

cable to the conditions. It will also be necessary to command larger quantities of eggs. In this connection it may be worth mentioning that in one experiment the number of eggs used was estimated at 17,850,000. The method consisted in diluting 1 c.c. of eggs to 100 c.c. and then counting the eggs in ten drops, which equaled .4 c.c. This number seems large and several hundred animals were opened to obtain them; but from a single ripe sea urchin at the height of the season was taken a mass of eggs estimated at 4,600,000. Thus by working at the proper time of the year it will be easily possible to obtain ten times the number of eggs I was able to get for these experiments.

E. P. LYON.

UNIVERSITY OF CHICAGO.

#### CURRENT NOTES ON METEOROLOGY.

##### CLIMATOLOGY OF CALIFORNIA.

CALIFORNIA has the good fortune to have its climate discussed in considerable detail in 'Bulletin L' of the Weather Bureau (Climatology of California, by Professor A. G. McAdie). In fact this is the most complete tabulation hitherto published of the climatic data of any single state in the union. The 'Bulletin' numbers 270 pages, and is illustrated by means of numerous charts, curves and half-tone views. After a consideration of the controlling factors of the climate (pressure, storms, topography, etc.), there follow tabulated data and brief discussions of the climate of individual localities. Much of the report is naturally tabular. In some cases the tabulation is remarkably complete, as in the case of San Francisco, for example, where the daily rainfall is given for the period January 1, 1865, to March 19, 1902. Persons interested in obtaining meteorological data for California will find this report of great service. A good deal of the present 'Bulletin' has appeared in separate instalments in the *Monthly Review of the California Climate and Crop Service*, and it is a great convenience to teachers, and all others interested, to have the matter collected in one volume. Special reports on frost, fog and thunder-storms are found at the end of the 'Bulletin.'

##### SKY COLORS AND ATMOSPHERIC CIRCULATION.

IN *Nature* for December 24, Mr. A. L. Rotch, of Blue Hill Observatory, calls attention to the fact that the occurrence of Bishop's ring and of abnormal glows after sunset, observed at Blue Hill during the past year, was intermittent, and that the respective phenomena occurred at Blue Hill about twenty days later than they did in Switzerland. Assuming that the conclusions are approximately correct, the drift of the dust clouds from central Europe to the eastern United States was at the rate of about thirty miles an hour, or a good deal less than the velocity of the highest clouds. The importance of such studies in connection with the general circulation of the atmosphere is great, and the suggestion made by Mr. Rotch, that a committee, like the Krakatoa Committee of 1884, undertake an investigation of the recent sky colorations, will have the support of all meteorologists. In *Nature* for January 21, Mr. H. H. Clayton calls attention to the steadily diminishing size of the new Bishop's ring around the sun, as determined by measurements made at Blue Hill Observatory.

##### WEATHER FOLK-LORE.

UNDER the title 'Weather Folk-Lore and Local Weather Signs,' the Weather Bureau has recently published 'Bulletin No. 33' (8vo, 1903, pp. 153), prepared by Professor E. B. Garriott. The object of the 'Bulletin' is to collect the weather proverbs and sayings that are applicable to the United States, and to combine with these the local prognostics noted by observers of the Weather Bureau at the different stations over the United States. Persons who are interested in weather proverbs will find abundant material in this collection. The proverbs are grouped by subjects, as temperature, clouds, humidity, barometer, etc., often, however, rather haphazardly, as when we find under 'The physiological effects on animal life of changes of pressure' the saying 'smoke falls to the ground preceding rain.' There are several extracts from daily newspapers which, unless the writers of the articles referred to are persons of scientific standing, are out of place in an official publication of

the Weather Bureau. Over half of the 'Bulletin' is taken up with local weather signs for different Weather Bureau stations; these signs being such as the following: winds which bring precipitation; relation of pressure changes to precipitation; directions of high and of warm winds; conditions for frost, etc. In other words, these are type local weather conditions, which will doubtless prove useful to many persons. These local weather signs are illustrated by a series of seasonal charts, showing, for the United States, the directions of the rain winds; the direction of movement of cirrus or cirro-stratus clouds before rain, and the number of hours they appear before rain; the barometer heights preceding precipitation, and the wind direction during periods of high and of low temperature.

R. DEC. WARD.

HARVARD UNIVERSITY.

#### ELIZABETH THOMPSON SCIENCE FUND.

THE 29th meeting of the board of trustees was held at the Harvard Medical School, Boston, Mass., on February 5. The following officers were elected:

*President*—Henry P. Bowditch.

*Treasurer*—Charles S. Rackemann.

*Secretary*—Charles S. Minot.

The report of the treasurer, showing a balance of income on hand of \$1,788.29, was read and accepted.

The secretary presented reports of progress from the holders of various grants, the work for which is not yet completed, as follows:

No. 27. E. Hartwig.	No. 98. J. Weinzirl.
60. F. Kruger.	99. H. S. Grindley.
65. O. Lubarsch.	100. H. H. Field.
71. A. Nicolas.	101. T. A. Jaggar.
73. J. von Kennell.	102. E. O. Jordan.
94. A. M. Reese.	103. E. Anding.
96. H. E. Crampton.	104. W. P. Bradley.
97. F. W. Bancroft.	106. W. Valentiner.

Professor Belopolsky having completed and published the work under grant No. 76, it was voted to close the record of that grant.

The secretary reported that 59 applications had been received for the consideration of the board, the total amount asked for being nearly

\$10,000. Under these circumstances it became necessary to decline, not only applications of minor interest, but also several which in the opinion of the board were of exceptional merit and highly deserving of encouragement and support.

It was voted to make the following new grants:

No. 107. \$300 to Professor Morris W. Travers, London, England, for researches on the absolute scale of temperature, by experiments with liquid hydrogen.

No. 108. \$150 to Professor Benjamin L. Seawell, Warrensburg, Missouri, for study of the taxonomy and ecology of the organisms of freshwater lakes, in relation to fish foods and water supplies.

No. 109. \$40 to Professor A. Nicolas, Nancy, France, for studies on the embryology of reptiles.

No. 110. \$250 to Professor H. S. Grindley, Urbana, Ill., for the separation and purification of the nitrogenous substances of meats.

No. 111. \$200 to Professor R. Hürthle, Breslau, Germany, to determine the relation between pressure and the obliteration of circulation.

No. 112. \$143 to Professor W. J. Moenkhaus, Bloomington, Ind., for studies on the individuality of maternal and paternal chromatin in hybrids.

No. 113. \$50 to S. P. Fergusson, Esq., Hyde Park, Mass., to measure the errors of absorption hygrometers.

No. 114. \$300 to Dr. Werner Rosenthal, Erlangen, Germany, for researches on the Lombardy chicken pest.

No. 115. \$300 to Professor Henry S. Carhart, Ann Arbor, Michigan, for the preparation and study of Clark and Weston standard cells.

CHARLES S. MINOT,

*Secretary.*

#### THE ANNUAL REPORT OF THE DIRECTOR OF THE GEOLOGICAL SURVEY.

THE twenty-fourth annual report of the director of the United States Geological Survey, which is now ready for distribution, shows that the several branches of that organization greatly enlarged the scope of their work and increased their activities during the last fiscal year. The period covered is from July 1, 1902, to July 1, 1903, for the work of which congress had appropriated the sum of \$1,377,470.