

## THE INTERNATIONAL CONGRESS OF PHYSIOLOGISTS.

THE ninth International Congress of Physiologists was held in Groningen during the week beginning September 1st, under the presidency of Professor H. J. Hamburger, who occupies the Chair of Physiology in the university of that city.

### THE UNIVERSITY OF GRONINGEN.

Groningen is a prosperous and wealthy town of some 80,000 inhabitants. The country around supplies it with potatoes for the manufacture of starch and with rapeseed for oil and feeding stuffs. It is traversed in all directions by canals which open into the Rietdiep, a broad and deep channel navigable by large vessels to the North Sea.

The old fortifications have been levelled. In part they have been converted into well-planted public gardens, while in other parts they have afforded ample sites for the new institutes with which the university has recently been provided. The old Institutes of Physiology and Anatomy have been replaced by new buildings, spacious, well lighted, admirably designed, and very completely equipped under the supervision of the present occupants of the Chairs of these subjects. Next door to the Institute of Anatomy is the Pathological Laboratory, and beyond it is the newly-erected hospital, which possesses an extensive series of clinical laboratories. A short distance away, in the opposite direction, is a new chemical laboratory as yet barely complete, which will be devoted chiefly to physiological chemistry. The general chemical laboratory is not far distant, and adjoining it is the botanical laboratory. Further on are the Physical and Mineralogical Laboratories, separate buildings on a single site. The whole of the northern semi-circumference of the town is, in fact, dotted with university laboratories, no one of which is more than a few hundred yards from the other, while the general university building—the Academy—occupies a central position.

Groningen is the second in order of seniority of the three State universities of Holland. Leyden was founded in 1575 and Utrecht in 1636; Groningen, the university of north Holland, dates from 1614. It was supplied with new central university buildings—the Academie—in 1850. They were almost entirely destroyed by fire in 1906. The State immediately undertook the task of erecting a new Academie, and the work was so rapidly pushed on that the existing fine building, designed in the North German modern renaissance style, was opened in June, 1909. It contains offices, senate room, faculty rooms, and a very fine hall (aula), in which at the second and concluding general meeting of the Congress, on Friday, September 5th, Dr. Pawlow, Professor of Physiology at St. Petersburg, delivered an address on the investigation of the higher nervous functions. It is in this building that the university will celebrate next year the tercentenary of its foundation.

### PREVIOUS CONGRESSES.

The Congress in Groningen was the ninth. The suggestion to hold an International Congress of Physiology periodically was made by the British physiologists in March, 1888, when a circular letter was issued by the Physiological Society. It was signed by Burdon-Sanderson (Oxford), Michael Foster (Cambridge), W. Rutherford (Edinburgh), J. C. McKendrick (Glasgow), J. M. Purser (Dublin), E. A. Schäfer (London), and by the Treasurer (W. H. Gaskell), and the Secretary (Gerald Yeo) of the Physiological Society. A preliminary meeting was held in the autumn of 1888 in Berne, when representative physiologists from England, Germany, France, Italy, and Switzerland met under the chairmanship of Professor Kronecker, and drew up a few simple rules designed to ensure that the meetings should be as informal and as practical as possible. If it was not found feasible

to emulate the Physiological Society, which has no president, it was agreed that there should be no official delegates, that no transactions should be published, that any member might use his own language, and that the communications made should be as far as possible of the nature of demonstrations or experiments. The main object of the Congress was declared to be the promotion of the progress of physiology by the interchange of ideas and mutual friendly criticism and by affording to workers in the science opportunities of knowing each other personally.

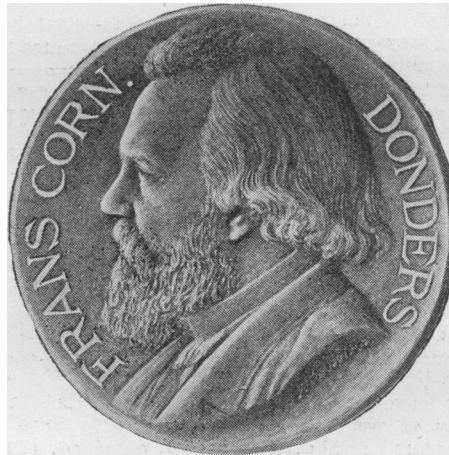
### THE OPENING CEREMONY.

