

of the Milky Way. He came to the conclusion that all Wright's forerunners had considered the Milky Way as one of the constellations on the celestial sphere; that since Galileo this luminous band was known to consist of many stars, and that from one author—Dr. Derham, whom Wright mentions—he might have learnt that the strange appearance of the galaxy presented an unsolved problem; but the direction in which Wright found the explanation is not foreshadowed anywhere and his publication was in the fullest sense original.

Following the first speaker, Prof. F. A. Paneth, of the University of Durham, discussed the two reasons for which Thomas Wright ought to be remembered in the history of astronomy. He was the originator of the idea of the disk-shaped universe; it occurred to him that if our sun with its planets were situated in the interior of a flat stellar system, on purely geometrical grounds we would see many more stars when looking in the direction of the plane of the disk than in any other direction. In this case there would be in Nature no crowding together of stars in the Milky Way, but this celestial circle would only be an optical effect, due to the peculiar form of the stellar system to which we belong.

Essentially the same interpretation of the Milky Way was given thirty-five years later by W. Herschel, who—without any knowledge of Thomas Wright's book—based it on the convincing results of his star-gauging in various directions of the sky. There can be no doubt that the priority of this fundamental idea belongs to Wright; but since his "Original Theory" had no direct influence on the development of modern astronomy, this historical fact alone would have not more than a limited interest for specialists. There is, however, a second, much stronger, argument for remembering Wright: his book was the spark which fired the imagination of Immanuel Kant to develop his famous theory of celestial evolution. This great scientific cosmogony would probably never have been written if Kant had not seen, by mere chance, an abstract of Wright's book in a German periodical. Wright's conception of the universe was purely geometrical, but Kant considered immediately the forces acting therein; the disk-like shape of the stellar system seemed to him proof of its rotation—a conclusion since verified—and the elliptical nebulae he interpreted correctly as external galaxies. (Kant was the first to use the word in the plural!) The idea of cosmic evolution which is the essential part of Kant's theory follows almost logically from Wright's assumption of the flat universe.

After the two lectures, an excursion was made to a strong stone tower at Westerton, about seven miles from Durham, which for more than a century has been known to the local population as the "Westerton Folly", its original purpose being completely forgotten. Now it bears a freshly fixed tablet with the inscription:

This Observatory Tower was erected by  
THOMAS WRIGHT  
born at Byers Green 1711, died there 1786.  
To commemorate his treatise  
THEORY OF THE UNIVERSE,  
published 1750, this tablet was placed here  
by the University of Durham, 1950.

An exhibition in the University of Durham Library of Thomas Wright's published works, of manuscripts or photostated copies of manuscripts from the British Museum, the Royal Society, the Royal Astronomical

Society and the Newcastle Public Library, and of drawings and pencil sketches representing a great variety of subjects, gave visitors a good impression of the genius of this versatile and highly original man.

It is hoped that his autobiography, the manuscript of which is still extant, will be edited this year by a competent scholar; it tells a very human, and in parts touching, story of a boy whose early love for the study of mathematics and astronomy was so much opposed by his father that he ran away from home, penniless, but carrying with him the load of all those books which his father had not burned. It narrates how, against many odds, he slowly succeeded in having his works printed and getting access to the houses of the nobility as a teacher of astronomy, which in those days was a fashionable hobby with the ladies. It finishes with the description of the stately house he built in his native village and in which he died in 1786, too isolated, it seems, to have heard before his end of Herschel's fundamental paper presented to the Royal Society a year earlier, which proved the correctness of Wright's idea about the nature of the Milky Way.

F. A. PANETH

## INTERNATIONAL COMMITTEE FOR BIRD PRESERVATION

### EIGHTH INTERNATIONAL CONFERENCE

THE Eighth International Conference of the International Committee for Bird Preservation, the first world conference to be held since the Second World War, took place in Uppsala during June 8–10, and was attended by representatives of the following national sections: Austria, Belgium, Canada, Denmark, France, Germany, Great Britain, Greece, Hungary, Iceland, Italy, Japan, Netherlands, Spain, Sweden, Switzerland and the United States; Luxembourg, which is not yet a member of the International Committee, sent an observer.

