



A WEEKLY JOURNAL OF SCIENCE

*"To the solid ground
Of Nature trusts the mind that builds for aye."*—WORDSWORTH.

SATURDAY, JANUARY 2, 1932.

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Science and Imperial Affairs.

SINCE the War, both Houses of Parliament and those members of the general public interested in Imperial matters have devoted more attention to the affairs of the five countries under British control in East Africa than to any other part of the British Empire except India. Numerous white papers on East Africa have been presented to Parliament: in 1924 a special East Africa Committee was appointed, on which all three political parties and other interests were represented: in the same year Mr. Ormsby-Gore, Major Church, and Mr. Linfield made a tour of the five countries and presented a long report to Parliament in 1925: in 1927 a further commission, to consider the possibility of the closer union of the territories, was sent out under the chairmanship of Sir Hilton Young. Following the publication of the still more voluminous report of that visiting commission, the Permanent Under-Secretary of State for the Colonies, Sir Samuel Wilson, proceeded to East Africa himself to discuss the recommendations of the Hilton Young Commission with the Colonial Governments concerned, and his report was presented to Parliament in July 1929. In June 1930, Lord Passfield, then Secretary of State for the Colonies, issued a "Statement of the Conclusions of His Majesty's Government in the United Kingdom as regards Closer Union in East Africa", and a memorandum on native policy: and finally Parliament appointed a Joint Committee of both Houses to consider the Reports on Closer Union in East Africa and other relevant documents. The report of that joint committee was recently presented to Parliament.

The reports of the Ormsby-Gore and Hilton Young Commissions were the subject of editorial comment in NATURE at the respective times of their presentation to Parliament. The Ormsby-Gore Commission, which was primarily concerned with the economic development of East Africa, quite properly dealt with political questions only in relation to their effect on such development. It was a report in striking contrast with previous reports on Colonial matters because of the exceptional prominence it gave to the dependence of economic progress on the generous provision of education and medical services, the adequate provision of scientific and technical services, and the prosecution of scientific research in connexion with social as well as purely economic problems. It directed attention to the regrettable abandonment by the East African Governments of the once famous Amani Plant Research Institute ; to the need for the creation of a central veterinary research station, to serve the five territories ; the establishment and endowment of a central research institute for the investigation of human tripanosomiasis (sleeping sickness) ; the inauguration of a great campaign against tsetse flies directed by qualified scientific experts ; the re-establishment of a geological survey department in Tanganyika and the establishment of a similar department in Kenya ; the organisation of anthropological research ; the more energetic prosecution of plant and animal breeding experiments by the various departments of agriculture ; and a scientific and comprehensive survey of the lake and marine fisheries of East Africa.

That practically all the recommendations of the Ormsby-Gore Commission in connexion with these matters were acted upon within two years was due to the energy and enthusiasm with which Mr. Ormsby-Gore and Major Church applied themselves to the task of stirring the authorities at home and in the Colonies to the need for immediate action. The fact that neither the Hilton Young Commission nor the Joint Select Committee on East Africa has found it necessary to add any further suggestions for the furtherance of scientific research is eloquent testimony to the thoroughness of their original survey.

It must be confessed, however, that the various bodies representing the interests of science in Great Britain displayed a lamentable lack of appreciation of the fact that the Ormsby-Gore report provided them with an unusual opportunity to participate more energetically in framing an Imperial policy. At that time they could have

made statesmen and politicians realise that the scientific community ought not merely to be consulted by, but represented on, any and every committee set up by Government to consider any aspect of economic development at home or overseas. Incidentally, what is equally important, they could have insisted on their competence to appoint their representatives themselves, and not, as is the custom on those rare occasions when the Government does appoint a man of science on a committee, to have their representatives chosen for them by Government officials.

Since the scientific community in general has taken so little interest in the prosecution of research and the provision of essential scientific services in the Colonies, it is not surprising that successive Governments have ignored them when appointing committees to consider Colonial services and development. There is no representative of science on the Empire Marketing Board, and until recently there was no member of the scientific community on the Research Grants Committee of that body. The scientific interest was not represented on the Committee appointed in 1925 under Sir George Schuster to consider the allocation of the East Africa Development Loan which was recommended by the Ormsby-Gore Commission, although this Committee was dealing with grants for the establishment of research institutions and for *ad hoc* researches. The Hilton Young Commission of 1927, the terms of reference of which included the co-ordination of the scientific and technical services in East Africa, contained no scientific member, although the missionary societies were represented. The Labour Government ignored the scientific community in appointing members of the Colonial Development Advisory Committee, although this Committee had to consider schemes for the provision of scientific research. It is worthy of note also that the Labour Government, which appointed the Joint Select Committee of both Houses of Parliament on Closer Union in East Africa, deliberately excluded Major Church, its only representative in the Commons who had first-hand acquaintance with the territories under review, whose main contributions to the report of the Ormsby-Gore Commission had been the chapters dealing with medical and scientific research, and who could claim to represent scientific interests in Parliament.

