

accepted by the British Government, who have appointed additional members to the Commission. The terms of reference of the Commission are: To study and report upon the suitability and practicability of large-scale colonization in British Guiana for involuntary emigrants of European origin, from the physical, climatic and economic points of view; to estimate the approximate numbers that might be settled there (a) immediately, (b) over a term of years; to calculate the probable cost of such settlement: if mass colonization appears feasible, to recommend a general plan of settlement. The names of the members are: Dr. Edward C. Ernst, assistant director, Pan-American Sanitary Bureau (chairman); Colonel Howard U. Nicholas, United States Army Engineering Corps, Panama Canal; Dr. Joseph A. Rosen, Jewish colonization expert and agronomist; Mr. Emile C. Bataille, colonization expert with Canadian experience; Dr. Anthony Donovan, sanitary engineer; Mr. Desmond Holdridge, who has previous experience of the Colony (secretary). Sir Crawford Douglas-Jones, formerly Colonial Secretary of British Guiana; Sir Geoffrey Evans, formerly principal of the Imperial College of Tropical Agriculture, Trinidad, now economic botanist at the Royal Botanic Gardens, Kew. Dr. D. W. Duthie, agricultural chemist to the British Guiana Government, is being attached to the Commission for the purpose of advising and co-operating with the Commission.

Science and World Resources

THE December issue of *Fact* (No. 21. 6d.) contains a study "Science and World Resources" by Richard Palmer, which gives a comprehensive but readable survey of the way in which the world economy is changing under the impact of scientific advance. Mr. Palmer gives a dynamic picture of the way in which scientific discoveries and their technical development from synthetic dyes such as indigo and alizarin to synthetic rubber, the new textile fibres such as rayon and more recently 'Lanital' and 'Nylon' and the numerous synthetic resins or plastics, are influencing not merely the development of new industries or the displacement of old industries but also the distribution and availability of materials in the world, the location of industry, etc. Mr. Palmer's survey ranges over the whole field of materials, including beet sugar, alcohol, petroleum, coal, fertilizers, and light metals, and indicates admirably even to the non-technical reader the new freedom which the organic chemist is giving us and some of the possibilities if the new powers and opportunities are wisely used. Other chapters range over the possibilities in the way of power production which we owe to science and their significance in world economy, as well as the possibilities in agriculture and the way in which science has made it possible to improve working conditions and thus both industrial efficiency and the climatic or geographical zones within which effective production by human beings is possible. The essay provides an excellent background against which to discuss such current problems as those of raw materials and their bearing on the colonial question,

the limits of self-sufficiency policies, sanctions, economic nationalism and the like. The realistic picture he gives enforces the necessity for strengthening, while there is yet time, our efforts to create a social and international order in which knowledge will be used to the full in the service of all mankind.

The Empire Service Broadcasting Station

Mr. L. W. Hayes and Mr. R. N. MacLarty presented an interesting paper to the Institution of Electrical Engineers on February 2. They first gave an account of how broadcast transmissions with short waves initially started at the Chelmsford works of Marconi's Wireless Telegraphic Co. in 1927. This gave intelligible reception at practically every place on the earth's surface at almost every period of the day and year. A serious difficulty that had to be overcome was due to the wide difference in longitude of the different Dominions and Colonies of the British Empire. For this reason, a transmission sent out at a given time in England would arrive at very various local times of the night and day in the different Dominions. Broadly, the aim of the service is to give listeners anywhere in the Empire a daily programme of about two hours' duration; the installation of the new broadcasting service started in 1933 practically does this. Earlier than this, reports received in the West Indies also gave a service at the same time in Western Australia, and the announcement of "London calling the African and West African Zones" was being heard simultaneously at night in Africa, in the early evening in South America and the West Indies, and at breakfast time in New Zealand. This showed that dividing the earth into geographical zones could cause confusion. Accordingly, the daily transmission from the Empire Station at Daventry was divided into five sessions: Transmission No. 1, Transmission No. 2, etc., in accordance with a time schedule, the programme from the first zone being recorded and then transmitted at the most suitable times to the other zones. In 1935, a sixth transmission was added, primarily intended for evening listening in western Canada, but serving also North America generally and giving an early morning service to India.

Conditions of Engineering Contracts

THE subject-matter of an engineering contract necessitates that the documents of which the contract is composed must make provision for contingencies and events of a special nature. In this respect, it has peculiarities not to be found in other forms of contract, and is often inevitably of considerable length. The Council of the Institution of Civil Engineers asked Mr. E. J. Rimmer to write a paper on the subject which will be discussed by correspondence until May 15. The Council gave the author of this paper a very wide discretion in the choice of the title and in the scope of the paper. He has wisely chosen to give a comprehensive survey of the whole subject of engineering contracts. Many engineering contract works are to be constructed in, or erected and fixed on to, land. They cannot, therefore, be rejected and sent back to the contractor

if they prove to be unsatisfactory; the material and labour may have to be carried out in the open air with material and labour of varying quality; the conditions of excavation and foundation cannot be entirely foreseen until the ground is opened up; the execution of the works also may result in damage to property belonging to other persons. In addition, the completion of the work may extend over several years, and the employer may desire to use the completed parts of the work before the final completion of the whole.

