SCIENCE

FRIDAY, JULY 14, 1899.

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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.

*THE STRUCTURE OF PROTOPLASM.**

IT would be superfluous to dwell in this place on the deep and enduring interest that attaches to the microscopical study of protoplasm. Since the time when the studies of Cohn and Schultze led to the general recognition of protoplasm as the material substratum of vital activity—a conclusion so eloquently set forth by Huxley in his celebrated essay on the physical basis of life—this interest has continually increased, as we have come to see even more clearly that all biological phenomena are directly or indirectly traceable to the effects of protoplasmic activity, for we have thus been impelled to seek for an understanding of that activity in the morphological structure of protoplasm, as revealed by the microscope. It is small wonder that to this quest some of the ablest of modern biologists have devoted their best energies. And yet, if we take account of the actual

* This lecture is printed by permission of Professor C. O. Whitman, Director of the Biological Laboratory at Wood's Holl, and Messrs. Ginn & Co., the publishers of 'Biological Lectures delivered at the Marine Biological Laboratory, 1889–99,' in which it will appear. A more adequately illustrated special paper on the subject, containing more specific references to the literature, is now in press. It should be borne in mind that such delicate textures as those seen in the protoplasm of living cells cannot be properly illustrated by black and white figures. The accompanying text figures, though copied as accurately as possible from the original drawings, are of necessity relatively rude and schematic.

comitance.'' Of course this is a wider field than mere joy as specific emotion, but inclusive of it. It may be surmised that the expansive movement for the pleasant and contrary for painful stimulus—which is reinforced by these experiments—is simplest biological reaction concerned with appropriation and rejection in feeding by primitive organisms. However, joy as specific emotion is later and must be studied more introspectively in its functional activity than Mr. Dearborn has done. In neurasthenia joy does not act, as I recall in my own case, once receiving news which normally would have brought great joy but left me quite listless at the time.

HIRAM M. STANLEY.

BOOKS RECEIVED.

The Races of Europe, a Sociological Study. WILLIAM Z. RIPLEY. New York, D. Appleton & Company. 1899. Pp. xxxii+624.

A Selected Bibliography of the Anthropology and Ethnology of Europe. WILLIAM Z. RIPLEY. New York, D. Appleton & Company. 1899. Pp. 160.

Plant Relations. JOHN M. COULTER. New York, D. Appleton & Company. 1899. Pp. 264.

Industrie des matières colorantes azoïques. GEORGE F. JAUBERT. 1899. Pp. 167.

Transactions of the American Microscopical Society. Edited by the Secretary. Lincoln, Neb., Hunter Printing Co. 1899. Vol. XX. Pp. 369.

Report of the Meteorological Service of Canada for the year ending Dec. 31, 1896. R. F. STUPART, Director. Vol. I., pp. 295; Vol. II., pp. 796.

The Soluble Ferments and Fermentation. J. REYNOLDS GREEN. Cambridge, University Press. 1899. Pp. xiii+480. 12s.

SCIENTIFIC JOURNALS AND ARTICLES.

THE June number of the *Bulletin of the American Mathematical Society* contains a report of the April meeting of the Society, by the Secretary; 'Surfaces of Revolution in the Theory of Lamé's Products,' by Dr. F. H. Safford; a review of 'Picard's Algebraic Functions of Two Variables,' by Arthur Berry, M.A.; 'Note on Page's Ordinary Differential Equations,' by Dr. L. E. Dickson; a review of 'Tannery's Arithmetic, by Professor James Pierpont; 'Notes,' and 'New Publications.' The July number of the *Bulletin*, which concludes volume 5 of the new series, contains 'The Asymptotic Lines of the Kummer Surface,' by Dr. J. I. Hutchinson; 'On a Definitive Property of the Covariant,' by Mr. C. J. Keyser; 'The Known Finite Simple Groups,' by Professor L. E. Dickson; a review of 'Schoenflies's Geometry of Movement' and of its French translation by Speckel, by Professor F. Morley; a review of the new edition of 'Weber's Algebra,' by Professor James Pierpont; 'Shorter Notices;' 'On Elliptic Functions,' by Professor James Pierpont; 'Notes;' 'New Publications;' annual list of papers read before the Society and subsequently published, and an elaborate index of the volume.

THE June number of the *Botanical Gazette* opens with a morphological study of the common May apple, *Podophyllum peltatum*, by Mr. Theo. Holm, illustrated by ten figures drawn from nature by the author. Mr. Holm discusses the mode of germination, the distribution, relation and arrangement of the leaves and buds. Some structural details of the mature plant are also given. The study shows clearly that *Podophyllum* is closely related in its habits and ecological peculiarities to a little natural group of plants: Diphylleia, Jeffersonia, Caulophyllum, Actæa and Cimicifuga. He thinks it better to associate these plants than to separate them by the insignificant floral characters which have been used to put them into separate orders. Capt. John Donnell Smith continues his description of new plants from Guatemala and other Central American republics. Mr. T. S. Brandegee also describes a considerable number of new species of Western plants. Dr. C. O. Townsend discusses the effect of ether upon the germination of seeds and spores. He finds that a weak atmosphere of ether tends to hasten the time of germination, while a larger amount of ether retards or prevents it. Dr. A. P. Anderson figures and describes a new Tilletia parasitic upon the cultivated rice. An appreciative biographical sketch of the late Dr. Alvin Wentworth Chapman is contributed by Dr. Charles Mohr, a long-time friend of Chapman. It is accompanied by a small but excellent portrait of Dr. Chapman. Professor F. A. Waugh discusses the application of the name *Prunus insi-*