As the Congress in Groningen took place twenty-five years after the proposal to hold such congresses was made, the President, Professor Hamburger, was naturally moved in his inaugural address, delivered on the morning of September 2nd, to review the history of the eight congresses previously held. The first took place at Bale in September, 1889, under the presidency of Holmgren of Upsala, and was extremely successful, the number of members attending being 129; among them were many who were also present at Groningen. The second Congress was held at Liège in the laboratory of Leon Fredericq, the third at Berne, the fourth at Cambridge, the fifth at Turin, the sixth at Brussels, the seventh at Heidelberg, and the eighth at Vienna. At the meeting at Turin in 1901 Sir Michael Foster, who may justly be called the father of

the Congress, was elected permanent honorary president, and was presented by the President, Professor Mosso, with a commemorative medal bearing a Latin inscription, testifying that the Congress owed not only its existence to his initiative but its prosperity to his continued and energetic interest. Professor Hamburger was moved to ask to what extent the subjects dealt with at the congresses had faithfully reflected the physiology of the last five and twenty years. As an answer to this question he presented to the Congress copies of a special number or *Festschrift* of the *Zentralblatt für Physiologie*. This contained a copy of his address followed by a systematic review of the work done by the eight congresses already held.

This analysis, which he said had been prepared with the assistance of Dr. Laqueur, Privat-docent in physiology at Groningen, was classified under twenty-four heads, according to subjects, and provided with an index of names, so that it will have a permanent value and interest. The object was further served by the presentation to members of the Congress of a special number of the *Nederlandsch Tijdschrift voor Geneeskunde*, which contained an introduction by G. van Rijnberk, editor of that journal, and professor of physiology in the University of Amsterdam. Professor Rijnberk also contributed an extremely interesting sketch of the development of physiology in Holland, illustrated by portraits of Sylvius, Leeuwenhoek, de Graaf, Boerhaave, Schroeder van der Kolk, Mulder, Moleschott, Heynsius, Place, and Stokvis.

The analytical article in the *Zentralblatt* undoubtedly gave the impression that the congresses had achieved a good deal, but Professor Hamburger indulged in certain criticisms. He said, for instance, that it had not always happened that new facts had been demonstrated to the congresses by their discoverers, and that often several congresses passed before such facts were brought forward by others. A second criticism was that physiological chemistry had not taken its proper place at the congresses, owing, as he thought, to the insistence upon the rule that all communications should be of the nature of demonstrations, a method to which the processes of physiological chemistry did not readily lend themselves. A third criticism was that pathological physiology had been very poorly represented at the congresses, although a good example had been set by French workers at the congress at Bale. Finally, he said that it was desirable



(From the medallion by Pier Pander.)

that vegetable physiology should be better represented at future congresses, and that the example of Brussels should be followed in this respect, although he made reference to the demonstration at the congress at Turin by Dr. Waller of the resemblance between electric phenomena in plants and in animals, while evidence of the influence of fatigue, of anaesthesia, and even of shock were not wanting. In spite of these grounds for criticism, he considered that a careful study of the work of the various congresses showed that they did on the whole fairly reflect the progress of physiology, and, more than that, that the opportunity of seeing set up the apparatus used by physiologists of other countries and other schools was not only advantageous in itself, but often suggested methods for overcoming difficulties in allied researches. This kind of information could not be obtained, he said, through the most diligent study of scientific journals, and for this reason the congresses would be indispensable elements in the development of physiology.

In the course of his address the President referred to the medal presented to foreign members of the Congress by the *Nederlandsch Tijdschrift voor Geneeskunde*, a large bronze medal showing on the obverse a portrait of the great Dutch physiologist and ophthalmologist Donders, which we reproduce. At the beginning of his speech Professor Hamburger addressed the French, German, English, and Italian members, each in their own language, and expressed his thanks to the Government of the Netherlands, to the municipality of Groningen, and to the Rector of the University, for their cordial co-operation in making the arrangements for the Congress. He then called in succession upon the Governor of the Province, the Burgomaster of Groningen, the Rector of the University, and Dr. Reddingius, Professor of Pathology, and Dean of the Medical Faculty of the University, who severally welcomed the members. Thereupon followed tributes to deceased physiologists. At the invitation of the President, Professor Starling paid a tribute to Mosso of Turin, Professor Heger of Brussels to Bowditch of Boston, and Professor Hamburger himself made a brief sympathetic reference to Lord Lister.

