

anything about the matter. The sociological chapter is inconclusive; nothing very specific seems to be built upon the 'biological foundations,' in this case, except the doctrine—which one had supposed extinct these many years—that we should bring up our children by 'teaching them exclusively truths that are beyond dispute, such as those of mathematics, geography, anatomy.'

When, however, he sticks to his last, M. Le Dantec has much that is not only significant, but also closely reasoned, to say, and the book can not be neglected by any who are interested in the larger problems of general biology. The work is characterized by an unusually careful attention to the question of biological method—to the determination of the nature and limits of 'explanation' in this science—and should be of use in increasing, so to say, the methodological self-consciousness of naturalists. No one, doubtless, was ever more resolute than M. Le Dantec to banish confusion and equivocation from biological language, to define at the outset the peculiar 'biologist's fallacies' and, above all, to avoid the naturalist's besetting temptation, the use—especially in dealing with such processes as cell-division and maturation—of vaguely teleological phraseology. As the chief sinner in this and other matters of method, Weismann is pursued throughout the book with somewhat excessive ferocity; 'the meeting-place of all the errors possible in biology,' is one of the characterizations of Weismann's system. The main purpose of the book, however, is 'to describe the known part of the phenomena of life in physico-chemical terms,' and to 'show that life is no more essentially different from other natural phenomena than are the properties of benzine essentially different from those of alcohol.' This, however, does not mean that the author proposes to bring vital phenomena under the already known laws of chemistry or physics. He regards the power of assimilation as the primary and only essential characteristic of living matter; and assimilation, though a chemical reaction, is, upon the author's own showing, an entirely unique and even somewhat paradoxical chemical reaction.

Beginning with a proposed formulation of the nature of this primary process, M. Le Dantec attempts to correlate with this in a connected manner—and in that sense, to explain—the laws of the other vital phenomena, offering, by the way, many observations that are of value apart from their connection with the main argument. The book, which is copiously illustrated with good diagrams, makes abundant use of recent biological investigations, and is full of ingenious hypotheses that are illuminating and suggestive, even where the reader feels that the author has not constantly discriminated between 'possible hypothesis' and 'only possible hypothesis.' To go into full details of the discussion lies neither within the competency of the present reviewer nor within the limits of reasonable length.

ARTHUR O. LOVEJOY.

SCIENTIFIC JOURNALS AND ARTICLES.

THE first article in the August number of the *American Geologist* is a biographical sketch with portrait of Professor Albert A. Wright by Professor George F. Wright. Professor W. O. Crosby contributes the second installment of his article on the 'Genetic and Structural Relations of the Igneous Rocks of the Lower Neponset Valley, Massachusetts.' The longest paper and the one of greatest general geological interest is by Drs. J. W. Beede and E. H. Sellards on the 'Stratigraphy of the Eastern Outcrop of the Kansas Permian.' The writers accept the Wreford limestone as the base of the Kansas Permian and they have traced and mapped this limestone from southern Nebraska nearly across Kansas. Its outcrop is shown on a map, while another plate gives a characteristic view of the 'Flint Hills Escarpment' in Kansas, which is composed in part of lower Permian formations. In conclusion the writers state 'that the strata of the lower Permian are remarkably persistent and uniform when the great extent of outcrop is considered.' President Charles R. Keyes contributes a paper on 'The Fundamental Complex beyond the Southern End of the Rocky Mountains.'

THE October number of *The American Journal of Science* contains the following articles:

B. B. BOLTWOOD: 'Ultimate Disintegration Products of the Radioactive Elements.'

C. P. FLORA: 'Use of the Rotating Cathode for the Estimation of Cadmium taken as the Sulphate.'

A. J. MOSES: 'Crystallization of Luzonite and other Crystallographic Studies.'

F. E. WRIGHT: 'Determining of the Optical Character of Birefracting Minerals.'

C. BARUS: 'Groups of Efficient Nuclei in Dust-Free Air.'

T. HOLM: 'Studies in the Cyperaceæ.'

P. F. SCHNEIDER: 'Preliminary Note on Some Overthrust Faults in Central New York.'

F. N. GUILD: 'Petrography of the Tucson Mountains, Pima Co., Arizona.'

The American Chemical Journal for October contains articles, as follows:

C. LORING JACKSON and LATHAM CLARKE: 'Bromine Addition-Compounds of Dimethylaniline' (Contributions from the Chemical Laboratory of Harvard College).

HARRY C. JONES and H. P. BASSETT: 'The Approximate Composition of the Hydrates Formed by a Number of Electrolytes in Aqueous Solutions, Together with a Brief General Discussion of the Results Thus Far Obtained.'

SOCIETIES AND ACADEMIES.

AMERICAN MATHEMATICAL SOCIETY.

THE twelfth summer meeting of the American Mathematical Society was held at Williams College, Williamstown, Mass., on Thursday and Friday, September 7-8. Twenty-eight members were in attendance. Two sessions were held on Thursday, and a third on Friday morning. Professors Morley and Ferry filled the chair. The council announced the election of the following persons to membership in the society: Lieutenant-Colonel C. P. Echols, U. S. Military Academy; Professor G. B. Guccia, University of Palermo; Professor H. B. Evans, University of Pennsylvania; Dr. A. M. Hiltebeitel, Princeton University; Dr. J. M. Poor, Dartmouth College; Professor J. E. Williams, Virginia Polytechnic Institute. Eight applications for membership were received. The

total membership of the society is now nearly five hundred.

At the close of the Thursday morning session the members were conducted through the grounds and buildings of Williams College and the collection of mathematical models were shown. On Friday afternoon the members assembled at the house of President Hopkins and through the courtesy of the college were taken in carriages on an excursion over the Berlin Mountain, whose less accessible regions were traversed on foot. Several foot tours were also made on Saturday. The hospitality of the college authorities was appropriately recognized by appreciative resolutions at the close of the meeting.

The following papers were read at the meeting:

W. H. BUSSEY: 'Galois field tables for $p^n \leq 169$.'

EDWARD KASNER: 'A geometric property of the trajectories of dynamics.'

G. A. BLISS: 'A generalization of the notion of angle.'

W. B. FITE: 'Irreducible linear homogeneous groups.'

SAUL EPSTEIN: 'Note on the structure of hypercomplex number systems.'

MAURICE FRÉCHET: 'Sur l'écart de deux courbes et sur les courbes limit.'

RICHARD MORRIS: 'On the expressibility of the automorphic functions of the group $(0, 3, l_1, l_2, l_3)$ in terms of theta series.'

J. I. HUTCHINSON: 'On certain hyperabelian functions which are expressible by theta series.'

N. J. LENNES: 'Concerning real functions of one real variable which are completely determined over an interval by the values of the function and its derivatives for one value of the independent variable.'

W. A. MANNING: 'On the arithmetic nature of the coefficients in groups of finite monomial linear substitutions.'

MAX MASON: 'On the boundary value problems of linear ordinary differential equations of the second order.'

G. A. MILLER: 'On the possible number of operators of order 2 in a group of order 2^n .'

FRANK MORLEY: 'On two cubic curves in triangular relation.'

C. H. SISAM: 'On the determination of the nodal curve on a ruled surface.'

A. S. CHESSIN: 'On the strains and stresses in a rapidly revolving circular disc.'