

strained to exercise caution, and to repress the desire to make larger ventures from the imperfectly beaten main road. Perhaps, after all, I may have fallen into error, and I must therefore be prepared to recall or to revise some of the views which I have advanced here, should they ultimately be found wanting. That, however, as I reassure myself, is the true attitude to take. It is a far cry to certainty. As Duclaux has aptly put it, the reason why science advances is that it is never sure of anything. Thus I justify my effort of to-day.

Notwithstanding this inadequate treatment of the subject of surface tension in relation to cellular processes, I hope I have made it in some measure clear that the same force which shapes the raindrop or the molten mass of a planet is an all-important factor in the causation of vital phenomena. Some of the latter may not thereby be explained. We do not as yet know all that is concerned in the physical state of solutions. The fact, ascertained by Rona and Michaelis, that certain sugars, which neither lower nor appreciably raise surface tension in their solutions, condense or are absorbed on the surface of a solution system, is an indication that there are at least some problems with a bearing on vital phenomena yet to solve. Nevertheless, what we have gained from our knowledge of the laws of surface tension constitutes a distinct step in advance, and a more extended application of the Gibbs-Thomson principle may throw light on the causation of other vital phenomena. To that end a greatly developed science of microchemistry is necessary. This should supply the stimulus to enthusiasm in the search for reactions that will enable us to locate with great precision in the living cell the constituents, inorganic and organic, which affect its physical state and thereby influence its activity.

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THE EIGHTH INTERNATIONAL ZOOLOGICAL CONGRESS IN GRAZ

IN the week before the congress members inspected the biological station in Lunz, with its glass houses and ponds, the lower, middle and upper lakes, the last 1,117 meters high, and were shown the methods of research and some of the results obtained. In Vienna, the great Museum of Natural History, the zoological laboratories of the university and the vivarium were visited. The vivarium, under the direction of Dr. Przibram, is a remarkable institution for work in experimental biology and evolution. There are series of rooms in which the temperature, light and other conditions of existence may be under control, and

aquaria, caves, breeding-pens and laboratories, fully equipped for the investigations in hand.

Graz, the capital of Steiermark, lies on both banks of the Mur, in the region between the eastern Alps and the Pannonian lowlands. In the midst of the quaint old houses rises the Schlossberg, a conical, rocky hill, which, as a natural fortress, has formed a center for the successive struggles of the Celts, Romans, Slavs and Germans. Napoleon had his headquarters here, but in the century of peace since the French occupation Graz has developed into a beautiful and prosperous city of 170,000 inhabitants.

The imposing new buildings of the university, erected in 1890-94, in the newer quarter, have an exceptional setting in a campus of green lawns with shrubs and trees. Flanking the main building are laboratories for physics, natural history, chemistry and medicine, and in the rear, the library. In the various lecture-rooms and laboratories, the headquarters and the sections of the eighth International Zoological Congress were housed during the meeting from August 15 to 20, 1910. Of the 559 members and associates given in the list published August 16, 61 are Americans.

In the mornings the general sessions were held in the fine new Stephanien-saale in the heart of the city. Upon the opening of the congress addresses were made by President v. Graff, Count Stürckh, minister of culture and education, Count Attems, governor of Steiermark, Dr. Franz Graff, mayor of Graz, Professor Dr. Kratter, rector of the University of Graz, and Professor E. Perrier, president of the permanent committee of the International Zoological Congress. At all times the indefatigable president, v. Graf, won every heart by his genial manner. He referred feelingly to his predecessor, the lamented Agassiz, to whom, in so large measure, was due the wonderful success of the Boston meeting. The address in memory of Anton Dohrn, by Professor Boveri, was characterized by deep sentiment and eloquence, and the proposal to erect in honor of Dohrn a monument near the Zoological Station in Naples met with a hearty approval.

The committee on nomenclature held many meetings and accomplished much work of general importance. For the presentation of papers there were eleven sections: I., Cytology and Protozoology; II., Anatomy and Physiology of the Invertebrata; III., Anatomy and Physiology of the Vertebrata; IV., Embryology; V., Experimental Zoology; VI., Zoogeography and Paleontology; VII., Faunistics and Ecology; VIII., Symbiosis, Parasitism and Parasites; IX., General Taxonomy and Nomenclature; X., General Physiology and Histology; XI., Animal Psychology.

In the program 139 papers and demonstrations are listed and of these the following 33 are from American zoologists:

R. B. Bean, "The Ear as a Morphologic Factor in Racial Anatomy."

S. S. Berry and E. L. Mark, "Luminous Organs in a Cephalopod."

R. S. Breed, "Cellular Elements in Cows' Milk."

E. C. Case, "Recent Discoveries of Permian Reptiles in Texas."

A. H. Clark, (1) "The Recent Crinoids of the Coasts of Africa," (2) "Strict Priority in Zoological Nomenclature; an Appeal to the Workers."

E. G. Conklin, "The Effects of Centrifugal Force on the Polarity and Symmetry of the Egg."

H. E. Crampton, "The Principles of Geographical Distribution as Demonstrated by Snails of the Genus *Partula* Inhabiting Southeastern Polynesia."