#### PAPERS AND DEMONSTRATIONS:

The opening meeting then terminated, and the regular work of the Congress began immediately after lunch. The meetings were held in the Physiological Laboratory, but overflowed across the road into the Anatomical Laboratory. There were two large lecture rooms in the Physiological Laboratory and one in the Anatomical Laboratory, where papers, usually illustrated by lantern slides or cinematograph films, were read, and the practical histology room was also used for the same purpose. In addition there were a dozen other rooms, large or small, available for demonstrations; while in the Anatomical Laboratory there was an exhibition of instruments by various well-known German, English, and American firms, and by some Dutch firms, whose work was highly praised by many of the foreign physiologists attending the Congress. As papers were being read and demonstrations given in all the rooms at the same time, it was necessary for a member to study the programme carefully, and choose the subject in which he was most interested. This had the advantage of providing an expert and critical audience for each speaker, thus fulfilling one of the objects of these congresses—to promote the progress of physiology by mutual friendly criticism. On the other hand, it had the complementary drawback that it must have rather tended to limit "the interchange of ideas"—another object of the Congress—to specialists in each of the departments into which physiology is becoming more or less clearly divided. As a rule, the readers of communications were kept fairly closely to the time limit of fifteen minutes, and when any discussion followed it was almost always very brief, being directed usually to questions designed to clear up points which had not been made quite clear. In this way an immense amount was got through in the four full working days for which the Congress lasted.

Judging, it must be confessed, very superficially—for so much was done, and so many things were being done on each day at the same time—the impression might be formed that the attention of physiologists is being especially directed at the present time to the study of

the functions of the heart, and the analysis of the mode of action of the nervous centres, cerebral and spinal, but a large number of valuable communications on physiological chemistry, using that term in its widest sense, were made by Abderhalden, Roaf, Schwarz, Röhmman, Maignon, Funk, Ringer, Serono, Schryver, and many others.

Professor Sahli explained and demonstrated his sphygmometer, and indicated the uses to which it might be put; Professor Starling gave a demonstration of an improved heart-lung preparation, and Professor Abel, of Johns Hopkins University, with the assistance of Drs. Rowntree and Turner, showed his method for the removal of diffusible substances from the circulating blood by means of the diffusion apparatus which has been called an "artificial glomerulus." Both these demonstrations excited much interest, and many hopes appear to be built on Professor Abel's apparatus, which, it is thought, may be of great service in yielding larger quantities of material to the physiological chemist than have hitherto been available. Kaiser of Amsterdam showed a new mechanical cardiograph, and Wiersma of Groningen followed this by a demonstration of a simple apparatus for obtaining plethysmograms and sphygmograms. Dr. Edridge-Green gave two demonstrations—the one on an after-image of white on coloured surfaces, and the other on the constancy of hue of spectral yellow of varying luminosity.

#### THE CINEMATOGRAPH.

A good deal of use was made of the cinematograph for purposes of demonstration. It was used to illustrate two communications made by Dr. T. Graham Brown, on behalf of Professor Sherrington and himself. The one dealt with recent observations of rhythmic movements in the mammal, in continuation of the remarkable researches in which Professor Sherrington has been for some years engaged. He had given a demonstration of some of his results on the previous day. Dr. Graham Brown's communication afforded a connected account of the research, which was made much more easy of comprehension by the cinematograph film. A most effective example of the value of the method for demonstration was afforded by a second film, showing recovery after lesions of the motor cortex. The cortical arm area had been destroyed in an anthropoid ape, first on one side and then on the other; the recovery of function in the forelimb was shown in a most convincing manner in the film, the animal being seen to take bits of apple with one hand and pass them into the other until the supply was exhausted, when it turned round and began to put the pieces of apple into its mouth; it was also seen to hold a cup of water and drink from it, and to use its upper limbs for various purposes in a most natural manner, the whole set of movements being so easily and accurately performed that it would never have been suspected that the animal had undergone any operation.

