

World Petroleum Congress

THE first World Petroleum Congress since the War was held in London on July 19–25 inclusive. Delegates from twenty-five countries attended and 1,200 members from all parts of the world took part in the proceedings. Members were welcomed by the president, Mr. T. Dewhurst, at the Science Museum, South Kensington, on the evening of July 19, and on the following day the work of the Congress began. Apart from the daily sessions, lectures were given at the Royal Institution by Mr. J. B. Aug. Kessler on "Rationalisation of the Oil Industry" on July 20, a résumé of which follows this article, and by Sir John Cadman on "Science in the Petroleum Industry", referred to in NATURE of July 29, p. 162.

H.M. Government held a reception at Lancaster House on July 20 after Mr. Kessler's lecture, delegates and members being received by the President of the Board of Trade. Other social functions, also visits to various relevant industrial works, were arranged during the Congress period.

The Congress was divided into three main sections: geological; production; and refining, chemical and testing. The Geological Section was concerned at first with the significance and the fundamental principles governing regional distribution of oilfields. Later, problems of actual oilfield developments were discussed. In this connexion consideration was given to unit development, well spacing, electric logging, methods of increasing oil recovery, evidence provided by coring, flush sampling, etc., and to general development schemes involving gas conservation, edge water control, group production, etc. Finally, recent developments in geological exploration were considered and the value of geophysical surveying, aerial photography and current field methods assessed.

The Production Section began its sessions with a survey of modern methods of drilling under various conditions. Later, transport and storage of oil were debated and theories advanced for protection and construction of pipe-lines. Further sessions were devoted to actual production methods as now practised in various parts of the world, and their relationship to reservoir conditions. The most effective rate of production and methods of control of flowing wells were discussed. Finally, a joint session was held with the Refining, Chemical and Testing Section, to consider measurement of oil in bulk.

Hydrogenation, which was brought before members of the Refining, Chemical and Testing Section,

naturally attracted much attention in view of the recent declaration of policy in this matter by H.M. Government. Dr. Bergius opened the meetings with a historical account of hydrogenation and described some of the experiments he carried out some twenty years ago, when the subject was first mooted. Mr. Gordon, of Imperial Chemical Industries, Ltd., explained briefly the plant to be erected at Billingham-on-Tees for experimental production of liquid fuel from coal; reference has already been made to this subject in NATURE of July 29, p. 160. The scope of this section was extremely wide and included discussions on bituminous emulsions, the determination of gum in gasoline, viscosity and its expression, the desirable characteristics of fuels for high-speed compression engines, also problems connected with kerosene, lubricating oil, refining of cracked gasolines, oil-coal fuels, knock-rating, alternative fuels and, finally, a session was allotted to the study of petroleum as a chemical raw material, an extremely vital aspect of the modern technology.

The business of the Congress was concluded by a joint meeting of all sections, the main issue being international co-operation and standardisation. Emphasis was laid on the lack of accepted international nomenclature for petroleum and petroleum products and the need for co-operation between all existing national and international standardisation bodies. It was urged that the first step towards achievement of international terminology and complete standardisation of methods of test was to secure co-ordination of opinions among the various individual bodies in the countries concerned. The next stage was to appoint regular channels through which information could be readily disseminated and interchanged by the different countries. It was proposed and carried at the meeting that, in order to avoid overlapping and duplication of work, national petroleum nomenclature and methods of test should be arranged through the medium of an international body, namely, through Committee 28 of the International Standards Association.

It was generally felt that the Congress had fulfilled its purpose by bringing together specialists in all branches of the industry and by affording opportunity for open discussion of the many salient problems arising from the rapid technical, scientific and commercial development of the industry during recent years. It was therefore proposed and unanimously carried that a World Petroleum Congress should be held triennially in order to further the constructive work of this 1933 Congress.

Rationalisation of the Oil Industry

IN his lecture on "Rationalisation of the Oil Industry" delivered to members of the World Petroleum Congress on July 21, Mr. J. B. Aug. Kessler contended that the lack of balance between production and consumption of each individual main product in the petroleum range is largely responsible for the present depressed state of the industry. Hitherto, the abnormally low prices prevailing for gasoline and fuel oil have been attributed generally to over-production of crude oil and to a systematic decrease in the consumption of its products. During

the past few years, conservation of crude oil has been rigorously adopted as a corrective measure against these two major evils, but the fact remains that, although the consumption of petroleum products as a whole has exceeded the production, prices have fallen rapidly.

Primarily, crude oil is produced to meet the world's demand for gasoline. All other derivatives, therefore, must necessarily be regarded as by-products, and of these fuel oil is by far the most important.

Gasoline, being a fuel endowed with special properties, rarely acts as a substitute for other fuels and for this reason supplies only 'legitimate' markets. Fuel oil, however, is at the present time supplying 'illegitimate' markets, that is, markets where its peculiar properties as a liquid fuel are not a real asset and where the solid fuel, coal, is in every way satisfactory; the irrational treatment of coal is probably the most potent single factor in the disorganisation of the petroleum industry as a whole.

