

Ricardo in his Thomas Lowe Gray lecture to the Institution of Mechanical Engineers delivered on December 1, marine engineers will see yet another great change. Though he could not make out a case for a Diesel engine of any sort in really large or very fast vessels, Mr. Ricardo urged that for ships up to 6,000 horse-power, the power plants might well consist of a very large number of light high-speed Diesel engines, driving electric generators supplying the current necessary for the propulsion motors and for auxiliary purposes. One of the outstanding features in engineering practice of recent times is the marked success of the high-speed Diesel engine for road transport. During the last two years, some 20,000 engines aggregating more than 2,000,000 horse-power have been put into service on the roads of Europe. These engines range up to 150 horse-power, and 70-80 such engines could easily be installed in groups and tiers for a vessel of 6,000 horse-power. The fuel supply, the circulating water and lubricating oil could be supplied from a central station and engines could be started and stopped from a central control. Mr. Ricardo sees no difficulty in the maintenance of such a plant, for the units could be easily disconnected and hoisted out and the engines overhauled regularly at a shore depot. To overcome the noise difficulty, each unit would be enclosed in a double-walled wooden sound-proof box. "Thus enclosed, the generating sets will sound like bees on a summer's afternoon, and the solitary engine room clerk will be able to smoke his pipe of peace." Fanciful as the scheme appears to be, it is by no means an impossible one and it would be of interest to see it put to the test.

#### Slaughter-House Reform

PROF. J. H. JONES delivered the twelfth annual Benjamin Ward Richardson Memorial lecture on November 30 before the Model Abattoir Society, his subject being slaughter-house reform. He said that slaughtering is at present conducted in small private slaughter-houses or in municipal slaughter-houses. The former are often inefficient inasmuch as the scale of organisation prevents the proper utilisation of by-products and in other ways adds to expenses. There are also serious disadvantages connected with municipal slaughter-houses, as not only are they on too small a scale, but also they are merely a collection of stalls for private butchers. In view of the wastefulness of the present system, the Committee of the Economic Advisory Council on the Slaughtering of Livestock, of which Prof. Jones is a member, has recommended a scheme based on regional monopoly. It has recommended the appointment of a National Slaughter-Houses Board, that is, a statutory non-profit-making body to prepare regional schemes to be operated by regional authorities, which might be either joint boards of local authorities or existing associations prepared to provide their own finances. The regional authority would provide the service of the slaughter of animals and the transport of meat to the centres of retail distribution. It would not itself purchase animals and sell meat; on the other hand, it would

purchase and itself work up the by-products. It might appear at first sight to create a new departure by establishing a monopoly of slaughtering within each of the selected regions, but monopoly is already a privilege of the municipal slaughter-houses of Scotland and in a few of them a serious attempt is being made to utilise by-products. The recommendations appear to be in line with modern British development and to provide a scheme which would be both efficient on the technical side and likely to improve the inspection of meat and humane slaughter. The scheme would not apply to the trade in Kosher-killed meat.

#### International Committee on Intellectual Co-operation

THE report of the International Committee on Intellectual Co-operation on the work of its fifteenth plenary session, which contains extracts from the general report of the director of the International Institute of Intellectual Co-operation, indicates the work done in this field, alike in the service of the various States, of the League of Nations, and of intellectual activities for their own sake, the service of ideas, of the mind. During the year, the Institute has continued to concentrate on the collaboration of qualified experts or competent international committees. Thus, arising out of Prof. Shotwell's proposal, a preliminary inquiry has been commenced on collective security and on the collection of data regarding the progress in various countries towards the encouragement of the study of legal, social and political sciences, which should issue in a scientific contribution to the work of the League. The material required for the publication of a repertory of scientific laboratories has been collected. The committee of experts dealing with the co-ordination of scientific terminology has examined in detail various terms responsible for misunderstanding or controversy between chemists and physicists, and established definitions which will be communicated to the International Unions of Physics and Chemistry and to the International Council of Scientific Unions for final approval. Technical recommendations relating to neologisms have also been formulated and various steps taken towards collaboration between science museums, including the publication of a periodical information bulletin, *Scientific Museums*, while the inquiry on documentation has been vigorously pursued.

#### Effect of Economy Cuts in the United States

A RECENT article in *Industrial and Engineering Chemistry* (News Edition, Nov. 10, p. 315) reviews the results of the recent economy cuts in chemical research at Washington. On the whole, the results of the Economy Act have been less devastating than at first threatened. Most bureaux were able to continue on a reduced scale; the danger of dilution of personnel with political nominees has been entirely avoided in the scientific branches; the chief effect has been the dropping of less essential projects, and a retardation of progress, with drastic reductions in only one or two departments. Chemical research is centred mainly in the Department of Agriculture and in the

Bureau of Standards, Department of Commerce. The latter was the hardest hit of all scientific organisations affected, the Congress appropriation for 1933-34 of 2,056,000 dollars having been reduced to 1,336,000 dollars, less than one half of the 1931-32 expenditure. Part of the reduction was automatically covered by the President's 15 per cent reduction of all salaries of Government employees, but the personnel displaced amounted to 350, and one of the research projects on which they were engaged remains a total loss. Among the discontinued projects are the investigations on the manufacture of fructose, the sensitivity of photographic emulsions, soil erosion of pipes, and testing methods for paper.

