

ordinary chloride of lime. Imperial Chemical Industries, Ltd., has accordingly posted a staff of experts trained in water sterilisation at its divisional offices in London, Newcastle, Manchester, Oldbury and Bristol, whose services will be at the disposal of any local authority desiring them for advice and assistance, which will be given free. Once the proper dosage of the particular chemical agent selected has been determined, together with the best method of applying the process, the routine application is comparatively simple.

#### Liverpool and the Atlantic Ferry

A SUMMER meeting of the Institution of Mechanical Engineers in the Liverpool district would not be complete without a paper on ships and their machinery, and during the meeting on June 26-29, Mr. P. Austin, following in the footsteps of the late Mr. A. J. Magennis, contributed a paper on Liverpool and the Atlantic Ferry. Liverpool shipowners have played prominent parts in the long struggle for supremacy on the North Atlantic between such famous lines as the Cunard, White Star, Collins, Inman and others for a century or so. Beginning with the Black Ball line of sailing packets which connected Liverpool and New York in 1816, Mr. Austin traced the development of trans-Atlantic travel down to the present time, mentioning many once famous ships and recalling many great achievements; and in three tables he gave figures of the growth in size, power and speed of typical ships. In concluding his review, Mr. Austin asked, "Is the Liverpool airport to be one of the terminal ports of the Atlantic Ferry of the future?" While not holding that a trans-Atlantic air service is impossible, Mr. Austin has doubts as to its regularity and dependability, due to the vagaries of North Atlantic weather; also there are doubts as to whether such a service ever would be a financial success. As regards the immediate future of the 'Atlantic ferry', the struggle is keener than ever before and the British reply to American, French, German and Italian competition is *S.S. No. 534*.

#### The National Maritime Museum

IN the House of Commons on June 29, Mr. W. Ormsby-Gore, First Commissioner of Works, moved the second reading of the bill for the setting up of a National Maritime Museum in the buildings recently occupied by the Greenwich Hospital School. The cost of adapting the vacant school buildings is estimated at £29,000 and Sir James Caird has generously offered to defray this sum. Sir James has already given large sums towards the restoration of *H.M.S.S. Victory* and *Implacable* and presented the Museum with the Macpherson Collection of Naval Prints. There is nowhere, said Mr. Ormsby-Gore, where one can study the history of our maritime adventure and development, and no attempt has yet been made to illustrate conveniently for the general public the immense field of British maritime endeavour, historical, technical, geographical and commercial, including not only the exploits of the

Royal Navy but also of the mercantile marine. A Board of Trustees with the Earl Stanhope as chairman has been appointed and the post of director has been offered to Prof. G. A. R. Callender, of the Royal Naval College, Greenwich, whose enthusiasm and scholarship in all matters appertaining to naval history are well known.

#### Recent Advances in Physics

THE Manchester and District Local Section of the Institute of Physics holds each year a summer course of lectures, the primary aim of which is to provide physicists in industry with convenient summaries of recent work in various aspects (both pure and applied) of physical research. This year the lectures were held during June in the Physics Department of the University of Manchester. On June 11, Mr. J. D. Bernal (Cambridge) discussed the properties of "Heavy Hydrogen" and indicated some of its possible chemical uses. Prof. E. N. da C. Andrade (University College, London) dealt with the subject of "Viscosity" on June 13. After considering the relation between temperature and viscosity and its representation by a formula, he discussed a theoretical justification for the use of a formula he has developed and finally dealt with some methods of measurement of viscosities. A comprehensive survey of "Units of Matter" was given by Dr. J. M. Nuttall (University of Manchester) on June 25; he discussed the properties of the proton, electron, anti-proton, positive electron, neutron and neutrino, and gave a summary of the experimental evidence supporting the new ideas on atomic structure. On June 27 short communications on "Alloys" were given by Prof. W. L. Bragg, Dr. A. J. Bradley (University of Manchester) and Dr. C. Sykes (Metropolitan-Vickers Electric Co., Ltd.). This is the fourth occasion on which such a course has been held. Last year the meetings were devoted to accounts of the application of physics to particular industries. On this occasion the original plan was adhered to, summaries of recent work in pure science being presented for the convenience of industrial research workers who do not find it easy to follow the many original papers. There has been a gratifying response to the attempt to organise these meetings, and lively discussions have followed most of the papers.