The following elections were made: *President*, Jean Delacour (United States); *Vice-Presidents*, Leon Lippens (Belgium) and Colonel Casales (Argentina); *Secretaries*, Miss Phyllis Barclay-Smith (Great Britain), Richard Pough (United States) and Georges Olivier (France). Dr. Bøje Benzon (Denmark) was elected chairman, and Prof. A. Ghigi (Italy) vice-chairman, of the European Continental Section.

The business of the Conference opened by a report of the international sub-committee on conditions of birds transported by air, which set forth measures considered necessary to ensure the proper care of these birds in transit. Prof. Ghigi (Italy) directed attention to the harmful effects of delays due to customs formalities in dealing with birds being transported by air, and it was agreed at the meeting that the governments concerned should be approached, with the request that measures should be taken to enable customs officials to give priority to live birds. A full report of the administration and research being carried out by the recently formed International Wildfowl Research Institute at Tring, England, was submitted to the meeting on behalf of Dr. Edward Hindle, the honorary director, giving details of the work being carried out on the summer migration of the sheld-duck (see *Nature*, December 31, 1949, p. 1122), with special reference to food and food preferences, mortality, correlation of ringing re-

coveries, systematic studies, etc. This report was followed by statements on the activities of wildfowl inquiry committees of various national sections, the results of which will be correlated by the Institute at Tring.

Much discussion took place regarding the pollution of the sea and of inland waters, and its consequent injurious effect on bird and marine life. Some delegates were of the opinion that the matter should be dealt with separately, as the causes are from different origins; but eventually it was decided that the matter should be investigated by one international sub-committee, a further one being set up at a later date to deal specifically with inland pollution should this prove necessary. The need for urgent international action to prevent the discharge of waste oil on the sea was emphasized, and the efforts of the League of Nations in 1926 to bring about an international convention on the matter was referred to. The sub-committee set up consists of representatives of Belgium, Denmark, Great Britain, the Netherlands, Sweden and the United States.

The danger to bird life of the improper use of insecticides was referred to by Prof. Ghigi, who directed attention to the great destruction caused to both animal and plant life in Sardinia where DDT had been sprayed from aeroplanes with the most disastrous results. This view was supported by many other national sections, and as a result the following resolution was passed.

"In view of the damage to bird life caused by the use of strong modern insecticides, either by the use of a dose which may prove toxic to birds or by the creation of a famine among insect-eating birds whose food is indiscriminately destroyed, and in view of the recommendations in the same sense adopted at the International Technical Conference for the Protection of Nature held at Lake Success in August 1949—

"The 8th International Conference of the International Committee for Bird Preservation resolves to invite responsible Governments to examine urgently the possibilities of making available to agricultural authorities and to the manufacturers and distributors of insecticides in their countries the results of the scientific researches already undertaken successfully (notably in the U.S.A.) regarding the effects upon bird life and upon animal populations generally of the use of different doses (per acre or per hectare) of modern insecticides.

"The Conference also invites Governments to investigate means of persuading farmers and other users of insecticides not to exceed the doses recommended by the manufacturers, which should be scientifically verified. The Conference hopes that these recommendations will be supported by those concerned with the dangers caused by excessive or incorrect use of pesticides to consumers of agricultural products and to workers handling them and applying them to crops."

