operatives would be the most elastic system with the necessary commercial knowledge and storage and transport facilities. On their commercial efficiency in collecting home-grown food, in which agricultural co-operatives would also play their part, would depend in large measure the successful mastery of the 'black market'. On the efficient distribution of food from abroad would depend the speed of agricultural reconstruction, since no reconstruction could be attempted until such phenomena as the reckless slaughter of livestock for food has ceased. These conclusions were reinforced on the administrative side by Mr. R. Kreisky, speaking for Czechoslovakia, and on the nutritional aspect of the problem by Dr. Magnus Pyke of the British Ministry of Food, who described the very interesting inquiry into nutritional conditions in an industrial suburb of Madrid, carried out by the Rockefeller Foundation in the summer of 1941. This, while access to occupied Europe was impossible, provided the best indication of the sort of conditions which are likely to be found among the liberated peoples. The main conclusion was that the fundamental condition was a shortage of calories rather than deficiency of any particular constituent. The diet was pitifully scanty but not grossly unbalanced.

At its last session, the conference returned to the agricultural and productive, rather than the distributive, aspect of co-operative organization, and considered the experience of countries in Eastern Europe, Czechoslovakia, Yugoslavia, Greece and the Soviet Union. Dr. Bicanic (Yugoslavia) looked beyond the organization of co-operation on the 'classic' pattern of local and voluntary association, already developed with a varying measure of success in the different regions of Yugoslavia before the War. He envisaged a type of co-operation which would embrace the entire village community, deriving from the old Slav principle of the 'Zadruga', or family group, which is still a living force. Such a village co-operative would not be a collective in the Russian sense, but it would carry out a complex of services usually divided among separate co-operative societies, local authorities or individuals, or in many rural communities wholly neglected. A movement in this direction was developing spontaneously before the War; the post-war task would be to foster and extend it. Mr. Hodza (Czechoslovakia) showed how the strength of the co-operative movement had been built up by voluntary effort in the days of Austrian and Hungarian rule, and how under the Republic it was able to take a leading place in national economy. Mr. Polychroniades (Greece) looked to the reconstruction of Greek agriculture and the raising of the peasants' standard of living through a much more extensive application of co-operative methods. Dr. Barou concluded the review of European experience with an account of the wholly different application of the co-operative principle in the Soviet Union, where collective ownership of land and collective application of labour have replaced the individual peasant farm and, with the increased size of the unit and the State control of banking and commerce, the ordinary economic functions of the co-operative have disappeared.

The final impression left by the Conference was of the strength, ubiquity and diversity of the co-operative movement in Europe, and of the extent to which it is, and will doubtless remain, the principal instrument of raising both the technique of European farming and the social conditions of the peasant.

THE IMPERIAL INSTITUTE JUBILEE OF OPENING BY QUEEN VICTORIA

By DR. H. A. TEMPANY, C.M.G., C.B.E.

ON May 10 the Imperial Institute will have reached the fiftieth anniversary of its opening by Queen Victoria. In normal times such an event would doubtless have been marked by some public ceremony appropriate to the occasion, which possesses, in certain respects, a unique historical interest. Under war-time conditions this is precluded, of course, but at least the event warrants some examination in brief retrospect of the history of the Institute and the part which it has come to play in public affairs to-day.

The genesis of the Institute occurred in 1887, when its foundation as a memorial of the golden jubilee of Queen Victoria was undertaken. Its first president was the then Prince of Wales, afterwards Edward VII, under whose direct guidance the Institute was organized. It is, therefore, a relic of the zenith of the Victorian era, those spacious days when the political skies appeared serene and unclouded and there was scarcely more than a hint of the grievous troubles which were to assail the world during the ensuing half-century.

The general objects which the Institute was founded to fulfil were to promote the development of the British Empire and to foster relationships between its numerous component territories and the mother country. Specifically, it was intended to promote the development and utilization of the resources of the Empire, to foster new forms of production as well as the processing and marketing of Empire products, to collect and disseminate information concerning the Empire, its peoples and its products, and later it was instructed to advise on the availability and utilization of its raw materials for Imperial defence. Concurrently it was intended that it should collect samples and specimens of Empire products, and establish and maintain exhibition galleries open to the public, which would serve as an indication and a reminder of the character of the Empire and of the vast resources which it contained. It was also envisaged that the Institute should serve as a link between the various parts of the Empire and a focus and a meeting-place from which would emanate new projects and schemes in connexion with Imperial development.

The concept had at that time a certain novel grandeur, and, associated as it was with the immense and now almost legendary affection, esteem and veneration in which Queen Victoria was held, it made an immediate popular appeal; as a result the large sum—for those days—of £400,000 was raised from official and private sources to launch the project. Of this sum £250,000 was devoted to erecting the impressive building in South Kensington, in which it has ever since been housed; the remaining £150,000 was constituted into an endowment fund.

The first director was Sir Frederick Abel; he was succeeded in 1903 by Prof. (afterwards Sir Wyndham) Dunstan, who retired in 1925 and was succeeded by Sir William Furse. The present director, Sir Harry Lindsay, succeeded Sir William Furse in 1934.

