SCIENCE

FRIDAY, MARCH 23, 1900.

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MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor, J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THIRD ANNUAL PURE FOOD AND DRUG CONGRESS.

IN harmony with a call issued by the Executive Committee, the third annual Pure Food and Drug Congress of the United States, assembled in Washington, D. C., on March 7th.

Delegates to this Congress were appointed by the Governors of the several States; by the State boards of agriculture and health; by the agricultural colleges and experiment stations; by the national trade organizations, both by wholesalers and retailers; by the National Grange; by the State Granges and by various other organized bodies. Over five hundred delegates were appointed and about three hundred attended the meeting, thirty-five States and Territories being represented by delegates in actual attendance. The meeting was a thoroughly representative one in every particular.

The principal object of this Congress was to promote national legislation relating to the inter-state traffic in adulterated foods, to provide inspection of food products shipped abroad and to regulate the sale of food products in the Territories of the United States and the District of Columbia. Under the constitution the power of the Congress cannot go farther than this.

For many years agitation in regard to this legislation has been going on, and the fundamental principles of the measure agreed upon have been endorsed by the

ents; the mean heights of clouds from different directions; the mean velocities and frequencies of the clouds at different heights; the frequencies of the different currents at different heights, etc. The mere enumeration of the headings of these tables will suffice to show the thoroughness of the work discussed in this volume—a thoroughness which is characteristic of all of Mr. Clayton's cloud studies. The text accompanying the tables discusses the methods of measurement and of computation employed, and the meteorological results of the investigation. It is impossible to present any adequate summary of the important results reached by Mr. Clayton. Those who seek further information should turn to the volume itself, which is worthy of careful study. There is, however, one point which we would notice here. From a series of special measurements of cumulus and fracto-cumulus clouds, made with a view to determining the relation between the heights of these clouds as obtained by theodolites and from the dew-point, it appears that turreted cumulus clouds are most frequent at the coldest time of day, and not at the warmest, as is the case with ordinary cumulus. Thus, as Mr. Clayton points out, it seems that the diurnal period of the turreted cumulus is not determined by heating at the ground but by cooling at the surface of the cloud. The turreted cumulus probably forms only when the decrease of temperature from other causes approaches the adiabatic rate. It is thus an indication of thunderstorms, for a rapid vertical decrease of temperature in the upper air, when combined with a rapid decrease in the lower air caused by heating at the ground, favors the ascent of columns of air from the ground, to great heights and this is a condition favorable to thunderstorms.

The present volume is fully worthy to take its place in the line of Blue Hill Observatory publications as another important American contribution to meteorology.

R. DeC. Ward.

BOOKS RECEIVED.

Text-Book of Paleontology. Karl A. von Zittel. Translated and edited by Charles R. Eastman. London and New York, The Macmillan Company, 1900. Pp. ix + 706.

Volumetric Analysis. John B. Coppock. London, Whittaker & Co.; New York, The Macmillan Company. 1900. Pp. 92.

The Soul of Man. Paul Carus. Chicago, The Open Court Publishing Company. 1900. Pp. xviii+482.

The Teaching of Elementary Mathematics. David Eugene Smith. New York and London, The Macmillan Company. 1900. Pp. xv + 312.

The Criminal, his Personnel and Environment, a scientific study. August Drähms, with an Introduction by Cesare Lombroso. New York and London, The Macmillan Company. 1900. Pp. xiv+40.

SOCIETIES AND ACADEMIES.

THE PHILOSOPHICAL SOCIETY OF WASHINGTON.

At the 514th meeting of the Society, held at the Cosmos Club on March 3d, Professor C. Abbe read an obituary notice of Professor H. A. Hazen. Dr. L. A. Bauer, then gave a detailed statement of the methods to be pursued in carrying out the magnetic survey of the United States by the Division of Terrestial Magnetism of the U. S. Coast and Geodetic Survey.

As an indication of the scope and character of the data to be derived from the detailed magnetic survey of the United States, a brief statement was given regarding the results obtained from the detailed magnetic surveys of Maryland and of North Carolina. Furthermore there were exhibited various charts giving a graphical analysis of the earth's magnetic field for various portions of the United States.

With the aid of these charts, it was shown very clearly how inadequate it is for the formation of theories of the earth's magnetism to have simply declination data alone.

Following Dr. Bauer's paper, Dr. Alexander Macfarlane of Lehigh University, discussed the 'Square Root of minus one.' He reviewed the explanations published by Payfair, Buée, Argaud, Français, Gauss, Cauchy, Boole, Hamilton, Cayley and other mathematicians and concluded that $\sqrt{-1}$ does not indicate direction nor rotation of the quantity to which it is attached, nor a turning of the plane of representation, nor a special unit; that + and − are not signs of addition and subtraction but are signs of affection, and so is $\sqrt{-1}$. He gave analytical expressions for these signs, which