

SCIENCE

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THE ITHACA MEETING OF THE AMERICAN PHYSIOLOGICAL SOCIETY.

THE tenth annual meeting of the American Physiological Society was held at Cornell University, December 28 and 29, 1897. Owing to a variety of reasons, but largely to the facts that since the last annual meeting the Society held in May a very successful special meeting in Washington in conjunction with the Fourth Medical Congress, and that its members took an active part in the proceedings of the Toronto meeting of the British Association for the Advancement of Science and the Montreal meeting of the British Medical Association, the attendance at Ithaca was not so large as usual. An enjoyable 'smoker' was held on the Monday evening preceding the meetings, at which the members of the Society received many of their friends from the other Affiliated Societies. Formal sessions for the presentation of papers and the transaction of business were held on Tuesday and Wednesday forenoons; Tuesday afternoon was devoted to demonstrations; and on Wednesday afternoon the Society took part in the joint meeting of the Affiliated Societies.

A matter of unusual interest was the presentation of the report of the committee on publication of the proposed physiological journal. This committee consists of Professor Bowditch (Harvard), Chittenden (Yale), chairman,

Howell (Johns Hopkins), Lee (Columbia), Loeb (Chicago), Lombard (Michigan) and Porter (Harvard), and its report consisted of an account of its labors during the preceding six months. These labors culminated in the establishment of a new journal, *The American Journal of Physiology*, the first number of which was presented to the Society. This publication is the outcome of a feeling of the need of ready means of publication, long held by American physiologists. It will be issued under the auspices of the Society, with about one volume a year, and with the above committee as the board of editors. It will be devoted solely to the publication of the results of original researches in physiology and allied sciences, and is issued in an unusually attractive and serviceable form, with Ginn & Company as publishers. The Society passed a vote of thanks to the committee, and especially to Professor Porter for his zealous labor in behalf of the new publication.

A communication from Drs. John W. Graham and H. Sewall, of the local committee for the Denver meeting of the American Medical Association, was presented, inviting the Society to attend the coming meeting of the Association in June. Professor Sherrington (Liverpool), on behalf of the British physiologists, sent a cordial invitation to the Society to take part in the proceedings of the International Physiological Congress in Cambridge, England, in August, 1898.

One year ago, at the suggestion of Dr. S. Weir Mitchell, a commission was organized by the Society to investigate the physiological properties of the edible and poisonous fungi. This commission now consists of Professors Chittenden (Yale), chairman, Abel (Johns Hopkins), Pfaff (Harvard) and Bowditch (Harvard). During the past year it has inaugurated work in several laboratories, and the results of this work were in part presented at Ithaca. Profes-

sor L. B. Mendel (Yale) reported his researches upon the composition and nutritive value of some edible American mushrooms. Chemical analyses were combined with experiments in artificial digestion, and special attention was given to the amount of available (digestible) proteid present. The latter was found to be not over two or three per cent. in fresh mushrooms, which shows that the prevailing idea of the great nutritive value of mushrooms is not yet justified. They may be valuable as dietetic accessories, but they do not deserve the term 'vegetable beefsteak.' Their nitrogen is largely in the form of non-proteid bodies. The amount of fat, cholesterin, soluble carbohydrates, crude fiber and inorganic substances contained in them corresponds in general with that found in other vegetable foods, such as peas, corn and potatoes. Professor Chittenden reported the results of some preliminary experiments upon the toxicity of some species of poisonous mushrooms, made by Dr. W. S. Carter (University of Texas). In view of the great interest now shown in the edibility of mushrooms, the investigations of the commission, which are being actively continued, will prove of immediate practical value.

A number of papers on physiological chemistry from the Yale laboratories were presented. Professor Chittenden gave the results of a study of the variations in the amylolytic power of the human saliva and their relation to the chemical composition of the secretion. Saliva collected before breakfast is stronger in amylolytic power than that secreted after breakfast. Similarly, the alkalinity of the former (due to alkaline phosphates and indicated by lacmoid) and its acidity (due to acid phosphates and indicated by phenolphthalein) are greater than the same properties in saliva collected after breakfast. The greater amylolytic power is due not to the greater

alkalinity, but to the greater concentration of the secretion coming from glands that have been resting. Stimulation of the mucous membrane of the mouth-cavity by the vapor of ether or chloroform, or by alcohol, whiskey or gin causes a secretion richer in digestive power and solid matters than that caused by mechanical stimulation. Professor Lusk presented experimental evidence for the view that in acute fatty degeneration the dextrose that is formed from proteid in the cell is converted into fat. Professor Mendel reported preliminary experiments on the quantitative variations in the excretion of kynurenic acid.

Upon invitation Professor W. Hallock (Columbia) gave an account of his researches with Dr. F. S. Muckey on the action of the larynx in the production of voice. The larynx is essentially a string-, not a reed-instrument. In the correct mode of voice-production, pitch is controlled by the intrinsic laryngeal muscles, and registers should be absent. Registers result from the action of the extrinsic muscles interfering with the proper action of the intrinsic muscles and causing a distortion of the larynx. The authors have analyzed tones by photographing the movements of sensitive flames, and have verified in general the conclusions of Helmholtz and König regarding quality. The chest, antra and sinuses do not act as resonance-chambers to reinforce the tone.

