DR. W. B. THOMPSON took up a Harwell Senior Fellowship in 1950 and is now the senior theoretical physicist working on the problems of fusion reactors. His section of the Theoretical Physics Division carries out mathematical investigation into the stability of high-current gas discharges, on the rates of loss of heat from gases at temperatures of more than a million degrees centigrade, and on the effects of magnetic fields on the bulk and particle motions of highly ionized plasmas. The work includes interpretation of the many fundamental experiments in this field carried on in all parts of the world and assessment of its significance to the building of a theory good enough to allow final success in the fusion reactor field.

MR. W. WALKINSHAW is one of Britain's leading particle accelerator theoreticians, joining the Telecommunications Research Establishment in 1940 where he carried out theoretical research on radar and on high-energy particle accelerators. He has worked at the Atomic Energy Research Establishment, Harwell, since 1951. His section of the Theoretical Physics Division is very closely associated with the Rutherford Laboratory of the new National Institute for Nuclear Research, and has been engaged principally on the large 7,000 MeV. proton synchrotron which is still under construction. In addition to this continuing task, the group is charged with the duty of conceiving new types of accelerating machines and specifying designs for other machines of tested types.

Senior Principal Scientific Officer

DR. K. W. BAGNALL is at Harwell in charge of a section of the Radiochemistry Branch of the Chemistry Division which is concerned with research into the chemistry of the actinide and other heavy elements. At present, the main interest is in protactinium.

DR. A. M. LANE is part of the team of theoreticians whose task it is to ensure that the Atomic Energy Authority is fully armed with the most up-to-date and reliable knowledge of nuclear physics.

(2) Agricultural Research Council: Deputy Chief Scientific Officer

DR. R. L. MITCHELL joined the staff of the Macaulay Institute for Soil Research, Aberdeen, in 1937. He

is deputy director of the Institute and head of the Department of Spectrochemistry. Dr. Mitchell has been responsible for the development of spectrochemical methods applicable to the analysis of soils, plants and related materials, involving the evolution of techniques and equipment for arc, spark and flame emission methods. The chemical concentration technique is now quite widely used throughout the world and many overseas workers have visited the Macaulay Institute to study the spectrochemical methods developed by Dr. Mitchell and his co-workers. More than sixty publications describe methods employed and the valuable results obtained in the study of trace element relationships in soils and plants and of the geochemical background to their occurrence. The work of his department also includes the use of infra-red and ultra-violet absorption methods for the examination of organic and inorganic soil constituents.

Senior Principal Scientific Officers

DR. N. J. BERRIDGE is a member of the staff of the National Institute for Research in Dairying and is well known as an authority on rennin.

DR. ALAN ROBERTSON, of the Agricultural Research Unit of Animal Genetics, Edinburgh, is widely recognized as one of the most successful students of the rapidly expanding subject of population genetics.

DR. V. P. WHITTAKER, of the Agricultural Research Institute of Animal Physiology, Babraham, Cambridge, has done outstanding research in the cholinesterase field.

(3) Development Commission: Senior Principal Scientific Officer

DR. J. W. G. LUND is in charge of the Freshwater Biological Association and has made important contributions to the understanding of the factors which, by controlling the annual phytoplankton cycle, determine the fertility of lakes and reservoirs.

(4) Nature Conservancy: Senior Principal Scientific Officer

MR. J. G. SKELLAM is head of the Biometrics Branch of the Nature Conservancy, contributing to mathematical biology, and in particular to theoretical study of population dynamics and statistical ecology.

CONCEPTION OF EVOLUTION

MEETING IN PARIS

THE Muséum National d'Histoire Naturelle celebrated on June 5 the anniversaries of the "Precurseurs et Fondateurs de l'évolutionnisme—Buffon, Lamarck, Darwin": the 250th anniversary of Buffon's birth, the 150th anniversary of the publication of Lamarck's "Philosophie zoologique", and the centenary of Darwin's "Origin of Species". The meeting was held in the famous Grand Amphitheatre, planned during Buffon's administration, and which, reconditioned about four years ago, is again used for its original purpose. A large and distinguished audience including many famous scientists, some of whom have long been retired, was present.

Prof. Roger Heim, director of the Museum, gave an opening discourse, first summarizing the pre-Buffon period with his customary clarity and grasp of essentials. If in this he appeared to stress the views of naturalists of the old Jardin du Roi it was inevitable, for naturalist-philosophers were almost confined to France at the time—and to the Garden. There were clear statements about transformism before Buffon, and equally there was a belief in the fixity of species after him. An upholder of this was Bosc, one of the founders of the Linnean Society of Paris in 1788, the same year as that of London was started. One of the first acts of the society

was to petition for the erection of monuments in the Garden to the memory of famous scientists, beginning with that of Linnaeus, later destroyed by *sans-culottes*.

