

NEWS and VIEWS

Scientific Civil Service: Promotion of Individual Research Workers

IN *Nature* of April 5, 1947 (p. 464), some details were given of a number of members of the Scientific Civil Service who, as individual research workers of exceptional quality, had been appointed to special posts created under provisions included in the Government White Paper on the Scientific Civil Service (Cmd. 6679) published in 1945. It has now been announced that, on a further review, the under-mentioned members of the Scientific Civil Service have similarly been promoted to the grade of senior principal scientific officer (inclusive salary scale £1,320-£1,520) with effect from January 1, 1948.

H. Barrell (Department of Scientific and Industrial Research), the authority in Great Britain on the determination of standards of length in terms of wave-lengths of light; he has carried out much work in interferometry and its application to the measurement of accurate gauges; W. Binks (Department of Scientific and Industrial Research), who has made important contributions on the measurement of the intensity of the ionizing radiations produced by X-rays and radioactive substances; he was largely responsible for work which led to the internationally accepted recommendations for the protection of workers in this field; H. Carmichael (Ministry of Supply), who has carried out important investigations into cosmic rays and is at present engaged on instrumentation for atomic energy research; Dr. C. M. Cawley (Department of Scientific and Industrial Research), a chemist who has carried out outstanding work during the last eighteen years on the mechanism of hydrogenation of tar, oils, and pure compounds; on the production of toluene from cresol; on the development of gelled-fuels for flame throwers; and on the extraction of benzol from coal gas, and on wax from British peats and lignites; I. Fagelston (Admiralty), a chemist who has made outstanding contributions on propulsion problems in relation to torpedoes and surface and underwater craft; A. Forster (Ministry of Supply), an organic chemist and engineer with outstanding knowledge of high explosives and propellants, and of their manufacture; J. K. Hardy (Ministry of Supply), an engineering physicist who has made important contributions to the study of de-icing and to many other subjects; A. W. Hothersall (Ministry of Supply), who is a leading authority on electro-deposition of metals, with particular reference to resistance to wear and erosion; B. Pontecorvo (Ministry of Supply), who was responsible for pile development in Canada and is now conducting fundamental atomic energy research in nuclear physics; Dr. R. H. Purcell (Admiralty), a physical chemist who has been concerned with the practical application of physics and chemistry to a very wide field of engineering problems; H. A. Sloman (Department of Scientific and Industrial Research), who has carried out pioneer work on the production and properties of pure beryllium, and, recently, on the analysis of gaseous impurities in metals, especially in steel and by the development of the now widely used vacuum-fusion method; A. G. Tarrant (Department of Scientific and Industrial Research), a physicist who has contributed outstandingly to the solution of research problems in road construction, specializing particularly in the development of equipment for studying the deteriora-

tion of road surfaces; during the War he developed novel types of accelerometer for examining the movement of gun mechanisms and the flight of bombs and underwater projectiles.

British Somaliland and its Development

THE report on the general survey of British Somaliland, 1945 (Burao: General Survey. 3s. 6d.), prepared following the approved scheme under the Colonial Development and Welfare Act, indicates that considerable areas of the country are almost completely unknown. 1945 was a good average year as regards rainfall and grazing, and in the geological exploration of the Onkhar area an oil seepage was found, of which 800 square miles were mapped. This area is well watered and there are valuable belts of Damas trees in the coastal lowlands. A potential motor track from Dur Elan to Onkhar was discovered. The original purpose of the survey was the collection, co-ordination and distribution of data from existing knowledge, and also the continued collection of further data, especially as regards topography, meteorology, geology, botany, zoology and tribes and their stock, so as to fill in the gaps in the structure of a composite research scheme and eventually to compile a full account of the general geography of British Somaliland on which wise development could be based. Detail is included in this report as an example of the sort of information which general survey officers are expected to collect, and some notes on the methods of work are also included for the use of colleagues in Somaliland, including native assistant surveyors.

A Gazetteer of British Somali Place Names (Burao: General Survey. 1s.), covering British Somaliland and Grazing Areas, September 1943-February 1945-December 1945, has been prepared by the Survey Department of the Protectorate Government and published separately, to facilitate the location of place-names which may or may not be recorded on existing maps, and to provide an authoritative foundation for fixing as closely as possible the spelling of these names according to the recommendations of the Royal Geographical Society.

Scientific Expedition to Arnhem Land

THE National Geographic Society, Smithsonian Institution and the Commonwealth of Australia jointly are sending a scientific expedition to Arnhem Land at the close of the rainy season in March. The expedition will study the aborigines and the plant and animal life, including marine life, throughout the dry season, which normally ends late in October. Arnhem Land, which is an aboriginal reserve, has no charted trails suitable for motor transport; the expedition's approach will be by small schooner to coastal stations on Van Diemen Gulf, the Arafura Sea, and the Gulf of Carpentaria. Natives will be enlisted as porters for journeys inland. Of five bases selected for the expedition's use, one especially suited for study of marine life is on Groote Eylandt just off the east coast in the Gulf of Carpentaria. Other bases are at the heads of navigation of mainland streams, where Christian missions established early in the century have been allowed to remain. The leader of the expedition will be Charles Pearcey Mountford, ethnologist of the South Australia Museum, Adelaide. Mr. Mountford, who has taken part in various anthropological and ethnological expeditions in Australia, is an authority on aboriginal art, customs and culture. Other members of the

party are Frank M. Setzler, head curator, Department of Anthropology; Dr. David H. Johnson, associate curator, Division of Mammals; Herbert G. Deignan, associate curator, Division of Birds; and Dr. Robert R. Miller, associate curator, Division of Fishes, all of the Smithsonian Institution; and Harrison Howell Walker, National Geographic staff writer-photographer with several years of Australian experience. A similar group of Australian scientific workers will take part in the expedition.