It was formerly the custom to prohibit assignment and to allow subletting only when the previous permission of the engineer had been obtained. Recently it has become fairly common to provide a form to be attached to and filled up with the tender, upon which the contractor declares the names of the firms to which he desires to sub-let portions of the works, and if these firms are approved before the contract is sealed the contractor may straightway sublet work to these firms. The retention in the hands of the engineer of supreme power as sole arbitrator has, considering the terms and circumstances of present-day contracts, become rather an anachronism. Old forms change slowly and some of the reforms suggested are not quite satisfactory. In Mr. Rimmer's opinion, some phrases and clauses now accepted as standard practice are confusing and ambiguous. The basic conditions upon which standard conditions should be framed must first be decided by the parties concerned. If the persons have different views, they are sometimes determined on the basis of compromise. But if the conditions are to be clear and unambiguous, there is no room for compromise on the manner and phraseology on which these principles are to be stated.

Changing the Face of London

In his Friday evening discourse at the Royal Institution delivered on February 3, Sir Charles Bressey dealt with the question of "Bigger London or Better London?" He illustrated by lantern slides the growth of Greater London since the Great Fire and described the complex administration of the area, now that its population has reached $9\frac{1}{2}$ millions, equivalent to the entire population of Norway and Sweden. In twelve years time the population within a thirty-mile radius of Charing Cross may reach a 'peak' figure of $10\frac{3}{4}$ millions. Meanwhile growth continues with such alarming rapidity that the inadequacy of British road communications has necessitated the preparation of the Highway Development Survey published by the Minister of Transport last May. Its recommendations, looking thirty years ahead, include the construction of about 123 miles of new routes in the L.C.C. area, 368 miles outside the L.C.C. area (exclusive of motorways) and motorways to a total length of 307 miles. The total cost will lie between £160,000,000 and £230,000,000. Sir Charles stressed the urgent need for a new east-west route across London (the east-west connexion), for the completion of the South Circular Road, the formation of a loopway around the City, and the

extension of the Thames Embankment so as to form a continuous riverside promenade extending for eight miles from Putney Bridge to the Tower of London. The incessant congestion of London's main roads in time of peace was some inkling of what might happen if a hurried evacuation had to be undertaken. If the Government decides that the present time is not propitious for the undertaking of extensive works of road construction, nothing can justify the postponement of measures for safeguarding the course of new routes, which include tunnels adapted for use as part of London's air-raid defence schemes.

Sir Arthur Evans: Gifts to the Ashmolean Museum

SIR ARTHUR EVANS has presented to the Ashmolean Museum, Oxford, of which he was keeper for a period of twenty-five years ending in 1908, his unique collection of Minoan sealstones and gems, gold rings and jewels, as an accession to the recently rearranged 'Minoan Room'. The collection, as is recalled by the Oxford correspondent of *The Times* of February 2, is "far-famed and unrivalled", embracing every period and class of the Minoan gem-cutter's art—prisms, button-seals, cylinders and ring bezels in steatite, cornelian, ivory and other materials, engraved with pictographs, scenes of ritual, bull-fighting and other sports. Among the rings is the famous great gold ring of Nestor, the group of gold beads known as the 'Treasure of Thisbe, all engraved with scenes of ritual, combat and ancient legend. Since Sir Arthur began his archaeological explorations in Crete in the early nineties of the last century, both while he was keeper of the Museum and after, he has been liberal in contributing to its collections examples of the objects discovered by him in his excavations. With this latest gift, the Ashmolean collection of Minoan antiquities becomes the most important and the most complete outside Crete itself. Recent alterations of the Museum, in which the largest archaeological gallery has been divided into three sections, have made it possible for Sir Arthur, with the assistance of Miss Mercy Money-Coutts, to make a new installation of Cretan antiquities, in which the older collections have been supplemented by groups of casts, numerous photographs, diagrams and water-colour drawings, with figurines, smaller antiquities and pottery which he has transferred to the Museum from his private cabinets. His benefactions have not, however, been confined to the donation of antiquities from Crete. They include classical antiquities, large series of Greek, Roman and Anglo-Saxon coins, and other objects, as well as the great collections of stone and bronze implements, Anglo-Saxon jewellery and other material which belonged to his father, the late Sir John Evans.

Morbid Heredity in Isolated Communities

AN interesting study of morbid heredity in man in an isolated community by Dr. J. W. McFeeters, for which the Sir Charles Hastings Clinical Prize for 1937 has been awarded (*Brit. Med. J.*, Feb. 4, p. 218), is made the basis of a suggestion that in view of the facilities for tracing family pedigrees in small isolated communities and the inbreeding imposed upon such