

Adler's paper formed a good introduction to the last part of the symposium, which concerned parasites localized in the skin or mucous membranes. The immunity reactions of this group have a peculiarly focal restriction, in contrast to the ordinary antibody response when the infection is generalized; but the difference disappears if these localized parasites are introduced artificially into the blood stream of the host, when a typical antibody reaction is the result. Muriel Robertson showed, however, that such antibodies, produced in response to *Trichomonas foetus*, were unable to reach the flagellates in their protected sites in the uterine wall; the production of antibody is a sequence of the presentation of antigen to the appropriate host cells; in trichomoniasis of cattle the antibody had a very limited value in destroying the infection.

C. Horton-Smith, P. L. Long, A. E. Pierce and M. E. Rose also examined the question of local immunity in coccidiosis and showed that a fowl which had recovered from an infection of *Eimeria tenella* in one caecum was nevertheless immune in the other. These workers demonstrated that different stages of the life-cycle of coccidian parasites had their specific immunizing values. R. Augustin and A. P. Ridges described similar work on *E. meleagridis* of turkeys.

In the early days, immunologists were much concerned in the practical aspects of cure or prophylaxis

of disease: two papers in the present symposium show that this subject is still of interest to-day. S. Cohen and I. A. McGregor gave a most interesting account of the use of gamma-globulin in the cure of malaria. They collected sera from hyperimmune adults living in the Gambia and extracted the gamma-globulin component; this was then given in large doses to young children who were suffering from acute infections of the disease. Within 4 days, parasitaemia fell and by the ninth-day parasites were undetectable in 8 of the 12 cases studied. These investigations were accompanied by work on the turnover of gamma-globulin, on the lessening of hypergamma-globulinemia as the result of specific therapy, etc., all of which observations tend to indicate that humoral immunity may be more important in malaria than was originally thought. The antibody appears to be contained in the 7-S fraction and not in the macroglobulin. P. E. C. Manson Bahr sent an important communication on a big field experiment he is carrying out in Kenya, in which he has immunized a population which is exposed to epidemic kala-azar with an avirulent ground squirrel strain of the organism. Preliminary work had shown that volunteers could be protected in this way.

The papers are being published in book form, and this should provide a modern review of many important aspects of the subject. P. C. C. GARNHAM

THE MUSEUMS ASSOCIATION

IN the ideal environment of the City of Plymouth and its museums the sixty-seventh annual conference of the Museums Association was held during June 19-23, 1961.

The conference was officially welcomed by the Lord Mayor and this was followed by the presidential address by Dr. D. B. Harden (London Museum). In an interesting historical survey of the continual efforts of the Museums Association since 1945 to obtain Government grants for the provincial museums—and especially the smaller ones—he felt that there had been a certain amount of progress, for at last the Standing Commission for Museums and Art Galleries had been instructed to prepare a report. This was awaited with interest, though, meanwhile, the Association and museums throughout Britain were grateful to the Carnegie United Kingdom Trust for its continual help and advice. Reference was also made to the formation of the Area Councils and especially to the progress made by that in the south-west.

Sir Hugh Casson opened the discussion on display in museums, and in a provocative and entertaining address said that a lively imagination was necessary both in new buildings and in the adaptation of the older ones. He stressed that the building and display must be shared by the curator and the architect, and that it was essential to establish character and personality in a museum. A museum must be an active place—a lively cultural centre to arouse the sense of the curious.

Dr. D. A. Allan felt that the ideal display of natural history objects should include the clinical and the artistic. He also stressed the value of genuine objects, and said that it was important to achieve liveliness and realism. Large dioramas were not in the fashion

at the present day. Mr. J. W. Y. Higgs (University of Oxford) dealt chiefly with folk material, and detailed the value of comparative displays—doing the same thing in different ways. He also referred to the need for more folk parks in Britain. Mr. Norman Cook (Guildhall Museum) stated that it was necessary to serve the public at different levels. He also felt that not all archaeological exhibits should be treated as works of art, for it was not the curators' task to make everything look beautiful. As chairman of this session, Sir Frank Francis (British Museum) felt that there was no single solution to the problem of display for museums were both for the connoisseur and the ordinary visitor. The future may lie in some form of double exhibition.

A whole day was devoted to the many problems of conservation. Dr. P. Coremans (Brussels) opened the discussion, and said that great changes in the treatment of paintings was due to the scientific interest now taken in this subject. He described methods whereby it was possible to distinguish the layers of dirt, re-paint, varnish and the glazes which were an integral part of the picture itself. The extreme differences of opinion regarding restoration were also discussed. Mr. Norman Bronmelle (Victoria and Albert Museum) suggested a scheme for making modern scientific resources available to provincial museums, and Mr. H. Schubart (Bristol) spoke about the training of picture restorers. An art school basis was probably the best, but the creative impulse of the restorer must be directed entirely to conservation so that the welfare of the object became second nature.

