ary as a result of contact inhibition, their mitotic propensities are temporarily suspended". In fact they suggest the opposite, which Prof. Goss himself corroborates five pages later when discussing Harding and Srinivasan's observations on small wounds in lens epidermis.

Prof. Goss includes a chapter on maternal-foetal relationships in which he reviews the poorly understood interactions between homologous organs in this "special case of parabiosis". There is also an interesting chapter on allometry in which the author discusses the functional, histological adaptations in some organs relating to the size of different species, and the adjustments in size which may occur following transplantation of organs. In a delightful account of the allometric relationships of urodeles varying in ploidy, we see that although cell size varies according to the number of chromosome sets, the size of gross and histological structures is constant, indicating that it does not matter how the chromosomes are packaged, their total number being the controlling factor. This can lead to certain developmental dilemmas, such as when the size of an 'organ' approximates to the size of the diploid cell. Triploid erythrocytes can pass through capillaries of normal (diploid) diameter (by change in shape, which gives a clue as to how their shape is controlled), but the single pair of Mauthner's cells cannot remain proportional both to ploidy and brain size.

Prof. Goss mentions Fankhauser's discovery that triploid salamanders are less intelligent than diploids, and he states that "the quality of the central nervous system cannot be improved by increasing the size of neurones at the expense of their numbers". It is disappointing that Goss does not actually pose questions about the lack of compensatory growth of the brain, though he does incidentally provide most of the answers! There are several unsolved problems concerning the different sizes of neurones. Whereas hypertrophy of particular nerve cells occurs, usually as a consequence of functional activity, neuronal hyperplasia is not known. Goss prefers to regard mitotic incapability as an adaptation serving to prevent disruption of organized cell communities rather than an unfortunate consequence of specialized differentiation. It is the function of the cell, not its "degree of specialization", that governs its ability to divide. Neither is it functional in the case of nerves and muscles to maintain 'mitotic competence' by recruitment from undifferentiated stem-cells.

Prof. Goss brings a fresh and firmly biological approach to his analysis of regulatory phenomena in growth. His controversial ideas should lead to lively discussions and penetrating research during the next few years.

R. A. WEISS

¹ Bullough, W. S., and Rytömaa, T., *Nature*, 205, 573 (1965).

MICROLEPIDOPTERA UNDER THE MICROSCOPE

Catalogue of the Type Specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick

By J. F. Gates Clarke. Vol. 5. Pp. 581 (283 plates). (London: British Museum (Natural History), 1965.) 300s.

BIOLOGISTS do not often realize the immensity of the task still to be undertaken and the vast amount of published work needed before even half the species of the world can be named even by specialists. Much of the work was (and a considerable amount still is) done by expert amateur entomologists. Meyrick's position as an amateur entomologist was perhaps unique because of the extent of his work. Although well up to the standards of his time, his failure to illustrate his new species created a world problem. He first published descriptions of new species of microlepidoptera in 1886 when he was a schoolmaster in New Zealand, and he gradually came to dominate their

study after his return to England. He retired in 1914 after many years teaching classics at Marlborough College. Specimens of microlepidoptera were sent to him by collectors and museums from all parts of the world, but he retained in his collection, which is now in London, only about a third of the types. By the time of his death in 1938 he had published descriptions of about 15,000 new species (catalogued in Volume 1).

Dr. Gates Clarke became an authority on the microlepidoptera through his work for the United States Department of Agriculture and the Smithsonian Institution, and found some years ago that further taxonomic progress was impossible until Meyrick's species had been re-examined. He then worked for some years at the British Museum (Natural History) and the Trustees gave him permission to dissect Meyrick's types. The abdomens of the 5,000 moths were carefully removed, softened, dissected and mounted on microscope slides. This has for the most part been carried out with commendable skill, but it would be interesting to know whether the large numbers of Cosmopterygid male genitalia were mounted sideways from choice, or whether their symmetrical arrangement presented peculiar difficulties.

Volumes 1 and 2 of this work were published as long ago as 1955 and it is very much hoped that the final one or two volumes will soon be completed. This, the fifth volume, dealing with moths of the families Timyridae, Hyponomeutidae, Ethmidae, Metachandidae, Cosmopterygidae, Walshiidae, Blastodacnidae and Scythridae, contains 283 half-tone plates some of which include as many as 15 illustrations. For each species there is a photograph of the wings of one side of the type specimen and sometimes a picture (which gives rather little detailed information) of the head and its associated sense organs. If the species is the type of a genus there is also a clear drawing of the wing venation. Photomicrographs of dissections of the genitalia of the types provide a much-needed supplement to Meyrick's original description. The quality of the photographic illustrations is almost uniformly good, so that in spite of difficulties with depth of focus they are almost as useful as good drawings would be.

Apart from a very few instances where the author synonymizes two species, the text consists of little more than a legend for the illustrations and the reference to the original description of the species concerned. Lectotypes are designated when needed and Meyrick's occasional errors in determining the sex of his specimens are corrected.

When this series of volumes is complete, the stage will be set for the next advance. This will be the revision of genera, including species described by many authors. That there is much to do is clear even from a superficial study of the diversity of form in such genera as *Lecithocera* and *Ethmia*. Dr. Gates Clarke has wisely not tried to do two things at once, for the present work is already large and expensive. The speed with which these much-needed revisions come will depend very largely on the funds available for this basic kind of work in museums and universities. The Trustees of the British Museum (Natural History) already publish a very substantial amount, but publications like this are, unfortunately, still far too rare. Of the hundreds of thousands of type specimens in the museums of the world a surprisingly high proportion must still await critical re-examination. Experience suggests that the original descriptions have been misunderstood in at least one-tenth of the cases. Many of the changes in the names of animals which so baffle the non-specialist are caused by the correction of these old mistakes of identification.

Dr. Gates Clarke is to be congratulated on performing this basic and useful task, and the staff at the British Museum (Natural History), especially Mr. J. D. Bradley, who has assisted in the work at every stage, will earn the thanks of the many specialists in various parts of the world who will find this work indispensable.

G. C. VARLEY