After its inauguration the wave of enthusiasm evaporated, while the available revenue from the endowment fund and other sources proved inadequate

to enable it to fulfil its functions. Consequently it had to face financial difficulties. In 1900 a part of the building was made over to the University of London, which has continued to occupy it until the present time.

In 1905 the Institute was placed under the control of the Colonial Office and so remained until 1925, when its position was reviewed and it was given its present constitution under the Imperial Institute Act of 1925.

Under this the Institute is vested in a statutory Board of Trustees, while its governance is entrusted to a Board of Governors, of which the president is the Secretary of the Department of Overseas Trade, and membership comprises representatives of the Dominions and India and of the Treasury, the Board of Trade, the Colonial Office, the Ministry of Agriculture and Fisheries, the Department of Scientific and Industrial Research as well as of the Royal Society and certain other scientific and commercial bodies.

At the time of its reconstitution, the Institute absorbed the Imperial Mineral Resources Bureau, which had been previously operated as a separate organization. The revenues of the Institute are now derived from the endowment fund, from grants made by the United Kingdom Treasury and by the Governments of the Dominions, India, Burma and the Colonies and Mandated Territories as well as from fees and rentals. The total income and expenditure balance at about £48,000 per annum. The bulk of the income is now contributed by Empire Governments.

The history of the Institute has thus been somewhat chequered; it was only after a rather prolonged initial period that it settled down to the fully efficient discharge of its functions. These nowadays comprise, on one hand, laboratory investigation of Empire raw materials, and the collection and dissemination of technical and commercial information concerning the raw and semi-manufactured products of the Empire, and on the other, the maintenance of its exhibition galleries and the related educational services designed to provide instruction to the general public concerning the British Empire, its peoples, its products and its general character.

In regard to the former, the Institute has during the fifty years of its existence succeeded in building up an information service which is almost certainly unrivalled in its own particular sphere. It is organized in two departments, a plant and animal products department and a mineral resources department, each under the charge of a scientific officer; each department is provided with a technically trained staff, all of whom have the standing of graduates of a British university or possess equivalent qualifications. The staffs in both cases are again subdivided into an intelligence section and a laboratory section. The former is concerned with the collection, recording and dissemination of information, and with replying to the great number of technical inquiries which flow to the Institute from all parts of the Empire, the latter with the examination and technical trial of materials submitted to the Institute. A careful and extensive card-index system epitomizes the sources of information about raw materials of all kinds. The Institute is, under its constitution, debarred from undertaking fundamental research, but is expected to investigate and report upon materials submitted to it. As many of the products submitted are novel in character and as at times their examination may call

for the development of new technical methods, the distinction between investigation and research may, it is anticipated, at times present not inconsiderable difficulties.

The work of the departments is assisted by two advisory councils, one dealing with plant and animal products, the other with mineral products; while associated with them are fifteen consultative committees each dealing with a special product or group of products, the membership of which is composed of scientific, technical and commercial authorities on the particular subject with which each committee is concerned. The set-up thus provided is well adapted to provide an efficient advisory service, and it can be truthfully said that, at any rate of recent years, no query on a subject falling within the scope of the Institute's functions has been received to which an answer has not been returned embodying the latest available information.

The results of more important inquiries are published in the quarterly *Bulletin* of the Institute, while an extensive series of monographs on a wide range of subjects is also issued. Special mention should also be made of the annual statistical summary of the mineral industry of the Empire and foreign countries issued by the Institute, which enjoys an international reputation.

The library of the Institute also deserves special mention; it contains more than 75,000 volumes, including all technical journals relating to its work; its facilities are freely available to workers.

On the publicity side, the Exhibition Galleries of the Institute are noteworthy, for, in addition to providing a range of exhibits and samples which illustrate with a wealth of detail the products and resources of Empire countries, by means of photographs and admirably devised and mounted dioramas they enable the inquiring visitor to obtain a reasonably accurate impression of conditions in many parts of the British Commonwealth. Associated with this is a library of Empire films and lantern slides, which are available for loan to schools and other institutions, while arrangements exist for the provision of lecturers to deliver discourses on a wide range of subjects connected with the Empire. The attack which the Institute has been able to make on the widespread ignorance in the United Kingdom concerning conditions in the Dominions, India and the Colonial Dependencies indeed represents one of its major achievements. During 1942, for example, more than 4,400 films and 836 sets of lantern slides were issued to borrowers for display at a great variety of schools, adult organizations, hospitals, army, navy and air force units and many others. Nevertheless, considerable though this achievement has been, it needs to be multiplied to a great extent before the position can be considered as entirely satisfactory.

