

NEWS and VIEWS

Dr. J. C. Willis, F.R.S.

DR. J. C. WILLIS, the well-known botanist, celebrated his seventy-fifth birthday on February 20. When Dr. Willis was appointed director of the Royal Botanic Gardens, Ceylon, in 1896, he not only developed the gardens to a high state of efficiency but he also began a very fruitful study of the flora of the island, coming for the first time in contact with a most interesting tropical flora. He began with the investigation of the Podostemaceæ, a group of highly modified type of flowering plants which grow on the waterworn rocks of rapidly flowing tropical streams in various parts of the world. When at Cambridge as personal assistant to Sir Francis Darwin, he had accepted with enthusiasm Darwin's doctrine of natural selection, but faced with the fact of numerous species of the same family living under practically similar conditions of life he began to question the Darwinian theory of evolution. Thus the views which he has put forward in his later stimulating books had their origin in his intensive study of the Podostemaceæ.

Dr. Willis's studies of the endemic plants of Ceylon, and later those of New Zealand, confirmed him in his conclusion, formulated in his earlier publications, that the older a species is the greater is its geographical distribution, and vice versa. This view was put forward at some length with numerous examples verified by himself in "Age and Area", published in 1922. As this book met with some criticism, Dr. Willis published in the following year a reply to criticism. Further studies on endemism and geographical distribution have occupied Dr. Willis's time and energy since then and two accounts of his work and his conclusions were given to the Linnean Society in 1936 and 1938 respectively. Advancing age has not diminished his output of important contributions to botanical science, and 1940 saw the publication of "The Course of Evolution by Differentiation or Divergent Mutation rather than by Selection", a book showing the vigour of his mind and summing up with a wealth of mature and critical judgment the arguments in favour of his conclusion. Marooned in Switzerland during the present War, he is still hard at work and last April (1942) he published an article in the *Proceedings of the Royal Society* indicating the kaleidoscopic manner in which the mutations referred to in his "Evolution of Plants" takes place. This publication may be taken as an instalment toward a projected volume on geographical distribution, the publication of which has been retarded by the difficulties caused by the War.

Post-War Commercial Air Transport

THE recent discussion in Parliament upon the necessity for making provision for the development of civil aviation in the immediate post-war period has aroused much interest in many different circles, political, commercial and technical. Mr. F. C. R. Jaques, of North Eastern Airways, Ltd., 31-32 Haymarket, S.W.1, has prepared a memorandum in which he endeavours to apply his experience in commercial air transport to the post-war problem. He suggests that much technical progress in design has been made, necessarily secret at present, that has improved performance, reduced the labour needed for construction, and simplified maintenance.

This should be reflected in a general lowering of costs of air transport, the principal bugbear of the earlier air-line operator. If schemes, both for commercial air transport and private flying, are launched with sufficient vision and energy they will help in the problem of re-establishing the skilled personnel of the R.A.F. in civil life.

The memorandum postulates that international freedom of the air is a necessary preliminary for the fullest development of civil flying, and suggests that sufficient balance can be maintained if each country controls its nationals, guaranteeing their bona fides, technical skill, and the airworthiness of their machines. These standards will obviously need to be aligned, at least approximately, by some international agreement. As such did exist before the War there should be no difficulty in resurrecting them. His suggestions include the removal of civil aviation from the Air Ministry, introducing a sense of competition in the air transport world by allowing other selected companies to operate, the development of internal routes possibly by smaller companies as feeders to the big transcontinental lines, and the immediate appointment of a powerful committee to examine such questions.

René-Just Haüy (1743-1822)

ON February 28 occurs the bicentenary of René-Just Haüy, recognized everywhere as the founder of the science of crystallography. Born in the small town of St. Just, in the Department of Oise, he was the son of a weaver, but in spite of his poor circumstances gained admission to the College of Navarre, in Paris, and at the age of twenty began to teach there. Led to the study of minerals through an accident with a crystal of calcareous spar, he discovered the law of crystallization, and became widely known thereby. In 1783, at the age of forty, he was elected to the Academy of Sciences, and in the following year he published his "Essay in the Structure of Crystals", the first of his various books. He was deprived of his posts at the Revolution, and for a short time imprisoned; but after the fall of Robespierre, he took his place among his scientific peers, being given a chair in the short-lived Normal School, and a seat in the Institute. He was also made keeper of the mineralogical collections at the School of Mines and secretary to the Commission of Weights and Measures. In 1802 he became professor of mineralogy in the Natural History Museum, where his lectures attracted large audiences. His numerous memoirs are to be found in the periodicals of the time. He continued to lecture to an advanced age, and died in Paris on June 3, 1822. His collections and his statue are in the galleries at the Museum, and on November 8, 1903, a monument to him and his brother, Valentin Haüy (1745-1822), a pioneer in work for the blind, was unveiled at St. Just, when a discourse was pronounced by Lacroix. The *American Mineralogist* (No. 6, 3, 1919) contains a series of articles on aspects of Haüy's life and works and includes a number of portraits.

