

pounds are expended annually on the maintenance of residential institutions for treatment. During twenty years of anti-tuberculosis campaign, the decline in the mortality from the disease has been striking—from a total of 53,120 deaths in 1911 to 35,745 in 1930. One of the most interesting and important sections of this Report deals with the results of sanatorium treatment. This is very difficult to evaluate, for the ultimate result depends so much on a variety of factors, such as (1) the type of the disease—some cases progress to a fatal issue in spite of all treatment, (2) the social position and sex of the patients, (3) the stage of the disease when treatment is commenced, (4) the age of the patients—pulmonary tuberculosis in the young adult tends to shorten life much more markedly than when it occurs in or after middle life, (5) the circumstances of the patient after discharge—the character of his home surroundings, his own care of his health, the nature of his occupation, and the like. It is concluded that some fifty-seven per cent of male and sixty-seven per cent of female patients in the second stage of pulmonary tuberculosis survive, often with good working capacity, for five years or more; a result which fully justifies the provision of sanatorium treatment. Much important information is embodied in this Report upon such subjects as after-care and village settlements for the tuberculous, methods of diagnosis, and special forms of medical and surgical treatment.

#### Science in the 'Sixties

A pamphlet with this title by Sir Oliver Lodge forms one of a series edited by Mr. John Drinkwater and addressed to men of letters. In it Sir Oliver contrasts the indifference displayed by the public and the Press to scientific discoveries made in the 'sixties with the universal interest shown at the present time in such subjects as relativity and the constitution of the stars. For the science of the 'sixties, Sir Oliver confines himself almost entirely to the theory of the electromagnetic field brought forward by Maxwell as the mathematical interpretation of Faraday's lines of force. He uses the words 'juggled with' to describe the process by which Maxwell evolved the electromagnetic theory of light from his mathematical expressions. This seems to us an unfortunate choice of words, likely to produce a wrong impression on the minds of readers. The steady progress from Maxwell to present-day wireless is outlined, and Sir Oliver concludes by giving his opinions on current theories. The new doctrine of uncertainty he summarises in "the act of *observing* carries with it inevitably an act of *perturbing*", but he denies that this renders events unpredictable. By 'faith' only does he accept relativity, but wave mechanics "is a healthy infant of great promise"

#### Scientific Apparatus of Historical Importance

SEVERAL daily newspapers recently published a letter from the Institute of Physics over the signatures of Lord Rutherford and others asking for the co-operation of anyone possessing pieces of apparatus likely to be of historical importance. In 1925 the Institute of Physics appointed a committee to advise on the preservation of such apparatus. This committee

is anxious to trace any pieces with which fundamental research in physical science has been carried out, and to arrange for their preservation. The committee has also entered upon the task of drawing up a catalogue of such pieces. Several pieces of great historical importance have already been secured for the nation and are now housed in the Science Museum at South Kensington, and the response to the recent letter has brought to light several other important pieces. Articles describing and cataloguing such pieces are published from time to time in the *Journal of Scientific Instruments*. Many readers of NATURE may have such apparatus in their possession or under their charge; and the Secretary of the Institute of Physics, 1 Lowther Gardens, Exhibition Road, London, S.W.7, will be grateful for any information that will assist in tracing such pieces or in completing the catalogue. For the benefit of future historians of physical science it is desirable to have as complete a record as possible of the work of British physicists, and it is to this end that this task has been undertaken.

#### Cremation and Population

MRS. ALEC-TWEEDIE's address on "Cremation the World Over" at the Cremation Conference, which was held at Brighton on July 18-21, reinforced a strong appeal for the wider adoption of this method of disposal of the dead by reference to the distribution of the custom of burning the dead among peoples of antiquity and non-European races. She dwelt in particular on the practice of cremation among the Hindus, contrasting it in detail with the methods of burial among the Chinese, and pointing out how among the latter reverence for the last resting-places of the dead, where land enclosing burial mounds is under cultivation, hampers agriculture and is an increasing menace to food supply among a teeming population which already produces barely enough for its needs. The vastness of the population, it might be added, makes the practice increasingly detrimental from the point of view of hygiene. Although Mrs. Tweedie did not hesitate to make use of the appeal to the emotion which reflection on the conditions and consequences of inhumation never fails to arouse, a marked feature of her address was the emphasis with which she stressed the import of cremation as a factor in the world's population problem, linking it up with food supply and birth control in relation to over-population. As she put it in her closing words, "Without birth control and world cremation, what will the end be?" Mrs. Alec-Tweedie was the first and only woman on the council of the Cremation Society of England for more than ten years. She is the daughter of the late Dr. George Harley, F.R.S., of Harley Street, and her brother was Dr. Vaughan Harley. Her brother-in-law is Dr. Francis Goodbody, who has done much work for the centenary meeting of the British Medical Association.

