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ADDRESS OF WELCOME OF THE PRESIDENT OF THE THIRTEENTH INTERNATIONAL PHYSIOLOGICAL CONGRESS[1]

By Professor WILLIAM H. HOWELL

THE JOHNS HOPKINS UNIVERSITY

MAY I express to you first the gratification and pride that we physiologists of the United States feel in welcoming the Thirteenth International Physiological Congress to our own country. It was only about fifty years ago, barely the space of a single lifetime, that physiology in this country began its career as an independent science with special facilities for instruction and research and for the training of its own group of workers.

Before that period individuals here and there had made notable contributions to the subject. Beaumont, Dalton, Flint, Weir Mitchell and Wood are names especially to be remembered. But the real birth of physiology with us began with the establishment of the laboratories of Bowditch at Boston, of Newell Martin at Baltimore and of Chittenden at New Haven. Into these laboratories were transplanted from Europe the spirit and methods of modern physiological research. Their directors were pupils of Ludwig and Bernard, Michael Foster and Kühne, and they grafted upon our medical courses the conception and practice of physiology as an experimental science along the lines laid down by the great masters of our modern era, Claude Bernard and Johannes Müller.

From these modest beginnings have sprung the splendid laboratories in experimental physiology and medicine which we now possess. Our workers are numbered by the hundreds and our contributions to the advancement of the subject increase constantly in importance. We look upon this meeting of the congress at Boston as a recognition that American physi-

[1] Harvard University, August 19, 1929.

ology has come of age, and has been admitted to full membership in that old world group to whom we have so long looked for guidance and inspiration.

There was one among our number, who, alas! is with us no longer, Dr. Samuel J. Meltzer, whose heart would have been greatly stirred by this occasion. Born in Russia, educated in Germany, he passed the greater part of his professional life in this country, beloved and respected by all and a strong influence for good in the development, not only of physiology, but of scientific medicine in general.

His last days were spent amid the distracting events of the great war, and the needless spread of the animosities of that conflict into the serene domain of science was a source of the deepest regret and sorrow to him. The closing years of his life were given to an earnest effort to reestablish the bonds of brotherhood among scientific workers in medicine by the formation of a Fraternitas Medicorum which should bind us together in a common purpose to advance the welfare of humanity. The ideals that he visualized are in process of fulfilment through the instrumentality of these international congresses. They constitute, in fact, a fraternity of scholars whose essential object is the unselfish promotion of knowledge for the benefit of the whole of mankind. This large assembly from all quarters of the globe is convincing proof of the potency of a great humanitarian ideal to rescue international amity among men of science from the evil effects of the stresses and passions engendered by political and economical differences.

If, as citizens of the United States, we feel a natural pleasure and pride in welcoming our foreign members as guests to our own country, this human emotion is in reality subordinate to the more profound sense of satisfaction that we experience in cooperating with you, our brothers and colleagues, as fellow citizens of the great republic of science, whose beneficent purposes command our common loyalty without respect to national boundaries or political separations.

The pleasure we feel in meeting again after an interval of three years is saddened by the thought that during that period some of our company who stood high in our esteem and in the record of their achievements have finished their work forever.

Starling, of England, whose ability and brilliant personality made him the natural center of these world gatherings; Magnus and Einthoven, of Holland, to whose work both physiology and medicine are so deeply indebted; and Kossel, of Germany, whose contributions to biochemistry were of such fundamental significance, were veterans in the service. They were among our greatest and most admired leaders, and they have left enduring records of their work in the history of physiology. Noel Paton, Ferrier, Anderson, Pütter, Wieland, Mandel were fruitful workers whose names have long been honored among us. Pezard, of France, and Arthur Loevenhart, of this country, were cut down in young manhood before the fine promise of their early work had reached its full accomplishment. We mourn the loss of these gifted colleagues, and as a mark of respect to their memory I ask the congress to rise and stand for a moment in silence.

THE PROGRESS OF PHYSIOLOGY[1]

By Professor AUGUST KROGH

DIRECTOR OF ZOOPHYSIOLOGICAL LABORATORY, UNIVERSITY OF COPENHAGEN

I SUPPOSE that almost every worker in our science has given some thought to the general progress of physiology and to the problems raised by its growth, and I can not doubt that some have pondered deeply over these problems and have much more insight into them than I possess, but you must admit that on the whole the thoughts have been kept private, and nobody seems to have considered it worth while to bring the matter up for a general discussion among physiologists. When I venture to do so it is because I feel deeply the importance of the subject, and in spite of the fact that I feel even more deeply my own lack of competence in all questions involving organization. My aim is only to draw your attention to some of the problems in the hope that means may be found to solve them.

We are all aware that physiology is a rapidly expanding science in the sense that an ever-increasing amount of work is being produced by an increasing number of workers, and the increase in attendance at the international congresses bears witness to the fact. I have tried to count from the abstracting and indexing journals the number of papers published on physiological subjects. The figures are probably not strictly comparable, but their general tendency is unmistakable. In the first year of this century, the year of the congress in Turin, titles were given in the *Physiologisches Zentralblatt* of 3,800 papers, and during the first decade only minor fluctuations took place. I find from the *Zentralblatt* and *Bibliographia* 3,900

[1] Opening address before the Thirteenth International Physiological Congress, at Harvard University, August 19, 1929.