

debate. He said that the Colonial Office is not so academic as is often assumed; adding that he generally finds someone with first-hand and recent knowledge of any particular Colony at his immediate disposal. As regards suggestions for improvements in recruitment, they would be borne in mind; he pleaded that difficulty of war-time communication has made consultation slow and laborious. The Colonial Service consists of individuals employed under a variety of geographical conditions by a variety of Colonial Governments; European officers form only a small fraction of the whole. Hence re-organization of the Service is a matter, not for the Colonial Office alone, but for legislative bodies all over the world. Two main principles of development must be recognized; there must be partnership of the Colonial peoples in administration, but a substantial body of officers of European stock is still necessary to supplement local man-power. The formation some thirteen years ago of a series of unified professional services has provided a pool of highly qualified men who can be posted to any Colony and moved from one to another. Nevertheless he agreed that there should be nothing static in Colonial administration, and the whole position as regards this and other points raised is being examined in association with the Colonial Governments.

### Packaging Research Committee

THE Printing and Allied Trades Research Association has set up a Packaging Research Committee to carry out investigations concerned with packages of which paper, board, film or foil form the main part. The research work will be carried out by the Association, which will set up a new department for the purpose, using its own laboratories or other research organizations as may be most appropriate. Preliminary consideration will be given to the systematic investigation of the elementary principles of the relation between the make-up of packages and their performance in use. The Association will also collect empirical data from individual firms in Great Britain and abroad with the view of obtaining a basis for long-range research. The outline programme already drawn up includes investigations on the penetration of various packaging materials by vapours, liquids, gases, heat and light, the effect of impregnation with various materials, damage by pests, design of packages, methods of sealing, and optimum use of automatic packaging machinery. Some ninety members of the industry have already applied for membership under the scheme. Communications should be addressed to the Director of Research, Printing and Allied Trades Research Association, 101 Princes Gardens, Acton, London, W.3.

### Race Theories

ON February 8 a well-attended meeting of the Manchester University Branch of the Association of Scientific Workers heard a lecture on "Race Theories" by Prof. F. Wood Jones. The differences between various types of men are sufficient for them to be classified in three distinct species, the leiotrichi or mongol, the ulotrichi or negro, and the cymotrichi. The last-named species, to which we belong, is rather less easy to define. Since interbreeding between the species readily occurs, the view that there is only one species, *Homo sapiens*, has been widely held. Numerous zoological and botanical examples of the interbreeding of species with the production of fertile

offspring are now known, and it is therefore again justifiable to speak of three distinct species, particularly as they can be distinguished in embryo less than three months old, as well as in fossil remains of the pleistocene period. Within these species are numerous sub-species or races, each with distinct characteristics. Segregation whether geographical, or religious and political as in the case of the Jews in Europe, tends to produce such races. Nevertheless in Europe at the present time there is no nation in which more than 10 per cent of the population belongs to a pure race. The belief that half-breeds of certain races inherit the worst qualities of both races is quite unfounded. The belief probably arose because in certain cases only the least desirable elements in both races produced such half-breeds. Professor Wood Jones strongly advocated intermarriage between all races.

### Multi-part Domestic Electrical Tariffs

A PAPER under the title "Towards the 'Correct' Domestic Multi-Part Tariff" was read by P. Schiller before the Institution of Electrical Engineers in London on February 4. The author pointed out that the principle of multi-part costing and charging is again attaining particular importance in the intensive development of the domestic thermal load, which requires the unit charge component of multi-part tariffs to be reduced to the bare minimum. The necessary corollary of allocating to the standing-charge component the bulk of the actual standing costs involved in giving supply is impracticable with conventional two-part tariffs. At present the standing charge covers little more than the standing costs due to the demand for lighting and small domestic appliances, which is but a small fraction of the total demand of modern domestic installations. Hence the bulk of the standing costs due to the domestic thermal load must be averaged out on the unit-charge component.

A 'correct' domestic multi-part tariff must take account of the individual consumer's demand, and this becomes more and more justifiable as inter-consumer diversity grows poorer in consequence of the predominance of the space-heating load. Owing to the rigid character of lighting and cooking demands, it appears to be sufficient to consider the individual consumer's demand only in connexion with the elastic requirements of water-heating and space-heating. Tariff charges based on actual demand can be put into effect by either recording or limiting consumers' maximum demands during periods of heavy load on the general supply system. As to the second alternative, the 'contract-demand' method can be developed to such an extent as to be capable of everything the maximum demand indicator method achieves, while obviating the drawbacks of the latter. Thus a 'correct' domestic multi-part tariff may be found in a revival and modernization of the contract-demand method. Whether such a tariff is also an ideal one is open to discussion. But the principle of charging domestic supplies on the basis of both consumption and demand is worth reconsidering at all events.

