

## Association of Teachers in Technical Institutions

ANNUAL CONFERENCE AT LEEDS

THE twenty-ninth annual conference of the Association of Teachers in Technical Institutions was held in Leeds on June 4-7. A civic welcome was accorded to the delegates by the Deputy Lord Mayor of Leeds, who was supported by the Director of Education. The president for 1938-39, Mr. A. C. R. Ritchie (Gravesend), was inducted by the retiring president, Mr. W. E. Park (Luton). In his presidential address, Mr. Ritchie reiterated the Association's belief in the principle of collective security and said that in spite of the rapid deterioration in standards of international integrity, "we believe that it is not too late for the nations to get together in a sane and orderly atmosphere, so that they may work together for the common good of their people, and that the wonders of scientific discovery and inventive genius may at last be directed towards increasing human happiness instead of being prostituted to the destruction of modern civilization. After all," he asked, "what has civilization done for us if we cannot live peaceably one with another?"

In this connexion, Mr. Ritchie referred to a remark by the Chinese Ambassador during a recent address to an international conference of teachers convened by the League of Nations Union. Arguing that "We will have to scuttle back to the humanities to save our lives, let alone ourselves," the Ambassador said, "Technical Education is now ripening to make us cave-men as its final fruit." Mr. Ritchie hoped he would not be misunderstood if he reminded the Ambassador that such a statement is scarcely fair to technical education. No one more than he sympathized with the desperate sorrows of peoples torn by war. But technical education is not necessarily responsible for those sorrows. On the contrary, it gives us possibilities of life-standards hitherto unknown. Could the Conference which His Excellency addressed have been held without the aid of technical education? Here were representatives of many countries brought to London by all the modern forms of transport. Their words and thoughts were transmitted across space by means of inventions just as modern. Because social ideas move slowly, because a minority prostitutes the work of scientific workers and technologists, science and

technology should not be blamed. If there are those who use it mischievously, it is their *ideas* which must be attacked and not the blessings of technology which must be delayed.

At the closing meeting of the Conference, Prof. H. Levy, of the Imperial College of Science and Technology, gave an address in which he sought to evaluate the part played by men of science and technologists in the present international situation. Since they have made possible the latest and most deadly means of war, he insisted that it is their duty to see where the application of their work is leading the world. They cannot, for example, shut their eyes to the experiments now being conducted in Spain and China. They have been brought up, he said, to believe that any contributions they make to scientific knowledge are to be regarded as a service to humanity. That is not true. The results of their work are at present being used to destroy humanity, and it is their duty to face up to that fact. They must learn, however, to watch such experiments as those in Spain and China unemotionally and with the same detachment as they regard an experiment in a laboratory. They must understand causes and effects, and to do that they must realize that, from man's first appearance, forces have been at work which have, at various stages in history, altered the economy under which society has been conducted. A feudal economy, for example, could not cope with new knowledge and it had to break up. The main forces which have driven man on through successive stages have been the discovery of new kinds of tools and the knowledge of new raw materials. These forces are more than ever at work. Technical men are producing a new technique. The new processes which are being discovered to control Nature are causing the stresses and strains, the wars and the revolutions which have been manifest since the end of the war in 1918. The man of science and the technologist, as individuals, can do little. But, if they see clearly what is happening and understand the significance of events and the part which their work is playing, they will discover the necessity for them to work through their groups and associations in order to save the world from disaster.

## Pontifical Academy of Sciences

THE formal inaugural meeting of the second academic year of the newly reconstituted Pontifical Academy of Sciences (see *NATURE*, 140, 965; 1937) was held on January 30, 1938, in the presence of His Holiness Pius XI. The meeting, an account of which is contained in the Academy's *Acta* (2, Part 1, 1938), was held in the new hall which has been added to the Casina Pio IV, the Academy's headquarters in the Vatican gardens, through the generosity of the Pope. Besides a large proportion

of the seventy academicians, there were present Church dignitaries and lay members of the Vatican Government, representatives of the Royal Italian Academy and of the Academy of the Lincei, and members of other Roman cultural and scientific bodies.

In his presidential address Father Gemelli, after paying tribute to the Pope's active and generous interest in the progress of science, surveyed the Academy's first year of existence. In addition to the publication of two large volumes of the

*Commentationes* and of the *Acta*, the Academy has instituted an inquiry among its members to determine what shall be its most useful function. The president emphasized that the Papal Academy differs from other national bodies of a similar nature in being truly international, since it contains members of many nationalities all of whom have equal rights and privileges. From the large number of replies to the president's inquiry, which are reproduced in the *Acta*, it would appear that there is a general desire that the Academy should not restrict its activities to the publication of individual scientific communications, but should take advantage of the freedom of action guaranteed by its scientific independence of race or creed to strengthen the bonds between the various sciences. The rules of the Academy have been the subject of further discussion by its council and members, and steps have been taken to ensure that in the election to vacancies in the membership the international character and the representation of the different sciences shall be maintained.