The value of the cinematograph was exemplified also by a film shown by Mr. G. R. Mines, of the Cambridge Physiological Laboratory, during the course of a communication on the functional analysis of cardiac muscle, in which he also illustrated the value of a phonograph for making verbal notes during an experiment without looking away from the phenomena under observation. Mr. Mines's work seems likely to yield important results, for he is introducing into the study of the various phases of the cardiac cycle methods of precision in measurement which it may be confidently expected will contribute very much to the elucidation of this complicated subject.

A third cinematograph display was that of a series of remarkable films taken by Dr. L. Bull of Paris and explained by Professor Richet. They were examples of a new method of using the cinematograph for the analysis of movements. The films are run at such a pace that the movements thrown on the screen seem to have been very slowly performed; the method must involve the taking of a very large number of photographs on very sensitive films. The first showed the act of walking, and the subject being a spare, muscular man, the orderly contraction of the muscles and the movements of tendons and joints could be very clearly observed. Others showed running, jumping, and putting the shot. The last two overcame the gravity of the physiologists, and there was indeed something irresistibly absurd in seeing a man slowly preparing to jump over a bar, slowly rising in the air, and



slowly descending on the other side, and still more, perhaps, in seeing the shot very deliberately sailing away like a toy balloon. Other slowed films exhibited showed the action of the heart and the flight of a pigeon which laboured across the field of vision as though it carried the weight of the world on its back. The demonstration was so much appreciated that Professor Richet consented to repeat it on the following day.

The cinematograph was used also by Professor Hommeter of Johns Hopkins University to illustrate a communication on the relation of vagus inhibition to the inorganic salts of the heart; by Dr. Laqueur, Professor Hamburger's assistant, during a paper on the rate of movement of the intestines in various animals; by Dr. Stigler of Vienna to illustrate some physiological observations on the peoples of Uganda; by Fauré-Fremiet of Paris to show the processes of fecundation and segmentation in *Ascaris megalocephala*; and by Magnus of Utrecht to illustrate a communication on the influence of the position of the head on reflexes.

#### RELAXATION.

The State has been liberal in its support of the university and in providing it with university buildings and laboratories. It is the chief public institution of Groningen, whose citizens take a legitimate pride in its welfare. The Congress worked hard from 9 a.m. to noon, and from 2 to 4 p.m. on Tuesday, Wednesday, and Thursday, and until midday on Friday. After these hours the hospitable intentions of the hosts found scope. On Tuesday evening a reception was given in the Academy by the Governor of the Province on behalf of the Netherlands Government, and on Wednesday evening the Municipality of Groningen gave an entertainment in the Sterrebosch Park, to which the brilliant and tasteful illuminations brought great crowds of the uninvited to gaze across the barriers. On Thursday afternoon many members of the Congress made the short journey to the country house of M. J. E. Scholten, and took part in a water party on the lake of Paterswolde. In the evening the local members of the Congress gave a *soirée artistique* in the theatre, made remarkable by the "express sketches" of a gentleman anonymous on the programme, but revealed to be Professor Huizinga, son of Professor Hamburger's predecessor, and himself the occupant of the chair of History. The sketches, made in chalk on two blackboards, and explained by running comments in English, professed to give the story of the dream of a physiologist departing from the Congress and of his encounter with Boerhaave, who found himself a little incredulous as to the great progress made by physiology since his day.

However this may be, the ninth International Congress of Physiologists, which was attended by over 400 members from all parts of the world, worked very hard and carried away from Groningen pleasant memories of the town and its university and of the genial hospitality of its citizens, and not least of that of the distinguished President and his wife.