THE research work of the Chemical Division was practically paralysed, and really important researches on rubber, including a basic study of its electrical properties which was nearing completion, as well as on lubricants, were brought to a standstill. Fundamental work at the Bureau of Mines has been seriously reduced, while the organic research carried out at Pittsburg has been completely eliminated by the closure of the laboratory. Much research on explosives, fuels and physical chemistry has also been discontinued at Pittsburg, and the petroleum and other field stations have similarly been affected. In the Department of Agriculture, reductions have been much less serious. The only major activity discontinued under the Bureau of Chemistry and Soils is the operation of a blast furnace for the recovery of potash and phosphorus. The study of a poison weed in Texas under the Bureau of Animal Industry has been seriously curtailed, but elsewhere chemical work under Government agencies has involved, it is stated, no essential curtailment of activities.

#### Exploration of Kharga Oasis, 1932-33

A SUMMARY report of the expedition of the Royal Anthropological Institute to Kharga in 1932-33 appears in *Man* of November. This report covers the third and final season's work of the expedition as originally planned. Miss Caton Thompson did not accompany the expedition on this occasion and Miss Gardner's attention was devoted mainly to the further geological exploration of the oasis and also to clearing up certain points from previous years' work. More than two hundred miles were carefully surveyed and in addition comparative studies were made in the Nile Valley from three bases. One of the most important of the results in relation to the main object of the expedition was the dating of the top tufa terrace at Refuf both by advanced Acheulean hand-axes in a scree deposit beneath the tufa and by core and flake tools without hand-axes interbedded in the tufa itself. This is the first time that implements have been found in such a situation. A number of shells new to Kharga were collected. An unmapped pass was discovered in lat. 25.5°. In a note commenting on the work of the expedition and the results, Miss Caton-Thompson directs attention once more to the difficulties attendant on archaeological work in Egypt owing to the unsatisfactory

state of the antiquities laws. In this instance, the difficulty arises from the fact that the Egyptian Department of Antiquities has enforced on an expedition for geological and prehistoric research conditions which were framed to meet the requirements of dynastic and predynastic excavation. The Kharga expedition has provided unprecedented material for the typological study of early palaeolithic industries, but as Miss Caton-Thompson points out, their scientific value is entirely destroyed if picked specimens from a series forming a related whole are selected for retention in Egypt. She urges the immediate introduction of fresh regulations permitting the temporary export for purposes of study of such series, unutilised by capricious selection.

#### Southern Railway Electrification

SIR HERBERT WALKER, general manager of the Southern Railway Co., has contributed a paper on the economic results achieved by the Southern Railway electrification to *World Power* of November, which proves that this scheme was a sound railway development. He points out that at the time of the amalgamation of the L. and S.W.R. and the L.B. and S.C.R. in 1923, the success of the electrification of their suburban lines had been already proved. The electrification of the Brighton-Worthing line in 1932 confirms the success of the earlier electrification schemes. Immediately the section of line to Brighton and Worthing was electrified, the number of passengers carried began to grow. At the end of six months the number carried was 22 per cent larger than the corresponding period of the preceding year. This is due partly to the introduction of a service of trains of much greater frequency than formerly, and partly to the shortening of schedule times owing to the increased powers of acceleration and to the higher speed up steep gradients. Notwithstanding the lower fares brought into operation between many of the stations, the increase in receipts for the first six months was nearly 18 per cent. The development of the passenger traffic is shown by the fact that the number of people who travelled to Brighton during the Easter holiday period of last year was nearly 150,000, and exceeded the population of Brighton itself. The percentage increase in the issue of season tickets on the Brighton and Worthing extension has increased from month to month. The increased annual cost to the railway of the interest on all the capital charges due to the electrification has been covered in the first six months of working.

#### History of the Public Lighting of Paris

IN the *Revue Scientifique* of October 28, M. R. Boutville gives an interesting account of the public lighting of Paris from the earliest times until the end of the nineteenth century. He points out that the first public lamp was the famous candle lantern placed in front of the Grand Chatelet in 1318. An ordinance of Louis XIV in 1667 increased the number of lamps in the streets and insisted that they should be lit 'even in moonlight' from November 1 until March 1. A medal was struck in 1669 to commemorate