SCIENCE

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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.

*TEN YEARS OF AMERICAN PSYCHOLOGY: 1892–1902.**

I.

SOME future historian of our science will have a very interesting opportunity to trace and to describe the characterizing features of the so-called 'modern' psychology, and the alleged discoveries made by its devotees. The name of this science and its titular employment in the writing of books are a little bit younger than the discovery of America. It is, perhaps, both too early and too venturesome to suggest that there might be some mystic connection between that name and that historic event. The habilitation of the lore incorporated under that name as a 'science' began just half a century ago. Lotze's 'Medicinische Psychologie' appeared in 1852, and that year must be regarded as the beginning of the new psychological calendar. Some twenty years later Wundt's 'Grundzüge der Physiologische Psychologie' appeared (1874), and about a quarter of a century passed before the first distinct experimental institute for the psychologist had its beginning at Leipzig (1878). After thirty years America had its first laboratory

* A paper prepared for the Eleventh Annual Meeting of the American Psychological Association, December 30, 1902 to January 1, 1903, at Washington, D. C.

esses. It has thus been difficult for the student of physiology who is not at the same time well versed in physical chemistry to obtain the information required for the prosecution of work in this field. Secondly, it seemed desirable to bring together in a general review the literature of this subject in its biological aspects, so that the promising and unpromising points for future research might become more apparent."

Opening the book, we find that it consists of two parts; the first of forty-eight pages devoted to 'Physical Considerations.' This includes what are properly physical discussions. There is first a discussion of matter in its several states, and this is followed by a chapter on diffusion and diffusion tension.

The third chapter is devoted to 'Liquid Solutions,' the fourth to 'Ionization' and the fifth and sixth to 'Osmotic Phenomena.' In the treatment no attempt has been made to be exhaustive. Only certain aspects of the present conceptions of these matters among physicists and chemists are discussed, and their discussion is presented with the aim of clearing the way for the physiological discussions which make up the body of the book. The author especially disclaims any originality in this portion of his book, but it must be said that he has done a very great service to botanical science by making available here, for the first time, a summary treatment of these physical phenomena.

Part II. is devoted to 'Physiological Considerations,' and here in about one hundred pages the botanist will find some important discussions. The author first takes up 'Turgidity,' and follows this with a discussion of 'Absorption and Transmission of Water and Solutes,' 'The Influence of Osmotic Pressure on Organisms.' The treatment is eminently satisfactory and will prove to be very helpful to the physiological student. To show the range of the discussion in the book we may quote from the author's summary at the close of the book as follows:

As far as investigation has gone, it has been found that growth is accelerated in weak solutions and retarded in concentrated ones. The term 'growth' here includes, not only enlargement, but also the process of cell division. Also, in some cases at least, the direction of new walls is profoundly influenced by the concentration of the surrounding medium. In general, all vital processes are retarded in concentrated solutions. Reproduction, being a peculiar form of cell division, appears in some cases to be entirely dependent upon the osmotic pressure of the surrounding medium. Irritability is also greatly influenced by external pressure. Not only is this function retarded in concentrated solutions, but in some forms the direction of response to a given stimulus may be reversed by a sudden change in the osmotic surroundings. The comparative concentration of the external and internal solutions acts, in many cases, as a stimulus upon the organism, giving rise to the phenomena of osmotaxis.

All the effects of high concentration of the surrounding liquid seem to be due to extraction of water from the living cells. They may be due either to a drying-out process or to decrease in turgidity. That they are sometimes due to the former is proved by curious analogies between the various processes which extract water from the protoplasm. Whether or not this extraction of water from the protoplasm itself is the direct cause of the responses to concentrated solutions, is not yet known. The effect may be a chemical one, due to the increased concentration of the contained solutions.

This book will at once take its place as a standard work in all institutions where any attention is given to plant physiology.

CHARLES E. BESSEY.
THE UNIVERSITY OF NEBRASKA.

SCIENTIFIC JOURNALS AND ARTICLES.

THE AMERICAN JOURNAL OF ANATOMY, VOL. II., NUMBER 3. JULY, 1903.

