The Advertiser

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ELECTRIC POWER.

In his inaugural address last evening as president of the Science Congress, Sir John Monash spoke with that perfect mastery of his subject—the application of electricity to various forms of traction and industrial enterprise—to be expected of one who has acted through life on the Biblical injunction, "Whatever thy hand findeth to do, do it with thy might." Though his career has been a varied one, he has brought to each of the three occupations which at different times he has pursued, the law, engineering, and soldiering, the same characteristics—great powers of judgment, a prodigious capacity for concentration on detail, and a dauntless determination to yield to no difficulty it was humanly possible to overcome. These qualities were exhibited even in boyhood, when he matriculated at the early age of 14. In Gallipoli he shared the risks and privations of his soldiers, whose unbounded confidence and affection—feelings never evoked except by genuine qualities of heart and head—he enjoyed from the moment he accepted his tremendous responsibility to the time when he relinquished it to resume, like another Cincinnatus, his place in civil life. His many achievements as a civil engineer, among them being the erection of the Monier Bridge across the Yarra, are a refutation of his disclaimer yesterday of the right to be considered a "representative of scientific endeavor," and one fails to see how the expert knowledge that fitted him for the chairmanship of the State Electricity Commission in Victoria, and for the production of a paper showing a complete grasp of every aspect of a difficult theme, could have been acquired except by an indefatigable student of an intricate and extensive branch of knowledge.

The application of electrical power to industrial purposes is not a subject on which the "man in the street" can be expected to know very much, and he will be proportionately grateful to Sir John Monash for his successful attempt to make the matter clear, which the condensed reports in the English papers of the addresses at the World's Power Conference in London last month cannot be said to have done to any very remarkable extent. Ever since the invention of machinery cheap motive power has been the well-spring of industrial development. Before the era of machinery the tasks requiring motive power were performed by the labor of men and beasts. Then came wind-power and water-power, to be replaced in turn by steam; and the coalfields became the industrial centres of the world. For many decades, thanks mainly to coal, the British industrialist enjoyed a practical monopoly of the world's trade. Commanding the source of production, his voice fixed prices in the cosmopolitan market. The growth of iron shipping, the expansion of iron roads, the spread of new settlements, combined to enrich the one great manufacturing country of the world. Devastating wars retarded the development of Continental industry; America, with illimitable internal markets of her own to supply, weighted with her civil war debt, and almost stripped of her commercial marine through the competition of her only serious maritime rival, was not greatly to be feared as an exporter. We know how gradually this state of things altered to the detriment of John Bull, as, taking example from him, the nations of the world developed their resources of coal and iron and the scramble for markets began. Half a century ago the British people were startled by the warnings of Dr. Jevons and Sir William Armstrong that they would witness in a measurable time the exhaustion of their coal deposits, and that unless they found a substitute for coal their industrial days were numbered. The electrical era began, and soon advanced by leaps and bounds. But electricity required some form of power for its generation which could be drawn in adequate quantity from one or two sources, water or fuel, the choice depending on their relative availability and cheapness. For a time manufacturers were content with one source only. Electricity was obtained by burning coal in a furnace, which furnace converted water into steam, and with the steam, dynamos were driven which set up electric currents. But the process was wasteful. The coal in places cost much to transport, and when burned only a limited percentage of the energy locked up in it came out as electricity, the rest escaping up the chimney.

