

The third working party, that engaged on periodicals, reported that considerable progress has been made in the preparation of a union catalogue listing the holdings of each aeronautical library. This is already facilitating loans and exchanges between libraries, and might later result in the co-operative purchase of periodicals for which only a small demand exists.

The programme of official meetings concluded with a general discussion on the need for uniformity in classification and in methods generally. There was a suggestion that abstract cards, suitable for use in a standard 5 in. × 3 in. card index, should be issued as part of R.A.E. reports: this received enthusiastic support, particularly from librarians who use the Universal Decimal Classification adopted some years ago by the Ministry of Supply.

The morning of April 7 was spent in a conducted tour of the College Departments, including those of Aerodynamics, Design and Propulsion, and the sections dealing with Standards and Business Systems.

The Aslib Aeronautical Group intends to hold further week-end meetings of this nature. Those interested should write to the honorary secretary, Mr. C. W. Cleverdon, Librarian, College of Aeronautics, Cranfield, Bletchley, Bucks.

SMITHSONIAN INSTITUTION

ANNUAL REPORT FOR 1950-51

THE report of the Secretary of the Smithsonian Institution for the year ended June 30, 1951*, with which is included the financial report of the executive committee of the Board of Regents, refers to the deferment of some of the Institution's long-term programmes, such as modernization of museum exhibits, construction of urgently needed new buildings, and purchase of modern instruments and laboratory equipment, caused by the curtailment of Government spending since the Korean crises. The position is the more serious because the annual number of visitors is rapidly approaching three millions, and the increase of the collections in the fields of natural history, industry, history and aeronautics has long since crowded all available storage space. The Adams-Clement collection, one of the most important historically to come to the Institution in recent years, was formally opened in April. Accessions to the National Museum during the year totalled 303,000, including further archaeological material from Neolithic sites in Honshu, Japan, many mammals, birds and marine invertebrates from Labrador and Newfoundland, a comprehensive collection of fishes, crustaceans, molluscs and miscellaneous invertebrates from the Gulf of Mexico, several important collections of insects and more than 16,500 plants in exchanges with other institutions, and a collection of historical electronic and electrical apparatus. Field-work was conducted by the staff in Cuba, Panama, Costa Rica, Honduras, Colombia, South Africa, Southern Rhodesia, British North Borneo and many parts of the United States.

The director of the Bureau of American Ethnology continued his archaeological work on the Atlantic

* Report of the Secretary of the Smithsonian Institution and Financial Report of the Executive Committee of the Board of Regents for the Year ended June 30, 1951. (Pub. 4056.) Pp. ix+160. (Washington, D.C.: Government Printing Office, 1952.) 55 cents.

coast of Panama, and a second season of field-work on Cornwallis Island in the Canadian Arctic yielded a large collection of the Thule culture material. The first five volumes of the "Arctic Bibliography" on which the Arctic Institute has been engaged for the past five years were completed and delivered to the Government Printing Office, Washington, D.C. The collection of the first volume of River Basin Surveys papers was also completed; since the beginning of this field-work 2,894 archaeological sites have been located and recorded, of which 545 have been recommended for excavation or additional testing. The excavation work during the year covered twenty reservoir areas in ten States, and the work of the twenty-six excavating parties is described in considerable detail in the appended report on the Bureau. The Institute of Social Anthropology continued its research and teaching programme in Brazil, Colombia, Guatemala, Mexico and Peru.

The International Exchange Service handled the record number of 1,011,000 packages of publications, an increase of 1,375, although the actual weight decreased. No shipments were made to China or Rumania. One hundred and two sets of United States official publications are now supplied to other countries in exchange for similar publications, sixty-one of these being full sets, while eighty-five copies of the Federal Register and ninety-two of the Congressional Record are also supplied. A list of repositories is included in the report. The National Zoological Park, which received some 3,460,400 visitors during the year, housed 2,813 animals at the end of the year, additions of 1,768 balancing the losses and removals of 1,776. The Astrophysical Observatory continued its studies of solar radiation at the high-altitude stations at Table Mountain, in California, and at Montezuma, Chile, and at the former a method is being developed for determining ozone in the upper atmosphere by spectrophotometric measurements. Some work was done on the improvement of the melikeron for measuring outgoing radiation, and two silver-disk pyrheliometers were under construction. The Division of Radiation and Organisms has begun a series of biochemical investigations of photomorphogenesis in green plants. Thirty-three scientific workers used the facilities for biological research at the Barro Colorado Island station.

ADVANCES IN PHYSICS

A NEW QUARTERLY JOURNAL

THE long-established *Philosophical Magazine* needs no recommendation to mathematicians and physicists, and any new venture under the auspices of this journal is sure to be of high standard and most welcome. *Advances in Physics**, the new quarterly supplement of the *Philosophical Magazine*, has for its purpose the publication of articles which are written by experts for experts, and in which topics of current interest in physics, covering theoretical and experimental aspects in addition to certain branches of applied mechanics, are reviewed. In order not to clash with similar, though annual, periodicals such as *Reports on Progress in Physics* of the Physical Society, the contributions to *Advances*

* *Advances in Physics*. A Quarterly Supplement of the *Philosophical Magazine*. 1, No. 1 (January 1952). Pp. iv+110. (London: Taylor and Francis, Ltd.) 15s., or 55s. a year.

in *Physics* are to be restricted to those of specialist standard, and will deal with subjects in rather narrow fields. They will be of admittedly ephemeral value; but the aim is to publish them quickly. So far as possible, it is intended to group the papers so that the contributions in each issue will deal with topics in one particular field; for example, in No. 1 they deal with problems in the physics of the solid state, and in further issues the properties of liquid helium, the theory of dislocations and the science of the upper atmosphere will be the underlying themes.

