

The northern limit of the Saharan zone depends on humidity, and the isohyet of 200 mm. per annum coincides almost exactly with the limits of the distribution of the desert fauna. The mammalian fauna of the Sahara is almost entirely tropical, mostly Ethiopian, in its origin, and even amongst birds the vast majority are non-palæartic. It is, therefore, impossible to continue to include Sahara in the Palæartic region, as is usually done.

A number of urgent problems of desert ecology are discussed in the second part of the memoir, comprising twelve chapters. There is a mass of original information, often leading to deductions which may be unorthodox, but are well supported by first-hand evidence. The distribution of mammals is very little influenced by the absence of water, since all of them are able to do without drinking, being satisfied with the water obtained from food. The same, however, is observed in mammals elsewhere, and cannot be considered as a special physiological adaptation. Among birds, only a few grain-feeding species (*Pteroclidæ*, etc.) cannot live without drinking, while all those with mixed diet can do so. No special adaptations exist in desert mammals for protection against powerful insolation, since the vast majority of them are nocturnal in their habits, and many pass the day underground. In birds, which are exposed to the sun, no special adaptations in behaviour have been noted.

As regards morphological adaptations to desert environment, some of the classical text-book examples do not withstand serious criticism. Thus, a statistical study of the structure of the feet in desert mammals and birds shows that, contrary

to accepted opinion, there is no special dominant type of structure which can be regarded as adaptation to the environment. On the contrary, there is a great variety of structures, and some of them appear to be singularly ill-adapted to the particular habitat. Similarly, the hypertrophy of external ears considered by many authors as a typical feature of desert animals is actually not a general feature. As regards the great development of bullæ tympanicæ observed in the large majority of desert mammals, it appears to be a real response to the environment, but its physiological and biological significance is wholly obscure, and various hypotheses as to its presumed role rest on a desire to prove its usefulness to the animal, rather than on facts.

Again, a thorough discussion of the vexed problem of the coloration of desert animals does not permit the author to subscribe to its classical explanation as a protective device developed by selection. Both the hypertrophy of the bullæ tympanicæ in desert mammals, and the dilution of pigments, with the preponderance of phæomelanines and almost complete absence of carotinoids, are regarded by the author as characters which developed in strict dependence on the dryness of the environment, acting on the organism either directly, or indirectly.

Every ecologist and general biologist will find in this memoir, the contents of which are very inadequately expressed by its modest title, a store of original ideas, supported by abundant and fresh data of biogeographical, ecological, anatomical and physiological order.

B. P. UVAROV.

## Blackpool Meeting of the British Association

ALL signs point to a full and interesting meeting of the British Association on September 9-16 in its new surroundings. The work of the Association, wide enough in all conscience, has been, of recent years, taking on a still wider character. The man of science is realizing to-day, as he never realized before, that he is, as man of science, a citizen of a great community; that he is a power in that community; and that he can forge weapons of a potency, for good and ill, such as the world has never yet known. The destinies of the future civilizations are in his hands, more than in those of any other class; and it is for him to see that the knowledge which he presents so freely to his fellows is used for weal, and not for ill.

To that end, it is necessary to study, critically and minutely, the effects of the advances of science on the well-being of the community. Most of us are content to indulge in that study, so long as it is a matter of handing out bouquets; but the gifts of man to mankind may be evil as well as good, and it is precisely those possibilities of evil which demand most careful study. The new policy of the Association, of starring in its programme those items which deal with aspects of knowledge the repercussions of which on the welfare of the community are direct and important, marks an important step in the history of the Association; it is to be hoped that it will remain a permanent feature of the programme.

The subject of the presidential address (the

impact of science on society), the titles of the sectional presidential addresses, and the principal topics of discussion have already been announced in an article which appeared in *NATURE* of May 9 (p. 766). To these we may now add the series of public lectures and lectures to children. The series is as follows:

#### PUBLIC LECTURES.

- Lytham St. Annes.* Dr. Olaf Bloch: "The Scope of Photography".  
*Blackpool South.* Dr. W. F. Bewley: "Science and the Glass-house Industry".  
*Preston.* Prof. J. L. Myres: "Who were the Greeks?"  
*Southport.* Sir James Jeans: "Some Recent Advances in Astronomy".  
*Poulton-le-Fylde.* Mr. P. A. Francis: "Applications of Science to Poultry Farming".  
*Fleetwood.* Prof. C. M. Yonge: "Common Shore Animals".  
*Thornton Cleveleys.* Dr. D. F. Harris: "Joy in Scientific Discovery".  
*Preston.* Prof. Allan Ferguson: "Splashes and what they Teach".

#### LECTURES TO SCHOOL CHILDREN.

- Brigadier H. S. L. Winterbotham: "How Maps are Made".  
 Mr. D. Seth Smith: "Favourites of the London Zoo".

Evidently the public lecture, whether to a senior or to a junior audience, is becoming an increasingly important feature of the annual meeting. It is possible that this impressive list of lectures is still incomplete, as applications are

still coming in from some of the East Lancashire towns.

The Evening Discourses, to be delivered by Mr. C. C. Paterson and by Capt. F. Kingdon Ward, will deal with "Science and Electric Lighting" and with "Plant-hunting and Exploration in Tibet". These discourses are open to members only.

Some of the sectional excursions and the social events have already been announced. The Mayor and Mayoress of Blackpool (Alderman W. Newman and Miss Newman) invite members to a reception in the Winter Gardens on Thursday, September 10. The headmaster of Rossall School (Mr. H. G. M. Clarke) will entertain four hundred members at a garden party at the School on Tuesday, September 15. The Rotary Club will hold a luncheon on Thursday, September 10, when the president will address the members and their guests. The Official Service will be held at St. John's Parish Church on Sunday, September 13, when the Right Reverend the Lord Bishop of Blackburn will preach the sermon.

Thirty sectional excursions and visits have been arranged, of geological, botanical, antiquarian, engineering and educational interest. Their range in space is as wide as their range in subject. A visit to the Amusement Park stands cheek by jowl with an excursion to the Lake District, and a visit to the open-air swimming bath hard by an excursion to Garstang, Furness Abbey and the Southport Sand Dunes, Stonyhurst and Rossall, Fleetwood Fish Docks and the Fylde Farms. The members of the Association will indeed have enlarged their experiences by the time that the annual meeting draws to its close.

## Obituary

### Sir Henry Wellcome, F.R.S.

**E**ARLY on the morning of Saturday, July 25, there passed away, at the ripe age of eighty-two years, a unique personality, whose activities ranged from archaeological and geographical exploration to the creation of a great manufacturing business, and whose interests included such diverse matters as the collection of ancient manuscripts, the social welfare of native races and the provision of funds for fundamental research in those sciences on which the progress of medicine depends.

Sir Henry Wellcome was born in Wisconsin and, as the son of a frontier missionary, spent his childhood among Dakota Indian tribes. A boy whose earliest experiences included that of organizing the casting

of rifle bullets for the defence of a settlement of whites, and of assisting his uncle—a well-known frontier surgeon—in treating the wounded in the Sioux War in Minnesota, was obviously well-equipped for an interesting career. He chose pharmaceutical chemistry as a vocation, and passed a period of study in Chicago and Philadelphia, where he took his diploma. His life-long interest in travel began to show itself at this stage, and he visited most parts of North America and spent some time in South America in the study of cinchona distribution in its native habitat, a subject in which his life-long interest was again manifested in the tercentenary celebration of the discovery of cinchona, which he organized in London in 1930.