

that the depression in the coal industry is universal. Germany is experiencing bad times. In the United States—which produced annually 500 million tons of soft coal (nearly twice the amount obtained in Great Britain) and where the output per man is four times what it is here—the position likewise gives ground for concern. On an average, the miner worked for only 179 days of the year during 1923. There are about 14,000 mines worked by more than 12,000 corporations or individuals.

In this depression the competition of oil-fuel is only a minor factor. It has been shown that the present methods of conducting the industry are unscientific, that selling, organisation and transport are too complex, and that many undertakings are using obsolete and inefficient machinery. Such changes as the wider use of electricity and the burning of low-temperature coke in grates can only be expected to effect partial relief. The real remedy lies in consolidation and scientific organisation of the industry, and the elimination of present wasteful methods. As an illustration of what organisation can accomplish, Sir Richard quoted the experience of the United States Steel Corporation, which by making use of the economies and possibilities of scientific method arising from consolidation, has raised the American steel industry from a position of great depression to one of great prosperity. The formation of this 'trust' has not prevented friendly rivalry between its constituents, and has led to much better relations between management and employees, who are given opportunities of taking up common stock in the concern on favourable terms.

Sir Richard therefore suggested that the solution of the problems of the coal industry lay in consolidation, involving the closing of inefficient pits and the general introduction of better organisation and more scientific methods; the industry should be controlled by an executive council, meeting daily, on which there should be workers' representatives appointed. Methods of profit-sharing for the benefit of employees should be introduced, and the Government might arrange a loan, under the Trades Facilities Act, to tide over the period of reorganisation.

Dr. E. F. Armstrong then spoke on "Dyestuffs." He recalled that the first synthetic dyestuff was an English discovery. The development of the industry in Germany was due to the fact that commercial leaders, having scientific training, encouraged the application of scientific methods and results. The War demonstrated the importance to Great Britain of maintaining an organic chemical industry. Considering the circumstances, the progress so far made in the dyestuff industry in England has been a real achievement. A highly technical industry had to be built up from the beginning. To-day by far the larger portion of the hundreds of known dyestuffs are manufactured here in adequate quantity, and the standard reached is higher than that of the Continent in pre-War days. Economic difficulties have to be contended with, but substantial improvement is expected in the near future. Apart from the production of colours, described as "a miracle of applied science," manufacturers maintain a complete technical service to aid users in their application.

Capt. P. P. Eckersley, who discussed "Broadcasting and the Electrical Industry," remarked that science must be applied on a scientific method. If wisely used it is of priceless benefit to mankind; if wrongly used it may prove a curse. The electrical industry presents many examples of science properly applied. British engineers combined ingenuity and solidity in their work. He agreed that we are apt to be conservative in regard to consolidation, and

referred to the British broadcasting service as a shining example of the benefits of judicious amalgamation. Ninety per cent. of people in the British Isles can listen to programmes with the help of inexpensive sets. The smoothness with which programmes are conducted, the manner in which an address by a public man in any part of the country can be broadcast at short notice, and the quality of the programme, are due to the consolidation of all interests in the public service. In the United States, where private interests may dominate broadcasting in some areas and disagreement between competitors may arise, the conditions are less perfect from the point of view of the public. Whatever change may be made in the control of the B.B.C. the fundamental methods will remain the same as at present.

A vote of thanks to the speakers, and to the Lord Mayor for the use of the Mansion House for the meeting, was proposed by Lady Lockyer and carried with acclamation. Lady Lockyer mentioned that meetings had been held in the Mansion House for the last eleven years, each Lord Mayor in turn being elected a vice-president of the Guild.

University and Educational Intelligence.

CAMBRIDGE.—It is announced that Prof. E. T. Whittaker, of Edinburgh, will on May 10 deliver a lecture on "The Present State of the Theory of Light."

A change in the scheme of studies qualifying students for the Ordinary B.A. degree is proposed; by it the much-debated subsidiary subjects should be rendered more effective than at present.

The Board of Extra-Mural Studies is proposing to add to the status of the lecturers and tutors who give instruction on its behalf at various centres throughout the country. The proposals recommend that such persons shall in future be appointed by grace of the Senate on the nomination of the Board, and further, that they shall come under the contributory pensions scheme for university officers. These proposals should lead to the strengthening of the position of these teachers and would be one step in the advancement of extra-mural work, an activity of the University with which the Royal Commission has shown much sympathy.

Two Robert Blair fellowships of 450*l.* each are being offered by the London County Council to adult students of British nationality. They will enable the holders to go abroad for a year for advanced study or research in scientific and manufacturing processes. Applications should be made to the County Hall, Westminster Bridge, London, S.E.1.

APPLICATIONS are invited by the Salters' Institute of Industrial Chemistry for a limited number of fellowships for chemists of post-graduate standing who are desirous of adopting a career in industrial chemistry. The normal value of each fellowship is from 250*l.* to 300*l.*, but applications for grants of a higher value would be considered. The latest date for the receipt of applications is June 1. They should be addressed to the Director of the Institute, Salters' Hall, St. Swithin's Lane, E.C.4.