Fuel Systems for the Aero-Gas Turbine

DR. E. A. WATSON and his colleagues were associated with Air Commodore Whittle in the early development of the aero-gas turbine. A paper presented before the Institution of Mechanical Engineers on December 5 gives an account of the results of their researches into fuel systems for such turbines. In the first part of the paper, Dr. Watson deals with the methods used for ensuring that the correct quantity of fuel is supplied to the engine under all conditions of thrust and altitude. The desirable characteristics of fuel systems from this point of view are deduced in a logical way, commencing with a typical heat input-engine speed curve at given inlet pressure and temperature, which is then modified to take into account variation of inlet conditions. It is then shown that neither an approximately isochronous governor nor a constant-stroke fuel pump driven directly by the engine possesses the required characteristics. The remaining alternative is to define the fuel flow directly by the pilot's control, with a compensating device for attitude variation. The remainder of this part of the paper is devoted to a discussion of the methods employed to achieve this, illustrated by descriptions of the various devices which have been used.

In the second part of the paper, the author turns his attention to the atomization of the fuel in the burners, and gives an account of some very ingenious methods which have been developed by various investigators to determine particle size and distribution. Illustrations are given of some atomizers which have been used. The paper should be of general interest to all who have followed the development of the gas turbine from its early stages, and the second part of particular interest to those concerned with the combustion of liquid fuels.

The Electronic Organ

So far as can be ascertained, there is only one type of electronic organ, that is one operating from purely electric means (see *Nature*, 145, 170 (1940)) and so obviating pipes, being developed and manufactured in Great Britain, namely, the Electrone of the John Compton Organ Co., Ltd. The fact that it is produced by a long-established pipe-organ company means that it is properly 'voiced' by experienced craftsmen, without which it might be feared that traditional organ-tone might be lost. The model now available has two manuals and pedals, and a good array of stops and couplers. It was described by its inventor and designer, Mr. L. E. A. Bourne, and fully demonstrated by Mr. J. I. Taylor at a meeting of the Institution of Electronics held at the Royal Society of Arts on January 26. The post-war model is a great improvement over that produced in small quantities before the War, and can now easily take a place with regular pipe-organs of three times the price and greatly diminished maintenance. The improvement is largely due to a re-design of the

electrostatic runners, using formants in many of the tracks instead of the previous all-sine-wave tracks, and more carefully selected loudspeakers. There are twelve unit-generators, all equal but driven by one belt, coupling pulleys of diameters inversely proportional to the equal-tempered ratios. Harmonics up to the thirtieth are used at present, but experiments are being made to go much higher when larger instruments are constructed, that is, larger in the sense of diversity of registration and effects, not volume, since this merely means using more amplifiers and suitably disposed loudspeakers.

Intensive Vegetable Cultivation

THE increased demand for fresh vegetables has stimulated the grower's interest in new or improved methods of intensive cultivation. There remains, however, the difficulty of providing him with the latest information in an accessible form, and three illustrated bulletins issued by the Ministry of Agriculture (London: H.M. Stationery Office) on different aspects of the subject will do much to meet this need. "Irrigation" (Bull. No. 138. 1s. 6d. net) is entirely new. In it natural water supplies of all types are discussed, and the various methods of augmenting them by means of spray or soil irrigation described. Such artificial systems inevitably entail heavy expenditure, but it is considered that in some circumstances the results may fully justify it. "Crop Production in Frames and Cloches" (Bull. No. 65. 2s. 6d. net) has been completely rewritten. It provides a wealth of practical information, though stressing the fact that a thorough understanding of soils, varieties, ventilation, etc., is needed before success in this specialized line can be expected. "Practical Soil Sterilization" (Bull. No. 22. 1s. 3d. net) appears in a revised form. Large-scale methods employing both steam and chemicals are described for use in glasshouses, but instructions for dealing with small quantities of soil needed for propagation purposes or growing plants in pots are also included.

Annular Eclipse of the Sun on May 8-9

THE National Research Council of Japan has arranged a programme of observations of the ionosphere during the annular eclipse of May 9 next, the central line of which passes across a small island north-west of Hokkaido. One of the objects of the programme is to obtain further evidence on the speed of particles proceeding from the sun to the earth. The exact times of contacts are to be recorded in connexion with a large-scale programme of geophysical observations.

National Foundation for Scientific Research, Brussels

THE nineteenth annual report of the National Foundation for Scientific Research, Brussels, covering the year 1945-46, includes the reports of the ten scientific commissions together with details of grants made, of distinctions obtained during the academic year, and particulars of researches in progress during 1946-47. A list of publications during the year is appended under authors, together with a classified list of authors according to the scientific commission with which their work is associated. The Commission for Mathematics and Astronomy reports on a study of irregular algebraic surfaces and on correspondences between two algebraic surfaces. Prof. M. A. Picard reports on behalf of the Commission for Physical Chemistry, Electro-chemistry and Radioactivity on