suffered from the exigencies of political jurisdiction and, to some extent, from the mischief of bureaucratic control. At Rome, too, policy and technical Boards were in existence in connection with the public services, but these Boards occupied only a consultative position. Italy, in the struggle mentioned, was desirous of emancipating its public services of a technical nature from political influences and the incubus of bureaucracy, and substituting therefor an industrial organisation and commercial methods of administration.

It is not surprising, then, that M. Fayol should have told the Paris audience to whom he addressed himself in November last that only those who possess technical and administrative ability combined are really capable of laying down scientific methods of administration and of erecting the framework of a scientific organisation. No practical person familiar with the requirements of modern technical enterprises is likely to quarrel with him for holding this view. It must be evident even to the most casual observer that we have now reached a stage in industrial development such that, in order to obtain the fullest measure of success from human effort, it has become imperatively necessary to secure from men possessing scientific attainments and a technical training the highest degree of co-operation in the administration and management of technical enterprises, whether privately owned or in the hands of the State; further, that any attempt to divorce the administrative from the technical control in such enterprises is mischievous, and must, if persisted in, eventually lead to national ruin.

W. A. J. O'MEARA.

"AFTER THE WAR."

THE final report of the Committee on Commercial and Industrial Policy after the War has now been issued; it necessarily deals with such a vast number of complex subjects that it has perforce to content itself with generalities, more or less vague, and gives but few indications upon which any definite line of policy can be based. It is notably weak in what should, perhaps, have been its most important inquiry—namely, as to the utilisation of the natural resources of the Empire to the best advantage in the future; it is significant that the title of the Committee is "on Commercial and Industrial Policy," instead of "on Industrial and Commercial Policy," as it logically should have been, seeing that a sound commercial policy can only be developed upon lines following industrial development, and not *vice versa*.

In most cases this Committee has merely summarised the reports of various Departmental Committees, without giving any indication of the relative importance of the subjects discussed. For example, the coal trade is thus briefly dealt with, and there is no indication in the report to what an overwhelming extent this is the essential industry upon which our Empire depends. Mr. Scoby Smith has, indeed, appended a very valuable note upon the importance of conserving our supply of coking coal, but even this does not touch the larger question. Coal plays, in fact, a twofold part; not only is it the raw material from which a host of important industrial and pharmaceutical products may be obtained, but, above all and beyond all, it is also practically the sole source from which we draw our mechanical energy. Without a continuance of the supply of abundant and relatively cheaply won coal that we have hitherto enjoyed, the industrial supremacy of Britain would be gone, and we should rapidly fall to a very subordinate position amongst nations. It is scarcely too much to say that the magnitude of this problem completely overshadows all the others; if the whole of the recommendations put forward by the Committee could be acted upon, and if they all produced the maximum of good effect that the most sanguine member of the Committee could expect, they would be powerless to save Great Britain from industrial ruin if she could no longer produce an abundant output of coal as cheaply as her competitors. The Committee does not appear to have realised that such coal production is the most urgent and the most vital of all after-the-war problems.

There are, it is true, some recommendations as to mineral production in general which naturally do include our coal production. Thus the Committee strongly recommends an intelligence and advisory bureau for dealing with metals and minerals, and a special letter from the chairman of the Committee to the Premier emphasises this recommendation, and supports the resolution of the Imperial War Conference to the effect that an Imperial mineral resources bureau should be established in London. It is satisfactory to know that such a bureau is in process of formation, and the general tenor of the Committee's views on the subject would seem to be quite sound, especially in respect of the principle which is laid down—that the functions of the bureau should be the dissemination of intelligence and advice, but be in no sense executive; and, further, that the utmost use should be made of the services of technical and scientific experts. The value of such a bureau to the mineral industries of the Empire should be very great, and its suggested activities are exactly what is required; hitherto the assistance that the coal-mining industry has received from the Governmental authorities has been essentially of the negative order.

Our mining engineers can be trusted to work out their own problems for themselves, as they have always done, but the increasing complexity of mining methods demands a far better supply of official information than has been forthcoming up to the present. It is only necessary to compare our meagre Home Office annual reports with the splendid volumes of the Prussian *Zeitschriften* to realise how greatly we have been handicapped in this respect. Of all national resources, mineral resources need the most scientific study, the most complete utilisation, and the most careful conservation, because, unlike other natural resources, they are not reproductive, and, once used, they

can never be renewed. On all grounds the creation of such a bureau as has been advocated by the Committee is to be heartily welcomed by the mining community, and it ought to play a leading part in co-ordinating the utilisation of our mineral resources after the war to the best advantage.