In the first of the three articles in the first number, entitled "The Mean Free Path of Electrons in Metals", by Dr. E. H. Sondheimer, the effect on the electrical conductivity of reducing the dimensions of the conductor so that the mean free path of the electrons is comparable in magnitude with the thickness of the specimen is considered. In addition, the more complicated effects introduced when the thin specimen is placed in a magnetic field, and the so-called anomalous skin-effect, are discussed. The importance of, and the need for, additional experiments at low temperatures are stressed.

The second article is by Prof. F. Seitz, and is on the generation of vacancies by moving dislocations. New evidence is cited which confirms Prof. Seitz's view that vacant lattice-sites are generated during plastic flow in ductile crystals, particularly in metals. The origin of work-hardening in single crystals is discussed, and several alternative interpretations which would assist in deciding what essential part vacancies play in the cold-working of materials are presented. Finally, several experiments, typical of those which could prove decisive in isolating the influence of vacancies, are proposed.

Between 1920 and 1948 the theory of the growth of ideally perfect crystals was greatly developed, and, based on these results and using the concepts of step and screw dislocations, Dr. F. C. Frank has produced during the past year a theory of the growth of imperfect crystals which seems to give answers to many puzzling questions. Observations on beryl, carborundum, cadmium iodide and other crystals have given remarkable verification of Dr. Frank's suggestions. The third and final article, on crystal growth and dislocations by Dr. Frank, is therefore most valuable and timely. The underlying concepts are clearly explained, the theory so far as it has been developed is briefly reviewed, and the essential points to be noticed in the various experimental observations are carefully pointed out. The range of application of the present theory is finally considered, and the relation of supercooling to the growth of crystals from the melt is very briefly—all too briefly—mentioned.

KOSSUTH AWARDS IN HUNGARY FOR 1952

WINNERS of the 1952 Kossuth Awards in Hungary, which are given for outstanding work during the past year, have recently been announced. One award is for 50,000 forints, fourteen for 20,000 forints and sixty-eight for 10,000 forints, making a total of slightly more than a million forints (about £30,000). The Awards are divided between four sections on medicine and natural science, social science, art and literature,

and social reconstruction, respectively; these are subdivided by subject and the Awards for science and technology are as follows, the value being 10,000 forints except where otherwise stated. *Medicine*: Prof. I. Törő, for the discovery of a new cell-division mechanism (20,000 forints); Prof. F. Kiss, for research on the nervous system and lymphs; Prof. B. Issekutz, sen., for achievements in the field of the pharmacy of quaternary ammonium bases and the developing of the Hungarian pharmaceutical industry; Prof. G. Ivanovits, for the isolation of vitamin B₁₂. *Technical Sciences*: Prof. E. Vadász, for work on the genetic theory of Hungarian manganese ores, and for his book "Bauxite Geology" (20,000 forints); Prof. E. Szádeczky-Kardoss, for research and publications on lignite petrology (20,000 forints); Prof. P. Esztó, for theoretical and practical research on rock movements occurring in mines; Prof. G. Pattantyus, for research on cavitation streams of water-turbine blades; E. Mosonyi, director of the Hydraulic Power Planning Office, for hydrological research on the regulation of the Rivers Danube and Tisza; L. Forgó, deputy director of the Thermo-technical Institute, for development of the theory of small ribbed thermal exchangers. *Mathematics*: Prof. P. Turán, for work on mathematical analysis (20,000 forints); Prof. O. Varga, for work on differential geometry, especially the Finsler spaces; T. Szele, university lecturer, for structural research on the theory of Abel groups and, in particular, for the discovery of analogies with the theory of bodies. *Physics*: Prof. P. Selényi, for research and publications on optics; Prof. K. Simonyi, for the construction of high-voltage accelerators. *Chemistry*: Prof. G. Schay, for thermodynamical and experimental research on the elasticity and plasticity of rubber, and its practical application; Prof. S. Szalay, for geochemical research. *Agricultural Science*: Prof. S. Jávorka, for plant research. *Metallurgy and Machine Industry*: E. Ács, director of the Instrument Industry Research Institution, for the manufacture of 24-channel seismograph installations, and other discoveries (20,000 forints); Mrs. A. Tasnádi, head of the metallographic laboratory of the Mátyás Rákosi Works, for the development of methods of the surface protection of metals; Dr. J. Lukács, engineer, and E. L. Bochner, department head, both of the Electrical Industry Central Research Laboratory, for work on the economy of copper in electrical installations and on the production of high-voltage resistances. *Mining and Power Industries*: Prof. J. Varga, for research, theoretical and practical, in organic chemistry (20,000 forints); Dr. A. László, chemical research engineer at the Research Institute for Heavy Chemical Industry, for chemical research; Dr. Z. Földi, engineer in the Chinoin factory, for research on penicillin and its manufacture, and other factory processes; G. Nagy, investment manager of the Eorsod Co-operative, for work on the gasification of lignite and its pilot-plant application. *Agriculture*: A. Porpáczy, of the Fertőd Experimental Farm, for work on the establishment of new types of fruits, and on the acclimatization of the lemon (20,000 forints); V. Westsik, of the Nyiregyháza Sand Improving Experimental Farm, for work on improving the agricultural yield from loose, sandy soils (20,000 forints); Dr. J. Mócsy, professor of internal diseases in the Veterinary Faculty of the University of Agricultural Sciences, for his method of protection against external parasites.