It is not surprising that where opportunity offered water-power should be utilised as the generating agency. One of the earliest experiments made was the adaptation to this purpose of the great mass of water flowing in the rapids and cataracts of Niagara. The example was widely followed in Europe wherever a volume of water in sufficient mass fell from one level to another, and new manufacturing centres made their appearance in the neighborhood. But huge manufacturing cities could not be transported to the vicinity of swiftly-flowing rivers or tumbling cataracts, such a change being an economic if not a physical impossibility. But science, being equal to most things, found a means of transmitting and distributing the power so generated to any distance at a minimum of loss, wire-rope cables, high-pressure water mains, and compressed air being among the means employed. Unhappily, there are many countries where hydro-electric schemes are ruled out by the absence of rapid rivers or falls on an adequate scale. Thus, while Scotland contains an immense reservoir of potential water-power, the conditions are not equally favorable in England, where the best that can be done for cheapening power is to generate it direct from the coalfields, unless the time comes for the problem to be solved of utilising the tides which rise and fall with limitless force. The Commonwealth—except in Tasmania, where the Great Lakes scheme is furnishing power for the electrolytic zinc works near Hobart—is in much the same position; though in New South Wales the engineers are talking of harnessing to industrial processes the northern and southern coastal rivers. The high lands, often snow-capped, of continental Australia seem at first sight to invite utilisation in the generation of electricity, but seasonal fluctuations render them uncertain sources of supply, and, in any case, so eminent an authority as Sir John Monash is doubtful whether energy from them could compete commercially with fuel power. Happily, as the scheme under his own direction, based on the extensive brown coal deposits of Victoria, amply demonstrates, inferior coal well pulverised answers all the purposes of good black coal in the generation of heat enough for the production of electrical energy; and all that is requisite for its economic utilisation is the provision of that network of high power distribution by which remote regions can be supplied at little cost with power from a central source.

THE CINEMA IN HYGIENE.

The idea now is all but universal, and is assuming many shapes, that a great factor may be made of the cinematograph in stamping information on the minds of people of all ages. The printed page, as Froebel noted long ago, involves a strain on the attention from which a pictorial representation is free; and on this not very recondite fact not only Froebel, but Pestalozzi and Montessori, to no small extent founded their systems. To capture and hold the attention, they saw, was everything. The child was to be not so much taught as beguiled into learning. By means of a kindly treachery he was made to learn from his amusements. His toy-books, like the innocent wooden bricks with which he built and made designs, were none the less pleasurable for being, without his knowing it, instruments of instruction. He thought himself happy, and, lo and behold, he was acquiring (if in homeopathic doses) solid instruction. It has occurred to reformers that the cause of education may be advanced in the same way among older children, and use made of the familiar truth that what the mind acquires but slowly from verbal description or reasoned argument may be visualised by the eye at a glance. The curricula in primary and secondary schools contain not a few lessons, like geography and history, in respect to which instruction may be simplified and made memorable by the triumphs of the cinema.

It is only carrying the idea a little further to suggest, as the Australasian Health Association are now doing, that with the aid of the State and Federal authorities the cinema should be yoked to the service of public hygiene. Moving pictures as an instrument in health propaganda, as Sir James Barrett demonstrates, proved their value in Melbourne and Sydney, where they rendered great assistance in connection with the V.D. propaganda, and in the latter capital did much to secure the establishment of the present clinic. The doctors are at least as well qualified as anyone to estimate the influence of health films, especially on youthful minds, and their testimony is unanimous as to the value of publicity through this means. Dr. Hone says that as long as three years ago he was struck by the potentialities of the cinema in this matter, the only difficulty being as to the supply of films. This it is hoped to overcome by a request to the Commonwealth to make it an instruction to Dr. Cumpston that during his tour abroad he shall procure at least ten films on health subjects to be exhibited in all the States, and perhaps elucidated by qualified lecturers. In France the cinema is now employed as an aid to medical study, having been introduced two years ago into the Academy of Medicine, so that students may study by "slow projection" the operative methods of the best surgeons. Healing processes and the development of diseases in the successive stages of illness and recovery are recorded in the same way, the progress or retrogression of months being thus displayed within as many minutes on the screen. There is no suggestion of bringing the proceedings of the anatomical theatre before the public, nor in the pictures it is proposed to exhibit will there be any pandering to morbid curiosity or love of the sensational. What is desired is nothing more than to make the cinema an agency in the spread of enlightenment as to the risks incurred by a disregard of the laws of health. It is a "safety first" propaganda in which the Health Association is engaged, and it would be a little anomalous if while one of the most public-spirited of all the professions was tasking itself by lectures and pamphlets to further its beneficent purposes the new avenue to the popular mind afforded by the cinema should remain closed. A proposal that the display of a certain number of health pictures should be made obligatory on cinema theatres while open to obvious objection on other grounds, is sufficiently condemned by the experience of the neighboring capitals, where no coercion of the providers of public entertainment was needed to secure the inspection of Sir James Barrett's films by thousands of people. As will be seen from interviews with managers of the picture theatres, reported elsewhere, they are more than willing to co-operate in a health campaign by screening, as some have done already, films of the desired character. The advantages of such an arrangement are sufficiently obvious, for granted the suitability of the films, the machinery is actually in operation for their presentation; and it is precisely the gatherings now drawn to the picture theatres, comprising multitudes of both sexes and all ages, whom it is necessary for many purposes of an effective propaganda to reach.