The above list of Committees, appointed by various Governments during the past eight years, on which the scientific community should have been, but was not, represented, is by no means

exhaustive. It is long enough, however, to establish the fact that Governments will ignore scientific workers while the latter remain indifferent to the affairs of State, more indifferent, it appears, than any other section of the community, although statecraft is now mainly a question of making humanity fit for science, or at least of modifying the political and economic systems of the world to enable its inhabitants to enjoy the fruits of scientific endeavour.

That the scientific community is indifferent is borne out by the fact that on no occasion has it combined to protest publicly against the omission of its representatives from any of the important bodies enumerated above, all appointed to deal with subjects to which men of science could make important contributions, more authoritative and carrying far more conviction than if made by others with merely a vicarious interest in their work, and usually unable to appreciate the fact that the scientific outlook is even more important in dealing with Imperial or world problems than the mere application of the results of science to productive processes.

The question arises, however, are there many scientific workers themselves who are conscious of the significance of a scientific outlook as distinct from a scientific result? If there were many such, would it not be reasonable to assume that they would recognise this 'outlook' as the integrating force and create a unified representative body for the whole mass of scientific practitioners and believers in science in the British Empire? Such a body is obviously necessary if nations are to be encouraged to think scientifically. Unfortunately, the tendency towards specialisation, inevitable and of paramount importance for the advancement of scientific knowledge, has obscured the essential unity and the grander purpose of those trained in the sciences. This unity can be attained if the many specialist scientific and technical societies and institutions will recognise their limitations, and that as discrete fragments of the world of science they cannot hope to fulfil the nobler aim. They must join forces and create a strong body that can, a body the primary function of which is to inculcate a scientific outlook and promote the application of scientific method and results to national and Imperial affairs. This, in fact, is the avowed function of the British Science Guild, and there is little doubt that, with adequate support from the specialist scientific societies, such a body could get the respect for science which science deserves, and secure for science that representation in the councils of the nation which the nation and the Empire urgently need.

No. 3244, Vol. 129]

Hermaphrodites.

Die sexuellen Zwischenstufen. Von Prof. Dr. Richard Goldschmidt. (Monographien aus dem Gesamtgebiet der Physiologie der Pflanzen und der Tiere, Band 23.) Pp. x + 528. (Berlin : Julius Springer, 1931.) 46·40 gold marks.

IT is now eleven years since Dr. Goldschmidt brought out the well-known volume of which an English translation appeared in 1923 as "The Mechanism and Physiology of Sex-Determination". The present work elaborates that section of his former book, which treated of what are generally termed hermaphrodites, a proper understanding of which is so essential to a full appreciation of the nature of sex itself. To that understanding no one has contributed more than the author; for it was through his remarkable researches on the races of the gipsy moth (*Lymantria dispar*) that the problem of the intersex has crystallised out of that vast conglomerate of miscellaneous knowledge comprised under the heading of sex.

Goldschmidt's interpretation of the phenomena with which he deals is, of course, based upon the fact that sex, like any other hereditary character, is normally determined by specific genes which are definitely located in the chromosomal material. Where the sexes are separate the difference between them is determined by a single gene, or by a gene complex behaving normally as one; whence it follows that in the ordinary way the sexes are produced in approximately equal proportions. Such equality may be upset in various ways—for example, by differences in viability at various stages in development, by the association of a lethal factor with one sex or the other, and by other means. In such cases, however, in spite of the upsetting of the numerical balance between the sexes, their physiological distinctness remains unaffected, and the ultimate result is normal males and normal females.

Such a scheme, based on the ordinary conceptions of Mendelian heredity, offers a satisfactory explanation of most of the phenomena connected with the inheritance of sex. But it does not explain the hermaphrodite. As already stated, attention was first focused on this problem by Goldschmidt's work with the gipsy moth, a species in which the form and colour of the female is very distinct from that of the male. An amateur breeder, Herr Brake, pointed out that in certain crosses between the European gipsy moth (*L. dispar*) and a form from Japan (var. *japonica*) there appeared forms more or less intermediate in sex characters. He called them gynandromorphs, and for some years