An afternoon session was devoted to a symposium on modern developments of conservation in museums as opposed to art galleries. Dr. A. E. Werner

(Research Laboratory, British Museum) stressed the wider concept of conservation which involved successively preventive treatment, diagnosis of the causes of decay, research in the evaluation of new synthetic materials and scientific examination of the object before attempting treatment. Mr. H. W. M. Hodges (Institute of Archaeology) said that at present there were only two academic training institutions in the world for conservators—in London and in New York. He detailed the training given in London and emphasized that conservation must be based on scientific knowledge. Mr. A. E. Rixon (British Museum

(Natural History)) gave details of useful techniques for dealing with the preservation of fossils.

At the annual general meeting, Dr. Mary Woodall (Birmingham) was elected president for the ensuing year, and an invitation to hold the conference in Brussels in 1962 was accepted with gratitude.

Social events during the week included a civic reception and an annual dinner. At the end of the week organized tours to many of the museums and beauty spots in Devon and North Cornwall brought a memorable conference to a close.

F. S. WALLIS

DIGITAL COMPUTERS, THEIR USE AND CONTROL

A SYMPOSIUM on "Digital Computers, Their Use and Control" was organized by the Mathematics Department of Queen's College, University of St. Andrews, in collaboration with Standard Telephones and Cables, Ltd., during May 29–June 2. Standard Telephones and Cables, Ltd., provided the use of a *Stantec Zebra* computer for the whole course.

The first day was devoted to talks of a general nature to give a general appreciation of the use of computers. After an address of welcome by the Master of Queen's College, Prof. A. A. Matheson, Dr. R. J. Ord-Smith of Standard Telephones and Cables, Ltd., spoke on computer applications and this was followed by an address by Mr. W. A. Donaldson of Rolls Royce, Glasgow, entitled "Computers in Industry". The morning session was completed by a description of a transportation problem and its solution by Mr. W. A. E. Pillow of Standard Telephones and Cables, Ltd.

In the afternoon the symposium split into two sections. Those who wished to attend the whole course were given a demonstration of *Zebra* programmes and the remainder were given a brief introduction to programming.

The first day was attended by about eighty people of whom about thirty-five were from local industry and commerce and the remainder from the University. On subsequent days, about fifty people attended of whom ten were from outside the University.

The lectures on the remaining days were given largely by Dr. R. J. Ord-Smith and Mr. A. Y. Cooper of Standard Telephones and Cables, Ltd. They covered a comprehensive use of the *Zebra* simple code and an introduction to normal code. A lecture on "The Computer in the University" was given by Dr. A. J. Cole of Queen's College. By the end of the week, all delegates had written and run several programmes.

The members of Queen's College staff are grateful to Standard Telephones and Cables, Ltd., for providing such excellent facilities and in particular for the continued loan of a *Zebra* computer, which, in the week subsequent to the course had been in continual use for 8 hr. a day.

A. J. COLE

J. IBALL

A NEW APPROACH TO BIOLOGY TEACHING

A CONFERENCE, proposed and financed by the Gulbenkian Foundation, was held in the University of Birmingham during April 10–12, to discuss the biology syllabus for sixth forms, proposed by the Biology Panel of the Gulbenkian Enquiry 1959*. The conference was attended by seventy-five school-teachers and several lecturers from teacher-training colleges. The majority of the members came from the West Midlands. Several topics were selected from the syllabus and a lecture was given on each.

During his introductory lecture Prof. O. E. Lowenstein pointed out that the University of Birmingham will be offering a new type of biological training in the near future. This will consist of an honours B.Sc. degree in biological sciences. Undergraduates will take a variety of biological courses which will cut across the traditional subject-boundaries and be in closer accord with the trends in modern biology in pure and applied research, in industry, in agriculture, etc. Various subject-combinations will be possible.

* Copies can be obtained from the Registrar, The University, Birmingham 15.

It is anticipated that fewer students will complete courses of the traditional type leading to a degree in zoology or botany, although it will still be possible to specialize in selected branches of biology, for example, systematic botany, entomology, etc. It is difficult to predict whether other universities will adopt similar schemes; but the wind of change is blowing in this direction and during recent years in many university departments, even within the traditional courses of zoology and botany, the subject-matter has changed dramatically. Already in Birmingham the preliminary (= intermediate) course in biology has ceased to be virtually separate courses in botany and zoology and is now a closely integrated course following the lines recommended in the Gulbenkian Report.

It is against such a background of a rapidly evolving subject that this new approach to biology in sixth forms is presented.

During discussion there emerged considerable agreement on the need for a new approach, both to teaching and to examining, of the type put forward in the Gulbenkian syllabus, although it was recog-