It is doubtful whether other recommendations are likely to be quite so successful in every case, and in some instances they scarcely appear to have been sufficiently thought out. Thus one of the suggestions is the creation of a statutory tribunal to enforce the granting of wayleaves where unreasonably withheld. There is no doubt that wayleaves do in many cases press unduly and unfairly upon the mineral producer, but the proper remedy is a modification of the whole system rather than a palliative to be applied only to cases where wayleaves are refused. At present any landowner is at liberty to make whatever charge he thinks fit for a mineral wayleave across his land, and his method is to base his charges upon the presumed needs of the miner. A simple legislative enactment that the measure of a wayleave rental should be, not the necessity of the miner, but the amount of damage suffered by the landowner, is really what is required. There would be no difficulty in finding a tribunal capable of properly assessing such damage, and it cannot be fairly urged that such a system would be inequitable. Again, whilst the Committee has devoted some attention to the question of taxation, it has failed to note how unfairly the present methods press upon the mineral industry, inasmuch as in levying income-tax no regard is given to the fact that a mine or a mineral property is necessarily a wasting asset, and that what is, in fact, to-day taxed as profit derived from the working of minerals is not all profit, but represents as to a portion of it a return of the capital invested. The only recommendation made on the very important matter of allowances for depreciation for income-tax purposes is that it should be "on an adequate scale"; the Committee does not appear to recognise that the principle of calculating depreciation upon the diminishing value of machinery and plant is wrong, and that the entire subject needs revision in the light of modern industrial methods.

As regards the supplies of ores, both of the ferrous and non-ferrous metals, the present report does not advance in any way upon the reports of the respective Departmental Committees, except in so far as they would receive much valuable assistance from the Imperial bureau of mineral resources. It need scarcely be said that the report contains a vast amount of valuable information, and will well repay attentive perusal; nevertheless, the special aspect of the whole subject, to which attention is here devoted—namely, the future development of the mineral resources of the Empire—has not received the share of consideration to which its pre-eminent importance entitles it. This was, perhaps, inevitable, having regard to the constitution of the Committee and the wide range of its inquiries; but it is none the less to be regretted.

H. LOUIS.

NOTES.

THE long list of honours announced on Monday, for war and other services, in celebration of the King's birthday, includes the names of the following workers in scientific fields:—*G.C.V.O.*: Sir Alfred Keogh. *K.C.M.G.*: Sir William Leishman, F.R.S. *K.C.S.I.*: Sir Thomas Holland, F.R.S. *C.I.E.*: Lt.-Col. E. A. R. Newman, Indian Medical Service, superintendent, Medical School, Dacca, Bengal; Mr. J. R. Henderson, superintendent, Government Museum; Mr. C. A. Barber, Agricultural Service, Imperial sugar-cane expert, Madras. *K.C.B.*: Surg.-Gen. H. D. Rolleston. *C.B.*: Sir Hugh Bell, Bart. *K.C.M.G.*: Prof. John Cadman. *C.M.G.*: Prof. H. L. Ferguson, professor of ophthamology, University of Otago. *Knights*: Mr. Harry Baldwin, for services as dental surgeon to his Majesty for a number of years, and as head of the Kennington Facial Hospital; Mr. C. H. Burge, late departmental principal of the Government Laboratory; Mr. Mayo Robson, past vice-president of the Royal College of Surgeons; and Dr. E. D. Ross, principal of the School of Oriental Studies.

THE British Science Guild is organising a comprehensive exhibition of products and appliances of scientific and industrial interest which prior to the war were obtained chiefly from enemy countries but are now produced in the United Kingdom. His Majesty the King has graciously consented to become patron of the exhibition, and the Marquess of Crewe, K.G., is president. Among the vice-presidents are the Prime Minister; Mr. Winston Churchill, Minister of Munitions; Sir Albert Stanley, President of the Board of Trade; Mr. H. A. L. Fisher, President of the Board of Education; Dr. Addison, Minister of Reconstruction; Lord Moulton; Lord Rayleigh; Lord Sydenham; Sir J. J. Thomson, president of the Royal Society; Sir Norman Lockyer, and Sir William Mather. The exhibition, which will be held at King's College from about the first week in August until the first week in September, will show, in the first place, products chiefly imported from Germany before the war, but now made in this country; and it will also illustrate the remarkable developments that have taken place generally in our scientific industries. In many of these, as a matter of fact, Great Britain always excelled, and it is only our national quality of self-depreciation which has prevented the public from appreciating the fact that we were able to export to Germany apparatus and products embodying the highest scientific knowledge and technical skill. The general scope of the exhibition has been set forth in a preliminary leaflet which has been issued, from which it is noted that the exhibits will include chemical products, thermal, electrical, and optical appliances, glass, quartz, and refractory material, photographic apparatus and material, surgical and medical appliances, and papers and textile products. It is believed that the exhibition will have a most stimulating influence upon scientific and industrial research, and the exhibits, with the demonstrations and lectures that will be given in order to explain them, will undoubtedly bring home to manufacturers, as well as to the general public, the great and growing part that science plays in industry. Further particulars may be obtained from the Organising Secretary, 82 Victoria Street, London, S.W.1.

THE KING AND QUEEN gave a small dinner-party at Buckingham Palace on Tuesday night, at which the guests included Sir Joseph Thomson, president of the Royal Society, and Lady Thomson, and Sir Frederic Kenyon, president of the British Academy, and Lady Kenyon.