NATIONAL RESEARCH.

MEETING OF AUSTRALIAN COUNCIL.

The Australian National Research Council met in the Prince of Wales' Theatre at the Adelaide University yesterday' morning. There was a representative attendance, and Sir George Knibbs (acting president) presided.

The annual report stated:—During the year we have lost by death Dr. E. H. Embley, of Camberwell, Victoria, and Professor A. A. Lawson and Mr. J. J. Fletcher have resigned.

Pan-Pacific Science Congress.

At the date of the last general meeting of this council the Pan-Pacific Science Congress was in progress and terminated on September 3, 1923, after most successful meetings at Melbourne and Sydney, the whole of the arrangements having been carried out by the Australian National Research Council. To provide a permanent organisation to deal with future congresses the following resolution was adopted:—1. That this congress recommends the establishment of a permanent organisation of the scientific institutions and individuals engaged in research on the scientific problems of the Pacific region. 2. That the president of the Third Pan-Pacific Science Congress request the National Research Council, or similar institution or agency of each of the following countries, viz., Australia, Canada, Chile, France, Great Britain, Japan, Netherlands, New Zealand, the Philippine Islands, and the United States of America, to appoint a member of an organisation committee, the chairman of the committee to be a resident of the country in which the congress will be held, and that the committee be empowered to add to its membership representatives from other Pacific countries. 3. That the organisation committeee be requested to prepare a preliminary draft of a constitution and methods of procedure of the organisation and to report its recommendations to the next congress.

It was arranged that the third Pan-Pacific Science Congress should be held in Japan in 1926, under the auspices of the National Research Council of Japan. The printing of the proceedings of the Science Congress is being carried out by the Government printer of Victoria, under the direction of Sir George Knibbs as editor-in-chief, and it is expected that the first volume will be ready about the end of this year.

Chair of Anthropology.

As the outcome of a resolution passed by the Pan-Pacific Science Congress, the president (Sir David Orme Masson) and others waited on the Acting Prime Minister and the Minister for Home and Territories, and asked that a Chair of Anthropology be founded in the University of Sydney. To this request a most sympathetic and encouraging reply was given. Since then, however, the attitude of the Government has somewhat changed, but the matter is still receiving attention.

International Unions.

In June, 1924, the Commonwealth Government paid the subscriptions due for 1923 to the International Unions of Astronomy, Geodesy, and Geophysics, Pure and Applied Chemistry, Radio-telegraphy, and Physics, with £50 towards the publication of the annual table of constants. The executive committee has taken action towards forming a national committee in connection with the union of pure and applied chemistry. This is being done in co-operation with the Australian Chemical Institute, and action is nearing completion. In connection with the conference to be held in Madrid by the International Union of Geodesy and Geophysics from October 1 to 10, 1924, the executive committee is asking Sir Gerald Lenox-Conyngham to represent the Australian National Research Council.

The publication of Australian Science Abstracts has been continued, the last issue being vol. 3, No. 3, dated 1st August, 1924.

Freezing of Meat.

A special committee appointed to consider the freezing of meat (Dr. J. A. Gilruth, chairman) submitted a report which stated that research work had been carried out during the past twelve months. A plant and apparatus necessary for experiments had been obtained, and practical operations had been commenced. A steel brine tank: 11 ft. by 4 ft. by 6 ft., with expansion coils and an agitator, had been installed at the Government Cool Stores, Victoria Dock, Melbourne. By means of calcium chloride it was possible to obtain an extended range of low temperatures. As small-sized operations on beef had already been conducted in England, the object of the investigations was to carry out experiments on larger portions, such as quarters of a carcase, to determine whether it was practicable to eliminate or reduce the "drip" by means of rapid freezing. The quarters were to be frozen by means of brine at a low temperature, and were to be then thawed out at different rates. It was hoped by this procedure to arrive at the most effective and economical methods of both freezing and thawing beef and eliminating the "drip."