The German representatives urged the necessity for further protection of migratory birds and in particular the curtailing of shooting in the spring, and this view was supported by members of many other European countries. The Netherlands delegates, on their part, directed attention to the need for better protection of waders, and reported that in their country many species of these birds are given complete protection. A proposal put forward by the Swedish National Section, for the establishment of a series of reserves throughout Europe on known

migration routes on the same system as the 'flyway' refuges in the United States and Canada, was welcomed; and the high value of such a system generally was acknowledged, although it was realized that the difficulties of creating such a series of reserves in Europe would be far greater than in America, on account of the number of different countries involved. It was agreed that the protection of migratory birds and waders and the establishment of reserves are interdependent, and a subcommittee consisting of representatives of Belgium, France, Denmark, Germany, Great Britain, Greece, Italy, Netherlands, Spain, Sweden and Switzerland was set up to deal with this subject.

The Conference considered the drawing up of a list of species of birds threatened with extinction for special international measures of protection, and the list which was prepared at the International Technical Conference on the Protection of Nature, held at Lake Success in August 1949, was taken as a basis. The urgent necessity for conserving specialized island fauna was pressed, and a subcommittee, on which museum workers were largely represented, was set up to work on this subject in conjunction with the International Union for the Protection of Nature. The proposed exploitation of eggs, for use in the processing of leather, of certain birds inhabiting islands in the Antarctic was reported, and as a result the following resolution was passed.

"The I.C.B.P. having learned of the proposal to develop an industry in the eggs of sea-birds nesting on certain islands in the Antarctic under French rule, Amsterdam, Kerguelen, etc., protests against the realisation of this proposal which may result in the extinction of several species and subspecies peculiar to those islands, especially Albatrosses, Petrels, and Penguins.

"The small area of these islands and the difficulty of effective supervision constitutes a serious danger for the colonies of birds. The Committee therefore draws the attention of the French Government to the international scientific importance of this matter and to the necessity for the strict preservation of this island fauna such as was carried out in 1908 by the New Zealand Government.

"It expresses the view that severe measures should be taken to prohibit any temporary or permanent use of the eggs of these birds for industrial purposes and in any event to prohibit the import into France or any other territory of the products eventuating from any such industry."

A long discussion on the situation of birds which are a menace to other species revealed that some, which on first consideration may appear to be such a menace, may in fact play an important part in their natural selection. The herring gull, carrion crow and magpie were particularly considered in view of the great increase of these species in Europe. A subcommittee was set up to investigate the populations of gulls in countries bordering on the North Sea, and was made up of representatives from Denmark, Great Britain, Germany and the Netherlands; but the problem of crows and magpies, which only need control in certain areas, was left to the countries concerned.

The revival of the fashion of wearing plumes of birds of paradise and egrets in ladies' hats was discussed, and national sections reported on the legislation on this matter existing in their various countries. Attention was directed to a new development in the use of bird skins for decorative purposes,

and it was agreed that this situation should be closely watched.

At the close of the meeting a report was read by Mr. Hoyes Lloyd (Canada) of the activities of the Pan-American Section, and national sections tabled reports on the situation regarding bird preservation in their respective countries; these will be published in the next Bulletin of the International Committee for Bird Preservation.

## DUNLOP RESEARCH CENTRE, BIRMINGHAM

THE Dunlop Research Centre, at Fort Dunlop, Birmingham, was officially opened by Sir Lawrence Bragg on June 7. The ceremony was preceded by a luncheon in the Dunlop Hall, at which Sir Clive Baillieu, chairman of the company, presided and which was attended by the Lord Mayor of Birmingham (Alderman A. Paddon Smith), representatives of government departments, universities, research associations and a large body of the Press.

Speaking at the luncheon, Sir Clive Baillieu emphasized the importance of the steps taken to reduce the time lag between the discovery of new research knowledge and its application on a production scale. Sir Lawrence Bragg said that it is no easy matter to forge a link between the universities and industry as the outlooks are so different. The pure scientist, he continued, knows that planning means the death of scientific advance, and, when knowledge for its own sake is the goal, the rate of progress is greatly increased. Pure science is the reconnaissance on behalf of the occupying army of technology, and the pure scientist should so simplify his knowledge as to make it attainable by all who wish for it. Sir Lawrence condemned misleading statements about the relationship between science and industry, and went on to say that the developments in industry are not made by pure scientists, but the latter often supply new lines of thought which make the ideas arising in industry realizable. Science is a superstructure, not a foundation of industrial development; it is something which multiplies industrial effort. The human factor in any research organisation is the major one, and hence 'motivation' of the staff is very important. Sir Lawrence concluded by saying that the success or failure of the Dunlop Research Centre would depend on the ability to develop people who wanted to see round the corner and into the future.