C. L. Edwards, "The Idiochromosomes in *Ascaris*."

C. E. Eigenmann, "The Fishes of the High Plateau of British Guiana."

H. H. Field (exhibit), "Die Bibliographien des Concilium Bibliographicum."

A. I. Goldfarb, (1) "Studies on the Influence of Lecithin on Growth," (2) "Studies in Non-regenerating Animals—Study First, The Adult Frog."

E. R. Gregory, "Observations on the Water-vascular System of *Echinarachnius parma* (Sand-dollar)."

G. S. Huntington, "Das lymphatische System der Säuger vom Standpunkt der Phylogenese."

D. S. Jordan, "The Natural History of the Fur Seal of Bering Sea."

W. S. Kellicott, "A Contribution to the Theory of Growth."

T. G. Lee, (1) "Demonstration of Microscopic

Slides showing Implantation of Certain North American Rodents," (2) "Early Stages in the Development of Certain North American Rodents."

G. Lefevre, "Reproduction and Parasitism in the Unionidæ" (joint authorship with W. C. Curtis).

J. A. Long and E. L. Mark, "Maturation of the Egg of the Mouse."

R. S. Lull, "The Armored Dinosaur, *Stegosaurus ungulatus*, Recently Restored at Yale University."

A. G. Mayer, "The Relation between Ciliary and Neuromuscular Movements of Animals."

C. S. Minot, "Comparison of the Early Stages of Vertebrates."

C. F. W. McClure, "Demonstration of a Series of Models, Based on Reconstructions, Illustrating the Development of the Jugular Lymph Sacs in the Domestic Cat (*Felis domestica*)" (presented by G. S. Huntington and C. F. W. McClure).

J. P. Munson, "Organization and Polarity of Protoplasm, Centrosome, Aster and Sphere in Ovarian Eggs, Yolk-nucleus and Vitelline Body."

C. E. Porter, (1) "Les trachées de l'*Acanthinoder a cummingi* Hope," (2) "Sur quelques Crustacés du Chili."

H. S. Pratt, "Trematodes of the Gulf of Mexico."

O. Riddle, "Experiments on Melanin Color Formation; a Refutation of the Current Mendelian Hypotheses of Color Development."

R. A. Spaeth and E. L. Mark (demonstration), "Chromosomes in Certain Copepods."

C. R. Stockard, "The Experimental Production of Various Eye Abnormalities; and an Analysis of the Development of the Parts of the Eye."

R. T. Young, "Cytology of Cestoda."

Excursions to the museums and other points of interest were conducted by young ladies of Graz. In the unique Landes-Zeughaus of 1642 are 30,000 pieces, including weapons and armor, still seen in the rough racks as originally placed for the use of the soldiers.

On one evening an outing was taken in the Hilmwald, where beside the lake, overhung with hundreds of Chinese lanterns, the Abendessen was partaken of. The beauty of the many-colored lights reflected from the surface of the water, and the quaint folk-music of a band of peasant minstrels added much to the truly Austrian sociability of the evening.

On another occasion the members of the congress lunched together under the trees of a

restaurant garden upon the Schlossberg and then enjoyed the views of the distant Alps, beyond the plain of Graz, through which winds the Mur, and nearer, the richly colored roofs intersected by narrow streets and the great city park, with its splendid trees.

Fitting telegrams and addresses were made in celebration of the eightieth birthday of His Majesty the Emperor of Austria and the King of Hungary. Among the excellent responses to the toasts at the final banquet those of President Jordan and Professor Blanchard may be characterized as especially felicitous. After the adjournment of the congress 120 members took part in the excursion to Triest and thence by special steamer along the mountainous coast of Dalmatia.

C. L. EDWARDS

SCIENTIFIC NOTES AND NEWS

PROFESSOR WILLIAM M. DAVIS, of Harvard University, has been elected a corresponding member of the Berlin Academy of Sciences.

THE Thomas Young lecture before the Optical Society was delivered in the lecture hall of the Chemical Society, London, on September 29 by Professor R. W. Wood, of the Johns Hopkins University. The subjects were "The Echelette Grating" and "The Mercury Telescope."

THE Advisory Public Health Board of the Public Health and Marine-Hospital Service was called to meet in Washington, October 10, in view of the cholera in Europe. This board is composed of Drs. Simon Flexner, New York City; Dr. William T. Sedgwick, Boston; Dr. Victor C. Vaughan, Ann Arbor; Dr. Frank F. Westbrook, Minneapolis, and Dr. William H. Welch, Baltimore.

THE Department of State has selected the following delegates to the International Conference on Tuberculosis, to be held in Brussels: Dr. Reid Hunt, of the U. S. Public Health and Marine-Hospital Service; Dr. Mazyck P. Ravenel, Madison, Wis.; Dr. Arnold C. Klebs, Chicago, and C. H. Baldwin, Washington, D. C.

PRESIDENT HENRY FAIRFIELD OSBORN, of the American Museum of Natural History, has