A. M. MILLER: 'The Development of the Postcaval Vein in Birds,' pp. 283–299, with 10 Text-figs.

G. L. STREETER: 'Anatomy of the Floor of the Fourth Ventricle,' pp. 299–315, with 4 Plates and 2 Text-figs.

F. P. MALL: 'The Circulation through the Pulp of the Dog's Spleen,' pp. 315–333, with 1 Plate and 1 Text-fig.

F. P. MALL: 'The Transitory or Artificial Fissures of the Human Cerebrum,' pp. 333–341, with 1 Table.

A. J. CARLSON: 'Changes in the Nissl's Substance of Nerve Cells of the Retina of the Cormo-

rant, during Prolonged Normal Stimulation,' pp. 341–349, with 1 colored Plate.

R. H. Whitehead: 'A Study of the Histogenesis of the Adrenal in the Pig,' pp. 349–361, with 6 Text-figs.

E. L. Mellus: 'On a Hitherto Undescribed Nucleus Lateral to the Fasciculus Solitarius,' pp. 361–365, with 3 Text-figs.

Katherine Foot and E. C. Strobell: 'The Sperm Centrosome and Aster of *Allolobophora foetida*,' pp. 365–371, with 1 Plate.

C. F. W. McClure: 'Contribution to the Anatomy and Development of the Venous System in *Didelphys marsupialis* (L.)—Part I., Anatomy,' pp. 371–405, with 5 colored Plates and 11 Text-figs.

W. H. Lewis: 'Wandering Pigment Cells Arising from the Epithelium of the Optic Cup, with the Development of the M. Sphincter Pupillæ in the Chick,' pp. 405–417, with 15 Text-figs.

SOCIETIES AND ACADEMIES.

BIOLOGICAL SOCIETY OF ST. LOUIS.

The Biological Society of St. Louis was organized March 3, 1903. Dr. A. W. Greeley was elected president. The membership numbers about fifteen at present and increases at each meeting. It speaks well for the future of the society that the present membership is exceptionally homogeneous and harmonious, and that a place is rarely vacant at the meetings.

Although but four meetings have been held, and the society is yet in the formative stage, gratifying progress has been made. Current literature in botany, zoology and physiology has been reviewed. Several of the reviews have been given by members whose personal and professional relations with the authors gave to the reviews an unusual interest. Considerable original work will doubtless be presented during the next year.

At present steps are being taken looking toward closer relations with the Academy of Science of St. Louis. The meetings of the society are held on the last Tuesday evening of the year excepting in the months of June, July and August. Visiting biologists are cordially invited to attend.

W. L. Eikenberry,
Secretary.

St. Louis, Mo.

DISCUSSION AND CORRESPONDENCE.

THE ADVANTAGES OF THE GOVERNMENT CINCHONA PLANTATION IN JAMAICA AS A TROPICAL BOTANICAL STATION.

In a month's residence this spring, at Cinchona, during which time I was daily occupied in field work within a radius not greater than ten miles from the Cinchona garden, I was much impressed with the advantages of this location for a permanent tropical botanical station in America. After conversation and correspondence with botanists who have worked in this and various other tropical regions, I have become thoroughly convinced that, for such a station, no other location combines the many superior advantages of Cinchona.

A luxuriant and varied flora to meet the diverse demands of American botanists wishing to work on problems of distribution, development or physiology of tropical plants is, of course, the first requisite of a locality proposed for such a station. Associated with the extremely varied physiographic and climatic characters of the region accessible from Cinchona is a flora which makes this location preeminently advantageous for botanical work.

Cinchona is on a hill which forms a spur projecting southward from the Blue Mountain Range. Within three miles of Cinchona, in the Blue Mountains, is the well-known Morce's Gap, through which moisture-bringing clouds drift almost continuously, thus giving rise, near the Gap, to a dense and greatly varied vegetation especially rich in lichens, bryophytes and pteridophytes. In the deep valley of the Mabess River, just north of this, the vegetation is even more luxuriant than about the gap itself. Other moist gaps, many high mountain peaks and several deep river valleys directly below Cinchona Hill have a luxuriant plant covering of mesophytic type. Nearer Cinchona are the more xerophytic foothills of the Blue Mountains, and below these are the still drier plains about Kingston. These different regions, to reach the most distant of which requires not more than a two-day trip from Cinchona, afford a complete series of moisture conditions and plant