With the advent of the cracking process, liquid fuel became a raw material for the production of gasoline. Cracking plants were installed which enabled gasoline to be produced at a cost price of not more than 3 cents above the price of the raw material used. Similarly, the price of fuel oil automatically dropped owing to excessive production and the consequent necessity for securing markets irrespective of their financial value and suitability. Long-term contracts were negotiated at low prices and the industry is thus still compelled to produce more crude oil than is economically desirable in order to meet such 'illegitimate' demands.

The coal industry, which is the other main source of the world's fuel supply, has been materially affected not only by this unjustifiable competition of liquid fuel, but also by the fact that authorities in coal-producing countries have deemed it necessary to tax gasoline. Thus it is that the beneficial effects of years of continued research into the economic production of gasoline have been practically annihilated and attention has perforce been focused on the expensive process of hydrogenation of coal and lignite, and on cheaper alternative fuels. In the latter connexion, authorities anticipating a reduction in revenue from gasoline have imposed taxes on Diesel oils and other fuels which, if their development were unhampered, would automatically raise the general standards of living. It is therefore apparent that the great excess of fuel oil has, by facilitating the production of cheap gasoline, helped to build up a system of taxation which is restricting the marvellous economic developments of the age.

From a detailed study of modern methods of refining crude oil, it is apparent that there are several methods by which the present excessive production of fuel oil may be curtailed. Theoretically, the maximum reduction of 86 per cent is obtainable by cracking all straight-run fuel oil to coke; by a combination of hydrogenation and cracking, a reduction of 70·5 per cent can be secured; by cracking all straight-run fuel by composite residue and non-

residue processes, a reduction of 47 per cent is possible and, finally, by cracking all straight-run fuel by the low level (liquid residue) system, a reduction of 30 per cent is obtainable. Not only are there these savings of fuel oil production, but also in each case a conservation of the world's crude oil supply would automatically accrue. Each of these four systems has its specific advantages and disadvantages, but it is suggested that by cracking all straight-run fuel by current methods, that is, residue and non-residue processes, much would be achieved towards the ultimate balance of production with legitimate demand in so far as fuel oil is concerned. This system would doubtless have to be modified to meet the demand for gas oil, Diesel oil, etc., and partial change towards the other possible processes might prove essential. Fundamentally, however, it is free from appreciable defects and its advantages are considerable.

Omission to provide part of the liquid fuel at present marketed would immediately raise fuel oil prices to a reasonably remunerative level. Much illegitimate fuel oil business would return to coal. There would be a cessation of any real or apparent justification for the restrictive measures enforced by coal-producing countries and less inducement for producers to seek such abnormal outlets as coal hydrogenation for their products.

Supplies of fuel being limited, its use would be restricted to those applications where its special properties are of real value. By permitting the oil industry a reasonable return for its produce and labour, the consumer would be guaranteed a supply of petroleum products of the constantly improving quality rendered necessary by modern progress in engine design. Moreover, the life of crude oil resources would definitely be prolonged. It is true that such a reorganisation would involve a moderate capital expenditure on additional cracking equipment, but this would be offset by direct savings in production and drilling costs. The difficulties involved in the successful application of this scheme are primarily operative, and not due to the fundamental composition of cracked fuel; their solution, therefore, must be entrusted to the technologists of the industry.

Summarily, conservation of crude oil has already paved the way towards the balance between production and consumption of petroleum but, unaided by rationalisation on the lines indicated above, it cannot restore the industry to prosperity, and just so soon as this balance is achieved in respect of fuel oil, so soon will the industry emerge from the present chaos.

Annual Conference of the Museums Association

THE forty-fourth annual conference of the Museums Association was held at Norwich on July 3-7, when one hundred and eighty members of the Association met under the presidency of Sir Henry Miers.

The prevailing financial conditions, which prevented some municipalities from sending delegates, were responsible for a somewhat smaller attendance than usual, but the Conference atoned for this by the unusual diversity of subjects on the programme and the vigour of the subsequent discussions, while the social side was reduced to a minimum and each of the receptions afforded an opportunity of seeing one of Norwich's museums or some feature of scientific or artistic importance.

In his fifth presidential address, Sir Henry Miers gave an encouraging account of the Association's work in many fields, at home and abroad, during the past year. Despite the difficulty of the times, the Association is holding its own with regard to membership, while its importance and usefulness are increasing markedly throughout the museum world. The Empire survey has been completed by Mr. Markham's tour of Australasian museums and Dr. Bather's and Mr. Sheppard's visit to the West Indies. At home the most important advance has been the strengthening of the Association at its new headquarters, Chaucer House.

Reviewing the events of the last five years in his capacity as president, Sir Henry referred to the great