After luncheon, the party moved to the Research Centre, where the symbolic opening took the form of cutting a cord stretched across the main doors. The cord was appropriately in the form of a greatly enlarged rayon tyre cord in the Company's colours of black and gold, the two materials being associated with Dunlop patents. The guests then made an inspection of the Centre, the type of work in hand being illustrated by sixty-seven exhibits and demonstrations.

The need has been long felt for a central organisation to serve the world group of Dunlop companies in respect of research and long-term development. The project for such a centre began to take shape during the Second World War, and the original intention was to have an entirely new group of buildings. However, conditions following the War

made this impracticable, and an alternative scheme was sought. Fortunately, part of a large aircraft factory adjacent to Fort Dunlop became available, and suitable buildings were taken over. The two-story administration building (area 129,000 sq. ft.) has been almost completely reconstructed to form the research building, an emergency power-house adapted (with considerable extension) as a pilot plant building (total area, 18,500 sq. ft.) and an entirely new engineering services building (2,400 sq. ft.) erected between the two main structures. There are three temporary buildings (4,250 sq. ft.) also in use, so that the total working area is more than 154,000 sq. ft. All the plants are spaced well apart on a site totalling nearly eight acres. The Research Centre is situated about six miles out of Birmingham, on the north-east side. It is excellently situated with respect to main roads, having easy access to all parts of Great Britain without passing through Birmingham.

Building and reconstruction began in the spring of 1947, and steadily went forward in the face of post-war controls, material shortages and other difficulties. The work was carried through by contractors under the supervision of the Company's architects, and most of the engineering work was done by the Company. The buildings are modern ones, in steel and brick construction, with reinforced concrete floors. The laboratories of the research building are separated on the upper floor by steel screening, and on the lower floor by brick walls. Most of the heavy plant is on the lower floor. The colour scheme is cheerful, being predominantly cream for both the walls and the plastic tiling. Each floor has its own ventilation system, that for the lower floor, because of there being a number of enclosed rooms, also having extract ducting. For the special needs of the textile- and rubber-testing laboratories, an entirely separate air-conditioning plant provides constant temperature and humidity conditions. Fluorescent lighting giving a minimum of 25 lumens is installed, and there is a low-voltage incandescent system coming into operation automatically in case of mains failure. The underground subway, carrying the vast network of engineering services to the various laboratories, is a noteworthy though inconspicuous feature.

Due to the wide variety of the Company's activities and the unusual properties of rubber and rubber-like materials, there are some fifty different laboratories (excluding workshops), separated on a functional basis. There is a library where, in addition to reference works, some hundred and fifty current technical periodicals are always available. Well-equipped dining rooms have been provided, as well as the usual conference rooms and stores. The lecture theatre, seating a hundred and sixty people, is fully equipped for film projection. Including clerical, administrative and auxiliary-service workers, the total technical staff of the Centre is now 276. Of these, a hundred are graduates or hold diplomas of graduate status, eighteen different universities being represented.

The work of the Centre is grouped roughly into research, under Mr. F. G. W. King, and development, headed by Mr. E. A. Murphy, although the two groups work in close co-operation. The research administration comes under Dr. W. C. Davey. The main research activities are classed under the headings of chemical, compounding, physical and textile. Chemical research work (under Dr. W. C. Davey) includes the preparation and fundamental study of high-polymers, chemical derivatives of rubber, and studies