### Boiler-House Measurements and Control

A PAPER by G. H. Barker and A. L. Hancock, read before the Institution of Electrical Engineers in London recently, on boiler-house measurements with special reference to the efficient utilization of fuel, reviews the development of boiler-plant instrumenta-

tion from the early use of measuring instruments as mere safety devices to the modern employment of remote centralized control, based upon the comprehensive measurement of the operating conditions. As improvements in plant design and operating efficiency are governed by the degree to which their dependent factors are known and understood, exploratory measurement must embrace all the measurable quantities, while the operating measurements must include those of all the variables which are susceptible to regulation. A table of essential measuring instruments for shell-type and water-tube type boilers is included in the paper. Remote manual control is compared with automatic control in order to show that, as measurement is now the acknowledged basis for control, it follows that the measuring instruments which detect and report the adverse tendencies should be used to institute the corrections needed to arrest them, wherever this is practicable.

### Standards of Electrical Measurement]

DR. L. HARTSHORN has written an interesting progress review on this subject (*J. Inst. Elect. Eng.*, 89, Pt. 1, No. 24; Dec. 1942). Following introductory paragraphs dealing with the general character of measurement, an account is given of the more recent experimental researches of the standardizing laboratories, and of the present legal and international position of the various electrical units. The review is presented under the headings of units and standards, fundamental and derived measurements, the absolute system and the international position. The section on the absolute system deals with the measurement of inductance, current, resistance and voltage, capacitance and quantity of electricity, power and energy, practical standards, and frequency. The remarks relating to the international position give prominence to the M.K.S. system.

### Maternal and Child Welfare in Venezuela

DISCUSSING maternal and child welfare in Venezuela (*Bol. Of. San. Panamericana*, November 1942) Dr. Pastor Oropeza refers to the creation in 1936 of the Ministry of Public Health and Social Welfare as providing a sound foundation. At the present time, these services are under the direction of the Division of Maternal and Child Hygiene. The Ministry operates through health units and health centres, and offices in places where centralized local public health services have not been organized. In 1942 there were 37 fully qualified health units, 4 health offices and 61 rural medical officers. Regulations have been issued for the supervision and education of midwives. In 1936, pregnancy was made the subject of industrial legislation. Obstetrical assistance and post-natal care are given to the wives of insured workers. The official infant death-rate has fallen in Venezuela from 124 per 1,000 live births in 1936 to 121 in 1940, but these figures are probably inaccurate owing to many births not having been registered until baptism, and numerous deaths were probably not reported. Child welfare work includes examinations and immunizations carried out by the various health centres, assisted by public health measures. During 1930-41, 45 stations for distribution of milk to children were organized throughout the country in connexion with health centres. Attention is also given to the care of sick children mainly through the welfare agencies of the States and municipalities. Other

developments include the creation of a course in clinical paediatrics and puericulture, and a new law making these subjects compulsory for medical qualification.

### Commemoration of Copernicus in the United States

THE Kosciuszko Foundation of New York is making arrangements to celebrate the four hundredth anniversary of the death of Copernicus on May 24. Invitations to take part have been sent to American universities and other institutions by Dr. Henry N. MacCracken, president of Vassar College and also of the Kosciuszko Foundation. With Poland now associated with the United States in the war of survival and several million citizens of Polish extraction living in the United States, it is the desire of the Foundation to make the occasion an outstanding event in the history of science.

### Announcements

THE Committee of the Athenæum has elected the following under the provisions of Rule II of the club, which empowers the annual election by the committee of a certain number of persons of distinguished eminence in science, literature, or the arts, or for their public services: Sir William Stanier, scientific adviser to the Minister of Production; Sir Thomas Lewis, director of clinical research, University College Hospital; Sir Bernard Pares, lately professor of Russian history, University of London.

THE Managers of the Royal Institution have awarded the Actonian Prize of one hundred guineas for the year 1942 to Dr. Alexander W. G. Ewing and Mrs. Ewing for their investigation concerning the detection, measurement and assessment of deafness, their pioneer work upon hearing aids, and the development of their successful technique for education by the 'hearing lip reading' method.

DR. ROBERT E. WILSON, president of the Pan American Petroleum and Transport Company, has been awarded the Perkin Medal of the American Section of the Society of Chemical Industry for outstanding work in applied chemistry. His work includes research on such varied subjects as flow of fluids, corrosion, motor fuel volatility and contributions in the use of tetraethyl lead.

THE Institute of Industrial Administration is organizing a Conference on Training for Industrial Management, to be held at the Waldorf Hotel, London, during March 5-7. The opening session on March 6, on "Management and Nation", will be addressed by the Archbishop of Canterbury. Other sessions will be devoted to the position of management in industry, external and internal training for industry, and the training required by a director. Particulars can be obtained from the Institute, Artillery House, Artillery Row, London, S.W.1.

THE Council of the Harveian Society of London announces that the subject of the Buckston Browne prize essay for 1943-44 will be the use and abuse of sulphonamides. The essay must be sent to the Treasurer of the Society, 14, Devonshire Street, W.1, by October 1, 1944.

THE German Academy of Natural Science at Halle proposes to issue an edition of Goethe's scientific works.