British Mammals in War-time

THE increase of many species of British birds due to war-time changes in the countryside has already been noted in NATURE. Evidence is now accumulating to show that many British mammals are likewise increasing, and one of the most welcome is the pine-marten, which had reached a dangerously low

population in many districts. Reports were recently made of its presence in North Wales at Bettws-y-Coed (*Field*, Jan. 1943), and in Scotland in the Forestry Commission and deer forest areas of the Highlands and in a cairn in the Grampians (H. M. Batten, *Scotsman*, Jan. 30, 1943). In Lakeland it has recently been reported from Ennerdale. The polecat is also increasing in the wilder parts of Great Britain. Foxes have increased at an alarming rate in most parts, even where there were no organized hunts as in Lancashire, while in Lakeland, where the Eskdale Hunt killed a record total of sixty foxes in January, there is considerable controversy over organized fox hunts.

The Scottish mountain hare, which inhabits only a few parts of the Pennines at Penistone above Sheffield, has wandered from the Cheviots, where it is plentiful, to inhabit some of the moors on the extreme northern fringe of Cumberland above Gilsland and Bewcastle. The increase of stoats, weasels and badgers is of considerable agricultural value, because rabbits form such a large part of the food of stoats and badgers, and weasels feed mainly on field mice. The increase of foxes is responsible as much as is trapping for the reduction of rabbits, which form the chief food of foxes, but their depredations upon poultry have necessitated a campaign against them.

A Laboratory in Physical Geography

A DEVELOPMENT in geographical research and teaching is the subject of an article in the *Geographical Journal* of November-December by Prof. F. Debenham, in which he describes the laboratory for physical geography which he has planned and equipped at Cambridge, even though the exigencies of the times have necessitated its temporary dismantlement. The object of the laboratory is to study field processes, usually in miniature, under conditions of close observation and control with the view of ascertaining their mechanism, stages and effect. An amazing array of apparatus has been crowded into one room barely 50 ft. long by 19 ft. broad. In the wave trough, waves are generated by various methods and ingenious devices allow the measurement of period, height, length, etc. Here also beach building with sand and shingle can be studied. The wave tank, on a smaller scale, provides, among other aims, for the study of land forms produced by long-shore drift. An even more ambitious piece of apparatus is the tidal tank in which the difficulties of producing tidal currents seem to have been overcome, and good results are expected. The stream flume or delta tank seems to work well in the study of alluvial deposition, and the stream curve apparatus is to be used for the investigation of water movement in the bed of a stream. Other problems, too, are to be studied, and the whole laboratory is a promising step in the introduction of quantitative methods in the problems of physical geography.

Public Library of South Australia

THE first report of the Public Library of South Australia, which was formed under the Libraries and Institutes Act, 1939, creating a Libraries Department under a Libraries Board of South Australia, with a Principal Librarian as administrative head, covers the half-year ending June 1940, and stresses the need for the permanent allocation of sufficient land

for the natural growth of such an essential service. The various properties of the Public Library, the Museum and the Art Gallery have now been re-allocated, but despite adaptations the accommodation for library work, particularly for staff and for the country lending service, is entirely inadequate. War conditions have not affected adversely the use made of the Library, as is shown by an increase in readers of more than 7,000 during the year, and the Library staff has been taxed to its utmost to provide information regarding all sorts of conditions arising from the War. Financial provision for books is still inadequate and the Board has recommended the establishment of a research department for handling requests for scientific, technical and economic information. For this a more extensive range of periodicals is urgently required. The country lending service has also been called upon for books beyond the limit of its capacity, and its work has grown so rapidly that early extension of accommodation is necessary to provide adequate working space. The Archives Department has reached the limit of its shelving accommodation and offers of many important series of documents, arising from the present extensive pulping of old records, cannot be accepted because of lack of accommodation.

Joints in Submarine Cables

R. Miller and C. T. Rose contribute an article on this subject in the *Engineering Supplement of Siemens Magazine* (Oct.-Nov., 1942). In submarine cables particular care has always to be exercised in dealing with the joints, and every endeavour is made to limit their number by manufacturing individual cable lengths as long as possible, consistent with the methods of transport, storage accommodation, etc., available, and the scheme of laying to be adopted. With submarine cable-laying under normal conditions, it is unlikely that more than one sea joint will be necessary, the cable being laid in two parts, one section from each shore termination. This necessitates cutting the cable at a convenient position, buoys the end, and picking up again after the other section has been laid. The joint is then made on the ship and on completion is cast overboard, after due precautions have been taken. The article refers to both communication cables and power cables, the latter for voltages, for example, up to 33 kV. In the section on communication cables the authors discuss gutta-percha joints, splicing the sheathing wires, rubber joints, rubber to gutta-percha joints, and paper joints. The section on power cables is confined to those of the impregnated paper-insulated and lead-covered types and describes the making of subaqueous joints, super-tension joints and the handling of the shore ends of the cable. The article is illustrated and several photographs are included showing different stages in the operations of laying submarine cables.

Conference of X-Ray Analysis

THE analysis of substances and the examination of their behaviour by X-ray diffraction methods has become of considerable importance in the war effort. The Institute of Physics is therefore arranging a second conference on the subject to take place in Cambridge during April 9-10. The provisional programme includes a lecture on "Future Developments in X-Ray Crystallography" by Prof. J. D. Bernal, and discussions on "Quantitative Treatment of