Prof. Jean Piveteau, of the Sorbonne, a well-known authority on Buffon, gave an account of his personality with particular reference to his ideas on evolution, how they developed and how, at times, they seemed incompatible. A valuable commentary gave the reasons for this, both psychological and diplomatic. Few men are so misjudged in Great Britain as Buffon. He had an enormous influence on the thought of his time. He was a man of wide scientific attainments and in every way a man of the world. His Discourse on Style, delivered on his admittance to the Academy of Sciences in August 1753, has given him his place in literature. This celebrated discourse was read at the meeting by M. Toni Taffin of the Comédie-Française. The audience was obviously thrilled to hear the sonorous phrases which probably all had read—there were at least sixty editions of it in the nineteenth century.

Dr. J. Ramsbottom followed with an account of the lives and work of Jean Lamarck and Charles Darwin. Lamarck first postulated progressive evolution; Darwin put the doctrine of evolution on so sound a basis that it became generally accepted. It was a pleasing acknowledgment of Darwin's epoch-making "Origin of Species" that he should be given a prominent place in what was essentially a celebration of French achievements: moreover, it was logical in realizing that it was the book and not the preliminary announcement of natural selection which was important. So Lamarck and Darwin could be spoken of as searchers after truth without some of the nonsense which has been allowed to belittle the former. Comparing the basic ideas of the two—Lamarck held that an organism in a changing environment is stimulated to vary; Darwin that variation is independent of the environment. For both the environment—adaphic, physical and biotic factors, the last including competition, parasitism, etc.—is all-important. Natural selection is not active like artificial selection, but passive: an organism can live under certain conditions, or it cannot. Lamarck suggested that the simpler animals and plants would provide instructive facts. Evidence accumulated since the introduction of pure culture methods suggests that environmental conditions can produce definite inheritable changes, though not necessarily of the kind Lamarck propounded. The boosting up of penicillin production in *Penicillium chrysogenum* has much in common with what Darwin considered to be the effects of domestication.

Mme. G. Duprat, librarian to the Museum, then gave an account of the career of P. J. Redouté,

born in 1759, who was artist to the Garden and painted many of the famous *vélins*. She showed a series of projections of portraits of Redouté and a large number of his paintings, several of which were of specimens from the Royal Botanic Garden at Kew. An exhibition was arranged in the corridor adjoining the amphitheatre showing many of Redouté's original paintings and a number of his published plates; also an announcement of his lectures. The Muséum d'Histoire Naturelle, as one of its main functions, acts as a teaching university. There are at present 24 professors who give courses of lectures covering a very wide field, but there are no degrees awarded as the result of examinations. The system is *sui generis*.

Prof. H. V. Vallois, director of the Musée de l'Homme—attached to the Natural History Museum—gave a history of the Société d'Anthropologie, founded in 1857. In spite of the date the Society's beginning was in no way connected with the publication of the "Origin of Species"; indeed, it preceded it by six months. Social and physical anthropology in the widest sense have been the scope of the Society, and its activities, as outlined, make an impressive history. It is noteworthy how Darwin's name became increasingly prominent after the publication of his "Descent of Man" in 1871. Cuvier, the great exponent of catastrophism, died in 1832, but though there was no successor to stamp out heresies his influence was such that Lamarck's beliefs were still discredited and it was not until Darwin amassed and arranged the evidence that inquiries about the status of fossil man became scientifically respectable.

The last paper, by M. Franck Bourdier, assistant chief of the Service de Muséologie, dealt with the French forerunners of evolution. They make an imposing list far outnumbering the combined total from all other countries. The notion of permanent change in organisms and that of evolutionary sequence stood out clearly. It would be useful to distinguish between them, possibly by speaking of the first as transformism and the second as evolution.

In an adjoining corridor an exhibit was arranged where the matter of this lecture could be studied at leisure and in greater detail. Here again Darwin was included as the end of the old period or as the beginning of the new.

In addition to this intellectual feast and as part of the anniversaries, an excellent exhibition was staged in the gallery of the Botanical Museum, dealing with the history of the doctrine of evolution and illustrating development up to and including man. Specimens, casts, models, photographs and all the modern methods of display provided a most instructive and convincing story.

J. RAMSBOTTOM

X-RAY MICROSCOPY AND X-RAY MICROANALYSIS

THE second International Symposium on X-ray Microscopy and X-ray Microanalysis was an independent meeting held in Stockholm in 1959, and sponsored by the same three laboratories as were responsible for arranging the first Symposium, held in Cambridge in 1956: the Department of Medical Physics, Karolinska Institutet, Stockholm; the Departments of Physics and Biophysics, Stanford University, California; and the Electron Microscope

Section of the Cavendish Laboratory, Cambridge. The attendance of 180 was 50 per cent greater than that at the previous meeting, although the number of papers presented (74) was not appreciably greater than before (66). The participants were drawn from seventeen different countries and from 120 different laboratories.

The programme was divided according to the nature of the physical techniques employed: X-ray