During the War, the activities of the Institute have of necessity been diverted to some extent from their normal channels. A number of members of the technical staff have been temporarily transferred to the Ministry of Supply and other temporary war-time organizations of Government, while twenty-two of the technical and general staff are serving with the Armed Forces. To those that have been left has devolved the duty of maintaining its activities, which have not appreciably diminished, although there has been some shift in the nature of the inquiries received, many of them being concerned with finding alternative sources of supply of commodities

which have been cut off as a result of war conditions. Until recently, also, the Exhibition Galleries have been closed to the general public, although facilities have been accorded for visits by organized parties, of which there have been many applications. On the other hand, the demands for loans of films, lantern slides and the provision of lecturers have, as might be expected, increased.

After fifty years, one is entitled to ask how far can the Institute claim to have fulfilled the objects with which it was founded. Certainly in some respects it has not entirely fulfilled them; thus it has never been able to play the predominant part as a centre for the organization of intra-Imperial activities which was originally foreseen for it. No doubt this is partly the result of the preoccupation of those responsible for its destinies in its early days with the immediate difficulties of finance and management. It is true that the Institute has attracted to itself a number of related activities which although they are operated as independent units still come within its general ambit; as examples may be mentioned the office of the Trade Commissioner for Burma and the investigational work carried out by the London Advisory Committee for Rubber Research. It is also true that a much larger number of new developments have come into being, covering a wider field, which are operated independently of the Institute; examples of these are the Imperial Agricultural Bureaux and the Imperial Economic Committee; the Dominions, India and many of the Colonial Dependencies have also set up information agencies and bureaux which operate independently of the Institute. There is free and friendly collabora-

tion between the Institute and all these organizations, but it seems reasonable to suppose that the original intention, when the Institute was first envisaged, was that all activities of this nature should come within the ægis of the Institute.

It is a matter for speculation whether the course which events have actually taken may not in the long run have been preferable to that originally envisaged, and in any event the position is now firmly established.

On the other hand, the Institute has unquestionably amply fulfilled the role which was laid down for it as a centre for the investigation of raw materials and the collection and dissemination of information concerning the products of the Empire, while its publicity and educational work within the limits of the resources available could scarcely be bettered, although there is probably scope for their considerable further extension provided the necessary finance could be provided.

On balance, therefore, it must be admitted that the Institute has gone far towards achieving the expectations which were entertained when it was founded; it occupies a unique position and renders services of great value in many directions which would otherwise be unprovided. It may indeed be said that, as it stands to-day, it is a not unworthy memorial of the great Queen whose golden jubilee it was designed to commemorate. It is to be hoped that during the next fifty years its progress will continue unimpeded, and that in the post-war era there will occur the further expansion of its activities and utility for which abundant opportunity exists.

OBITUARIES

Mr. E. Heron-Allen, F.R.S.

EDWARD HERON-ALLEN, who was born in London on December 17, 1861, was educated at Harrow, where his natural aptitude for microscope work was roused. Necessity, however, led him to study law, and in 1884 he was admitted a solicitor. He followed his profession very successfully for some years, but his inclinations lay in other directions and were always asserting themselves. Ultimately he was in a position to follow them completely, and thenceforth the Foraminifera received his main attention.

Heron-Allen had, however, already published a "Prolegomena towards the Study of the Chalk Foraminifera . . ." in 1894, but from about 1908 onwards for the next twenty-five years the results of his researches flowed fairly regularly. Throughout the greater part of that time, Heron-Allen's work was done in close association with Mr. Arthur Earland. Their papers covered not only British foraminiferal faunas (for example, Selsey, the North Sea, west of Scotland, Clare Island, Plymouth) but also those of far distant parts of the world, such as the Kerimba Archipelago and areas visited by the *Terra Nova* and *Discovery* expeditions. Nor were older faunas ignored, and publications on the Foraminifera of the Eocene of Biarritz (1919) and the Miocene of Moorabool, Victoria, Australia (1924) ensued. The room in the Zoological Department of the British Museum (Natural History) allotted to the two partners became the store-house of a magnificent collection of Foraminifera, to which Heron-Allen added other

historic collections. It also housed a unique library concerning the group, a library which contains rare works and original MSS. and drawings of Foraminifera. Heron-Allen generously presented these to the Museum some years ago. He was elected a fellow of the Royal Society in 1919, was a member of numerous other societies, and during 1916-18 was president of the Royal Microscopical Society.

Although most of his work was on systematics, Heron-Allen was interested in other aspects of the Foraminifera, and he read a paper on their bionomics to the Royal Society in 1915. For him the Foraminifera were essentially living creatures, and he epitomized this in a favourite lecture of his (and he was a fascinating lecturer) on purpose and intelligence in the Foraminifera. In his approach to systematics Heron-Allen was a faithful disciple of H. B. Brady, and his classification of the Foraminifera was based on the one used in that author's memorable *Challenger* Report. If, for a long time, he was impatient of the many new genera and species erected by oil-palaeontologists, it was because so many of them, especially at first, were the product of immature work and scant knowledge of variation within even well-known and abundant species. He was also initially sceptical of the claims by oil-palaeontologists of the value of the Foraminifera in the search for oil, though, when the basis of their work was explained to him, his attitude became much more sympathetic to them and to the changes in foraminiferal nomenclature that have been made.