An annual prize, of the value of 25,000 lire, to be known as the Pius XI Prize, has been instituted. It may be awarded for any distinguished contribution to the progress of science made in the preceding ten years, either by a single important discovery or as a result of a series of systematic researches, or by a publication of great scientific interest. The president announced that the members of the Academy would shortly be called on to propose names for the 1938 award, which will be made for a distinguished contribution to the progress of biological science.

During the first year of its existence, the new Papal Academy has suffered the loss by death of three of its members, namely, Lord Rutherford, Paolo Luigioni, and the Marchese Marconi, and the main purpose of the inaugural meeting was to

honour the memory of the last-named of these distinguished men of science. The Marchesa Marconi was present as an honoured guest at the ceremony. Guglielmo Marconi's immense contributions to physical science and to the development of wireless communication through space formed the subject of addresses by Prof. G. C. Vallauri of Turin, and Prof. W. F. Bjercknes of Oslo, both members of the Papal Academy. The latter, who is probably the sole surviving personal pupil of Heinrich Hertz, exhibited during his discourse the original 19-page manuscript entitled "Über elektrodynamische Wellen im Luft-raume und deren Reflexion" in which Hertz described the first results of his experiments on electric waves. At the close of Prof. Bjercknes' address, Hertz's manuscript was examined by His Holiness with considerable interest. As was reported in *The Times* of March 26, 1938, the Pope's interest in this document (which was not, as reported there, presented by Prof. Bjercknes to the Papal Academy) found a practical expression in the personal gift of a sum of £250 to Hertz's widow, Mrs. Elizabeth Hertz, who is living in exile at Cambridge with her two daughters. The presentation of the gift was entrusted to Canon Marshall, of Cambridge, by Cardinal Hinsley, Archbishop of Westminster.

Pius XI, in his own address to the Academy, paid a personal tribute to the benefits conferred on mankind by the labours of Hertz and of Marconi, whose work, undoubtedly accompanied by Divine blessing, recalled the words of Schiller: "Soll das Werk den Meister loben, doch der Segen kommt von oben". The Pope also referred to his own deep-rooted interest in science and the search after truth—an interest which had in his own private life found an outlet in the love of Nature and a passion for the reading of books.

## Oil from Coal

IN the December 1937 issue of the *New Zealand Journal of Science and Technology* (19, No. 7), there is an interesting article, initialed "W. G. H.," on the production of oil from coal as seen from an Australian point of view.

The process of low-temperature carbonization is dependent for commercial success largely upon the acquisition of a market for the semi-coke produced. Such a market is readily found in Great Britain, where the smoke nuisance from raw coal burned in the domestic grate is acute. In Australia, however, very little raw coal is burned in the cities and there is consequently no market for semi-coke in this direction. Low-temperature carbonization might be considered as a subsidiary method of providing coke for the Fischer Tropsch process of synthesis of hydrocarbons or to provide coke for hydrogenation.

Economically, hydrogenation is unsound from the Australian point of view. The estimated cost of a plant capable of producing 45,000,000 gallons of petrol per annum from bituminous coal is approximately £11,000,000 (Australian currency) and for one working on lignite it is nearly £12,000,000. Allowing for a return on capital of 6 per cent and for amortization in ten years, the cost would be 17s. 3d. per

gallon from bituminous coal and 18s. 2d. per gallon from lignite. The Fischer Tropsch process is no more attractive economically than hydrogenation in Australia. It has been estimated that to produce petrol at 8d. per gallon from a plant with an output of 9,000,000 gallons per annum, a subsidy of £300,000 or £1,000 per man per annum would be required.

The above facts admittedly do not commend any of these processes in Australia, but there are other important factors which would have to be carefully considered before deciding whether or not to erect a coal conversion plant in the Commonwealth. The chief of these are future supplies and cost of flow oil; payment in Australian goods for foreign supplies; possible interruption of supplies in the event of war; storage problems; the likelihood of finding flow oil in the Commonwealth; and the value of a new industry as an employer of both direct and indirect labour.

All these contingencies must be assessed before any decision is taken to erect a plant which at best can only produce a local product to compete with an imported article at one third to one quarter of the cost.