### THE METROPOLITAN ASYLUMS BOARD.

WHEN the Metropolitan Asylums Board was established in 1867 it was essentially a Poor Law authority, but although the majority of its members are still elected by metropolitan boards of guardians, it now undertakes duties quite outside the Poor Law. The institutional treatment of infectious diseases among all classes in the metropolis, the care of the mentally defective and of certain classes of Poor Law children, and the care of the casual poor are now among the duties carried out by the Board, and during 1912<sup>1</sup> an arrangement was entered into with the London County Council, under which the Board provides the sanatorium accommodation for tuberculous patients in the County of London required by the Insurance Committee for the county. The Board is also empowered by the Public Health (London) Act 1891 to provide ambulances, ships, and landing places for the use of persons suffering from infectious diseases.

<sup>1</sup> Metropolitan Asylums Board: Annual Report for the Year 1912 (fifteenth year of issue). London: Ben Johnson and Co., Limited. 1913. (Pp. 298. 5s.)

#### TUBERCULOSIS SANATORIUMS.

The Board, after some consideration, arrived at the conclusion that sanatorium accommodation for tuberculous patients could be provided in its existing institutions without incurring any large expenditure. After conferring in the first instance with the Local Government Board, and subsequently with the County Council and the Insurance Committee, it was decided to allocate temporarily the Downs School, Sutton, for the reception and treatment of persons suffering from tuberculosis, upon the understanding that while the managers should engage the staff and assume the general management of the institution, the County Council should have complete control as regards selection of patients and the length of their stay in the institution, and that the Insurance Committee should have the right to visit and inspect it at any time. It was also agreed that the financial control should be exercised by the London County Council, in so far as the Council would reimburse the Board the entire cost, preferably by payment of a definite charge a head of the patients actually maintained, with a periodical adjustment according to the ascertained actual cost, or on a scale of charges according to the numbers maintained. The Downs School, where there is accommodation for 350 patients, was altered, equipped, staffed, and ready for use by the beginning of February, 1913, and subsequently a portion of the Northern Hospital, Winchmore Hill, was opened, with accommodation for 200 patients.

#### INFECTIOUS DISEASES.

There were admitted during 1912 for treatment in the Board's hospitals 21,378 patients, or about 240 more than was the case in 1911. The scarlet fever patients numbered 9,883, the diphtheria 5,219, and the small-pox 20. The mortality per cent. of scarlet fever was 1.6, diphtheria 6.2, typhoid fever 17.8, small-pox 20.0, measles 10.5, and whooping-cough 8.5. In each case this rate was lower than that recorded in 1911, with the exception of typhoid fever, when the mortality-rate was 14.3. In the quinquennial period 1887-1891 the mortality rate of diphtheria was 33.6. In July, 1912, the Board was authorized to receive into its hospitals poor persons suffering from puerperal fever, and arrangements were made for the treatment of these cases in such of the hospitals as might have vacant beds in the female typhoid wards. Later in the year an order of the Local Government Board permitted non-pauper cases of the disease to be treated. At the Brook Hospital four of the ward pavilions have been altered in order to provide balcony accommodation for open-air treatment, thus affording the patients the benefit of the curative effect of open air and sunshine while still confined to bed. It was decided during the year to appoint a research bacteriologist or pathologist whose duty it would be to inquire into the causation, infectivity, prevention and treatment of zymotic diseases. It is hoped that both the incidence and mortality of the diseases treated in the Board's hospitals may be reduced by the appointment.

#### MENTAL DEFECTIVES.

The Board has provided accommodation for about 8,000 mental defectives who are defined as "harmless persons of the chronic or imbecile class." The number of such persons placed under the care of the Board during 1912 was 993, or about the average number recorded in the previous years. There died during the year 714 patients, and 204 were discharged. As a result of the classification of all the mentally defectives in 1911, the unimprovable imbeciles were transferred to the Fountain temporary hospital, and the Darenth institution was kept exclusively as an industrial colony. After visiting the colony in November, 1912, the Lunacy Commissioners expressed satisfaction with all they had seen, and recorded their opinion that the work was being carried out on well-planned lines and with much skill and thoughtfulness in organization, and that the object in view—namely, the adequate training and occupation of the imbecile class—was being attained in a most satisfactory and gratifying manner. It is of interest to note that there is still being continued the practice of applying the Widal test to asylum patients of dirty habits, followed by further examinations where a positive reaction occurs. Up to