratosphäre und die hochreichenden Antizyklonen. p. 389–394. (Okt.)
Schmauss, A. Die Deutung von Korrelationen nicht gleichzeitiger Mittelwerte. p. 406. (Okt.)
Schoenrock, A. Langdauerende Schwankungen der Winterniederschläge. p. 406–407. (Okt.)
Suzuki, S. Zusammenhang zwischen regelmässigen Luftdruckschwankungen und den meteorologischen Elementen. p. 377–389. (Okt.)
Thorkelsson, Thorkell. Zur Ableitung der ablenkenden Wirkung der Erddrehung. p. 407–408. (Okt.)
Wegener, Alfred. Die Temperatur des obersten Atmosphärenschichten. p. 402–405. (Okt.)

Nature. London. v. 116. 1925.
Breit, G., & Tuve, M. A. A radio method of estimating the height of the conducting layer. p. 357. (Sept. 5.)
Simpson, G. C. The new ideas in meteorology. p. 361–365. (Sept. 5.)
Coblentz, W. W. Radiometric measurements of stellar and planetary temperatures. p. 439–441. (Sept. 19.)
Hobbs, W. H. The source of the cold air of the north "polar front." p. 519–521. (Oct. 3.)
Richardson, L. F. Modern meteorology. p. 528–530. (Oct. 10.) [Review of recent work in dynamic meteorology.]
Shaw, Napier. Prof. H. H. Hildebrandsson. p. 549–550. (Oct. 10.) [Obituary.]
Mr. F. J. Brodie. p. 584. (Oct. 17.) [Obituary.]
Reid, G. Archdall. Weather prediction from observations of cloudlets. p. 676. (Nov. 7.)
Sarasola, S. The anti-trade winds. p. 675. (Nov. 7.)
Dines, J. S. Plotting upper air temperatures. p. 709. (Nov. 14.)

Nature. Paris. 53. année. 7 novembre 1925.
Joleaud, L. Le régime des pluies et les zones de végétation du Maroc. p. 295–301.
Rudaux, Lucien. Photographie du rayon vert. p. 303–304.

Naturwissenschaften. Berlin. 30. Jahrgang. 1925.
Taumann, G. Die Enstehung des freien Sauerstoffs der Luft. p. 758. (4. Sept.) [Abstr. from Zeits. f. phys. Chem.]
Hellmann, G. Grenzwerte der Klimaelemente auf der Erde. p. 845–853. (9. Okt.) [Abstr. from Sitzb. Preuss. Akad. Wiss.]

Royal meteorological Society. Quarterly journal. London. v. 51. July, 1925.
Bjerknes, Vilhelm. Polar front meteorology. p. 261–268.
Douglas, C. K. M. On the relation between the source of the air and the upper air temperature up to the base of the stratosphere. p. 229–238.
Everdingen, E. van. Clouds and forecasting weather. p. 191–203.
Goldie, A. H. R. Waves at an approximately horizontal surface of discontinuity in the atmosphere. p. 239–246.
Harmer, F. W. Further remarks on the meteorological conditions of the Pleistocene epoch. p. 247–259.
The International commission for the exploration of the upper air. p. 279–282.
Margary, I. D. Weather diaries kept by the Earl of Dartmouth, 1788–1794. p. 269–270.
Pick, William H. A note on isobaric distribution and sunshine at Cranwell, Lincolnshire. p. 282.
Shaw, Napier, & Fahmy, H. The energy of saturated air in a natural environment. p. 205–228.

Royal society of London. Proceedings. London. ser. A. v. 109. October, 1925.
Deodhar, D. B. On atmospheric radio-activity and Indian weather. p. 280–286.

Science. New York. v. 62. 1925.
White, Walter P. When does winter come? p. 286. (Sept. 25.)
Abbot, C. G. Solar variation and the weather. p. 307–308. (Oct. 2.)
Gilbert, Arthur W. The fear of lightning. suppl. p. x–xii. (Oct. 2.) [Abstract.]

Scientific monthly. New York. v. 21. November, 1925.
Humphreys, W. J. Ice ribbons. p. 511–514.

Tycos-Rochester. Rochester, N. Y. v. 15. October, 1925.
Eshleman, Cyrus H. Climatic effects of the Great Lakes. p. 131–132.
Laskowski, B. R. Surveying snowfields in Arizona. p. 147–149.
Martin, Robert E. Be your own weather prophet. An interview with Prof. W. J. Humphreys, Physicist, U. S. Weather Bureau. p. 142–144. [Repr. Pop. science monthly.]
Talman, Charles Fitzhugh. The weather vocabulary. p. 125–127.

SOLAR OBSERVATIONS

SOLAR AND SKY RADIATION MEASUREMENTS DURING OCTOBER, 1925

By HERBERT H. KIMBALL, Solar Radiation Investigations

For a description of instruments and exposures and an account of the method of obtaining and reducing the measurements the reader is referred to the REVIEW for January, 1924, **52** : 42 and January, 1925, **53** : 29.

From Table 1 it is seen that solar radiation intensities average above the normal for October at all three stations. This is attributable, at least in part, to the prevailing low temperatures and the resulting low vapor pressures. At Washington the vapor pressure averaged only about 64 per cent of the October normal, and at Madison and Lincoln about 75 per cent.

A noon radiation intensity of 1.51 gram calories per minute per cm.^{2} obtained at Lincoln on the 28th is within 1 per cent of the highest radiation intensity ever measured at that station in October.

Table 2 shows that the solar and sky radiation received on a horizontal surface averaged decidedly below the normal for October at all three stations. The deficiency was due to the excessive cloudiness, which averaged about 160 per cent of the October normal at Washington and Lincoln and 140 per cent at Madison.

At Washington skylight polarization measurements made on six days give a mean of 64 per cent, with a maximum of 71 per cent on the 7th. At Madison, measurements made on three days give a mean of 60 per cent with a maximum of 67 per cent on the 10th. The values for Washington are above the October averages, and those for Madison are slightly below.