#### Celtic Earthworks on Salisbury Plain

ARCHÆOLOGISTS are indebted to the Ordnance Survey for further service of no little value in the form of a map of Salisbury Plain, based on the Ordnance Survey map, 1:25,000, and showing the Celtic fields and linear earthworks, which is now in course of preparation. The map will be issued in a series of six sections, of which the first, "Old Sarum" (Ordnance Survey, Southampton, 2s. 3d. net), is now ready. The archæological features of the Ordnance Survey map have been taken as a basis, and to these have been added material from photographs of the plain taken by the Royal Air Force in the course of routine duties and from data recorded by members of the staff of the Survey. Dr. J. F. S. Stone, who has



made a special study of linear earthworks, has also placed his information at the disposal of the Department. No excavations have been undertaken to fill in gaps, but the hope is expressed that archæologists, to whom the map is dedicated, will amplify by their labours the next edition. In a foreword, attention is directed to certain features of the map. A large number of 'barrow circles' have been located by air photography which are here recorded for the first time. Accordingly it has been thought necessary for the sake of consistency to show all barrows from neolithic to Saxon, the long barrows being numbered in accordance with the numbering in the map of Neolithic Wessex. Attention is also directed to the information afforded by the map on the movements of settlement in instances in which the site of cultivation appears to have been stationary and also to that bearing on the purpose of linear earthworks.

#### Standardisation in Anthropometry

A PRELIMINARY statement, to form a basis of discussion, has been issued by the International Committee for Standardization of the Technique of Physical Anthropology and is published in *Man* of June. This Committee was appointed by the International Federation of Eugenics Organizations at its New York meeting on the understanding that, in the event of an international organisation for anthropology being formed, the Standardization Committee would be free to transfer itself to that body. As this condition has now been fulfilled by the institution of an International Congress of Anthropological and Ethnological Sciences, the question of the future of the Committee will be discussed at the forthcoming meetings of the Federation and the Congress. In the meantime, the document now published by the Committee makes certain suggestions for future action, pointing out that while anthropologists have met on several previous occasions to deplore the lack of system and uniformity in anthropometric measurement, no practical result has followed. It is now suggested that a number of regional committees should be formed, and that each of these should discuss the revision of systems of measurement on both living and skeletal material, which after testing, criticism and revision, might be put forward as regional schemes to form the basis of international discussion. As the urgent need for reform is widely recognised, a determined effort to arrive at agreement should be possible, even though revision is likely to prove a lengthy undertaking.

#### New Oil Well Drilling Record

A NEW record for deep oil well drilling has been established by the General Petroleum Corporation in the South Belridge Field, San Joaquin Valley, California, by the achievement of a depth of 11,377 ft. (approximately 2.15 miles). This is the first oil well which has been drilled to more than 11,000 ft. and must be considered a remarkable engineering achievement. The well was started in September 1930 and continued until March 1932 when, owing

to a 'cut' in the development programme, operations were stopped. Drilling was resumed in August 1933 and the final depth recorded above was reached at the end of May of this year. An equally notable feature of this performance is that a substantial 4½-in. casing string has been landed successfully at the bottom. There have already been shows of oil and gas in this well, but these have to some extent been smothered by the enforced use of large quantities of very heavy mud held at between 104 and 112 lb. per cubic foot to overcome the high gas pressures met with. The *Oil Weekly* of June 11 gives a detailed account of this well and concludes that improved technique and engineering equipment are the outstanding factors which have made this record possible.

#### Everglades National Park, U.S.A.

AFTER a certain amount of opposition, Bills for the creation of a National Park in the Everglades of Florida have passed Senate and Congress (Science Service, Washington, D.C.). The park to be created will comprise 1,300,000 acres, and will be unique amongst the larger national parks in lacking mountains. The fauna is tropical, comprising snakes and alligators, several beautiful herons, spoon-bills and the almost extinct 'bone-headed' ibis, and characteristic vegetation. Beyond the coast the park will extend to several of the small islands or 'keys', so that a sample of the rich tropical marine fauna will be available to the visitor. Access to the area will apparently be from the present road, the Tamiami Trail, on the northern boundary of the reserve, but further exploration can be made only on foot or in canoes under the guidance of Seminole Indians. Interest is added to the scheme by the proposal to establish a new Seminole reservation to the north of the Tamiami Trail, in close proximity to the Park itself.

#### Health of the Navy during 1932

IN the "Statistical Report of the Health of the Navy for the Year 1932", recently issued (London: H.M. Stationery Office. 2s. 6d. net), the Medical Director-General of the Navy, Sir R. St. G. S. Bond, states that in a force of 83,285, the total number of cases of disease and injury was 39,284, equivalent to a ratio of 471.68 per thousand, an increase of 6.12 in comparison with the five years' average, and a decrease of 19.82 in relation to 1931. Only four cases of typhoid fever and eight cases of paratyphoid fever occurred during the year. Fifteen cases of undulant fever were returned, of which twelve were from the Mediterranean Station. Venereal diseases have declined in number, the fresh admissions totalling 4,638 as compared with 4,962 in 1931. Details are given of some of the cases of interest that have occurred, and of research work.

#### Chimpanzee Twins

DR. ROBERT M. YERKES has described the first authentic recorded case of the appearance of twins in an anthropoid ape family (*Science*, May 11, 1934).