Dr. S. J. Meltzer (New York) demonstrated a new method of anæsthetizing animals by ether administered through the rectum; a new pleural cannula *in situ*; and a simple method for the redistension of the collapsed lung. Professor Porter (Harvard) demonstrated, for Mr. F. H. Pratt, the isolation of the heart of the cat and its nutrition. A short glass tube was tied into the right ventricle of the excised heart. When a little defibrinated blood was poured in, contractions proceeded as normally.

Professor W. Patten (Dartmouth) outlined a new theory of color vision, based on the structure of the retinal cells in invertebrates. According to his observations, the structures in the eyes of invertebrates corresponding to the rods and cones of vertebrates are generally composed of groups of simple or compound wedges, containing a system of transverse fibrils accurately graded in length, according to their position in the wedges. The fibrils are always arranged in planes at right angles to the rays of light. All the fibrils in these planes may be parallel to one another, or at varying angles, or they may radiate from the axis of each rod, like the bristles in a test-tube cleaner, so that no two fibrils in the same plane are parallel. By assuming that the length and angular relations of a fibril determine the amount of its response to a wave of light of a given length and plane of vibration, it is possible to offer a logical explanation of many phenomena of color vision.

Professor G. P. Clark (Syracuse) gave an account of work that he had recently carried on with Professor von Frey, of Leipzig, upon certain characteristics of the pressure-sensations of the human skin. This dealt especially with the relations between the sensations caused by pressure and those caused by pull or traction. It was found, among other things, that the points most sensitive to pressure are also most sensitive to traction, that fatigue for the former stimulus is fatigue for the latter, and that the strength of the stimulus, the rate of application, the size of the surface and the locality of the skin to which the stimulus was applied, bear the same relation to the effectiveness of the two kinds of stimuli. The inference is that the two are mediated by the same sense-organs.

Professor Porter (Harvard), in behalf of Professor Bowditch, reported further observations by Mr. W. B. Cannon, upon the

movements of the œsophagus and stomach. The ingenious method, mixing food with subnitrate of bismuth and observing the process of swallowing and the movements of the stomach by means of the X-rays and the fluoroscope, had been announced previously. The details of the movements were described.

Professor Porter, who has been engaged for several years upon an experimental study of the mammalian heart, presented the results of his latest work. Among other things he described an ingenious method which he had devised for the study of the currents of blood in the root of the aorta. A small cylinder, made of hen's feather covered with lead foil, is fastened by a very short silk tether to the end of a probe, which is passed through the carotid artery and aorta down to the semi-lunar valves. The cylinder is so constructed as to have the same specific gravity as the blood. Its movements accordingly do not differ from those of an equal mass of blood. The lead foil makes the cylinder opaque to the Röntgen rays, so that its movements may be seen with the fluoroscope after the removal of the ribs. Thus the direction of the currents of the blood in the aorta is made visible.

Mr. F. W. Barrows discussed the results of his experimental studies on the effect of inanition on the structure of nerve-cells. In famished rats a decided shrinkage in the size of the cells and the nuclei was observed, and a still greater shrinkage in the nucleoli. The cells stain faintly with osmic acid, and the protoplasm shows a fine vacuolation. The general effects are similar to those produced by intense activity.

A number of papers were read by title in the enforced absence of their authors. At the joint session of the Affiliated Societies, Professor J. Loeb (Chicago) represented the physiologists in a paper entitled 'The

Physiological Problems of To-Day.' This has already been published in *SCIENCE*, p. 154.

A revised constitution was adopted by the Society. The project for a catalogue of physiological literature by the Concilium Bibliographicum of Zürich was presented by Professor Porter. The cordial thanks of the Society were extended to the authorities of Cornell University for the many courtesies shown during the meeting.

FREDERIC S. LEE,
Secretary.

COLUMBIA UNIVERSITY.

AMERICAN MORPHOLOGICAL SOCIETY (II.).
Preliminary Notice of a New Species of Endoproct — Loxosoma Davenportii — from the Massachusetts Coast. W. S. NICKERSON.
(Read by title only.)

THE specimens upon which this notice is based were found in Cotuit Harbor, Mass., and, as they differ in several important respects from any species hitherto found, it is proposed to describe them under the name *Loxosoma Davenportii*. The specimens were about two millimeters long. Each had a cylindrical stalk or foot, which passed without abrupt transition into a slightly expanded body containing a U-shaped digestive tube, etc. The body terminated at its free end in a lophophore carrying from eighteen to twenty-seven tentacles. The foot was destitute of a lateral expansion and of a foot gland, such as are found in several other species of this genus. Buds occurred attached to the anterior side of the body, nearly over the junction of the œsophagus with the stomach. Ovaries were present in all the individuals, but testes could not be found. Whether the species has separate sexes or is protandric must be left undetermined. There are three characteristics in which *Loxosoma Davenportii* differs markedly from other species of this genus. The first of these is the possession of a single