#### Population of London

THE volume of the Census, 1931, which covers the County of London has been published (London: H.M. Stationery Office, 3s. net). The total population enumerated in the City of London and the twenty-

eight Metropolitan Boroughs comprising the Administrative County of London on the night of April 26/27, 1931, numbered 4,397,003 persons. The males and females were respectively 2,044,108 and 2,352,895, a ratio of 1151 females per 1000 males. For the third decennium in succession, the County population shows a decline, the loss during the past intercensal period being 87,520, a number comparable with the population of a good-sized town like Ipswich or Wigan. The number of private families has increased by 6.17 per cent, and the average size of the family has been reduced by 8.7 per cent, to 3.46 persons. With the reduction in the average size of the family, the average number of persons for each occupied room has declined from 1.05 in 1921 to 0.98 in 1931; that is to say, on an average there is less overcrowding. In Greater London, which occupies roughly a circle of 15 miles radius with Charing Cross as a centre, 8,203,942 persons were enumerated, or more than one-fifth of the total population of England and Wales.

#### Forecasting Mortality

IN a lecture to the Norwegian Actuarial Society printed in the *Skandinavisk Aktuarietidskrift*, Mr. Palin Elderton takes up the fascinating subject of forecasting mortality. Most medical statisticians and actuaries, if only for their private amusement, have tried their hands at prophecy. The most obvious line of approach, when rates of mortality in age groups are available over a long series of calendar years, is to take each group separately and to study the form of secular change, then, having more or less successfully represented the trend by some mathematical function, to extrapolate horizontally. As Mr. Elderton points out, this method would be inappropriate if changes in mortality at a later age are really determined by the experience through which the generation of which those at the later age are survivors have passed. In that case, one should consider not the horizontal but the diagonal progression of the table.

#### Prehistoric Chronology

AT the request of the editor of *Antiquity*, Mr. Miles C. Burkitt and Prof. V. Gordon Childe have prepared a chronological table of prehistory, which is published in the June number of that periodical. The progress of recent research in prehistory will secure a welcome for the chart among students, not least perhaps because of the decisive manner necessitated by its form in dealing with controversial points, which should at least be provocative of fruitful discussion. The compilers have found that a task which they anticipated would give rise to no great difficulty has proved of no little complexity. Failing the ideal method of distribution maps, it was found most practical to divide the map into several geographical areas, each of which heads a column in the list. Even so, the area of extent of specific cultures has sometimes been difficult to determine and represent. It has been found impracticable to give an absolute chronology much before 2000 B.C. In glacial chronology most of the Mousterian is taken as contemporary with Würm ii, Acheulean with Riss-Würm, and Chellean with Mindel-Riss, while pre-Chellean is

definitely pre-Mindel. Even when allowance is made for local specialisation and retardation, and when a solar chronology becomes possible with the dated monuments of Egypt and Mesopotamia, difficulties have still to be overcome, as witness the correlations here put forward between Egypt and Mesopotamia, which, it is admitted, are not universally accepted. The chronological chart, with explanatory notes on each section and index, has been reprinted and is obtainable separately, price 2s. 6d., from the assistant editor of *Antiquity*, 24 Parkend Road, Gloucester.

#### Re-opening of the South African Museum

ON June 1 the Governor-General of the Union of South Africa, the Earl of Clarendon, opened the reconstructed South African Museum in Cape Town, and so marked the accomplishment of an instalment of the development scheme of the trustees. The Museum, founded as a Cape Government institution in 1885, was housed in a new building in 1897, but had seriously outgrown the accommodation there. The present additions permit of a running sequence in the exhibits of different sections, and have given new opportunities for the proper display of some of the treasures the Museum possesses. The additions, on two stories, consist of the old Art Gallery and an entirely new block on the opposite or Avenue side, forming two large halls, 90 feet long by about 35 feet wide. The lower of these is devoted to ethnology, and here the famous life-casts of native races have found a fitting place; the upper contains the big-game collection, and the opening is marked by the addition of a new group of springbok. The trustees and Dr. Leonard Gill have made a notable contribution to museum progress in the Union.

#### Albinism in Wild Animals

A VERY interesting specimen recently received at the London Zoological Gardens is a young albino reticulated python. Its eyes are pink, but the usual markings are present in orange-colour on the white skin. Albinism seems to be very rare in cold-blooded animals, but a few years ago the Gardens exhibited an albino cobra, and many years before that an albino common frog. The albino form of the axolotl, of which specimens can be seen in the aquarium, is bred in domestication like the ordinary black form, but all such specimens appear to have descended from one albino which came in the first consignment of live axolotls received in Europe during the last century. Albino or 'silver' goldfish are well known, and in the Zoological Society's aquarium can be seen white as well as golden specimens of common carp; but these, again, are domesticated. Neither white axolotls, white goldfish, nor white carp have pink eyes, and so fall short of complete albinism. It has been noticed in birds that an albino or lutino specimen, if pink-eyed, retains its abnormal hue, but if normal-eyed, is liable to revert to type on moulting.

#### Modifying Broadcasting Voices

IN a broadcast talk given in America by O. H. Caldwell, the editor of *Electronics*, a method of improving the voices of some of the political speakers was described. By using a suitable combination of