In the University of Dacca, which was opened on July 1, 1921, the principles of a number of the recommendations made by the Calcutta University Commission of 1917-19 have been subjected to the test of practical application; with what success may be gathered from a farewell address delivered by Sir

Philip Hartog, the first Vice-Chancellor, at a meeting of the University Court last November. Chief among these principles is the residential organisation combined with a tutorial system. At Dacca three halls have been established on the lines, so far as possible, of the Oxford and Cambridge colleges, and in each of them have been started literary and debating societies, athletic societies, and social service leagues. Later a University Union was created. Whilst these halls and societies form valuable schools for character training and citizenship, the most important new element on the teaching side is the tutorial work, with the corresponding practical work supervised by the teachers in the laboratories. Much attention has been devoted to the physical welfare of students, and the executive council has decided that physical exercises ought to be compulsory for all students who are not medically unfit. There has been a notable increase in the number of Mohammedan students, from 170 out of a total of 1075 in 1921, to 353 out of a total of 1487 in 1925. The institution of the Dacca Board of Secondary and Intermediate Education, in accordance with the recommendations of the Calcutta University Commission, has not, so far, led to as much improvement as was expected. Experience has shown the need of a practical test at the intermediate examinations in science, but its introduction has been postponed *sine die*. Sir Philip Hartog remarks that the Board should be so constituted that the financial stability and progress of the educational institutions with which the members are connected would not depend on the passing of any particular number of candidates.

THE United States Commissioner of Education's report for 1924-25 concludes a tale of varied and multitudinous activities with the statement that the Commissioner travelled 43,444 miles and made 157 addresses before audiences aggregating 87,410. Specially impressive is the list of publications of the Bureau of Education, comprising, in addition to fifty-eight bulletins and the periodical *School Life*, numerous special series of leaflets relating to city schools, commercial education, health education, home economics, home education, industrial education, and other matters, library leaflets, reading courses, rural school leaflets, etc. The Commissioner devotes a large share of his attention to rural education, and undertook during the year in this connexion a new type of activity, namely, co-operation on an extensive scale with selected educational organisations for the co-ordination and conduct of educational research studies. In addition, he caused a large number of special studies to be made of various aspects of the work of rural schools. His Home Education Department conducts reading courses with the co-operation of State universities or the State library commission or State normal college. The scope of the work seems to be very much on the lines of that of the National Home Reading Union in Great Britain; 1522 readers were enrolled during the year, and the number of readers who have at some time enrolled exceeds 18,500. In view of the notoriety of Tennessee's legislation on the subject of the teaching of the doctrine of evolution, it is interesting to note that a report of a survey by the Bureau's Division of Higher Education directed attention to the low proportion of the college population in that State, the inadequate financial support of the colleges, the lack of co-operation between colleges conducted under the auspices of the same Church denomination, low rates of tuition, inadequate preparation of the faculties of some institutions, and the small attendance of students from counties difficult of access.

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Contemporary Birthdays.

- May 8, 1858. Sir Bertram C. A. Windle, F.R.S.
 May 9, 1877. Sir James C. Irvine, F.R.S.
 May 13, 1854. Dr. Marie Yves Delage.
 May 13, 1857. Sir Ronald Ross, K.C.B., F.R.S.
 May 13, 1851. Sir Horace Darwin, K.B.E., F.R.S.

Sir BERTRAM WINDLE, professor of anthropology in St. Michael's College, University of Toronto, was educated at Repton and the University of Dublin. Before his activities were transferred to Canada, he was professor of anatomy and anthropology in the University of Birmingham; afterwards president of University College, Cork, and whilst resident in Ireland, was much concerned with schemes of Irish education. Apart from scientific memoirs, Sir Bertram is the author of many informing books in general archæology and anthropology, including "The Romans in Britain" (1923).

Sir JAMES IRVINE was educated at Allan Glen's School, Glasgow, and the Universities of St. Andrews and Leipzig. Formerly professor of chemistry and Director of the Research Laboratory at St. Andrews, he is now Principal and Vice-Chancellor. He is an authority on the constitution and chemistry of sugars. Continuing the researches of Emil Fischer, and in collaboration with the late Prof. Purdie, he evolved new processes of investigation relating to these important natural products. Sir James was awarded the Royal Society's Davy medal last year in recognition of his work.

Dr. YVES DELAGE, professor of zoology in the Faculté des Sciences, Paris, and director of the Marine Biological Laboratory at Roscoff, was born at Avignon. He is an Officer of the Legion of Honour and a member of the Paris Academy of Sciences. Leaving teaching work at Caen (1886) he succeeded the late Prof. Milne Edwards in his professorial chair. Dr. Delage is the author of numerous monographs in experimental and general biology.

Sir RONALD ROSS, director of the Ross Institute and Hospital for Tropical Diseases, Putney Heath, received his medical training at St. Bartholomew's Hospital. Qualifying in 1881 for the Indian Medical Service, he served until 1899. It was a period fruitful in biological achievement. Following up some suggestions offered by the late Sir Patrick Manson, investigations were begun by Ross in 1895, in India, with the view of determining the life-history of the parasite of malaria (discovered by Laveran) and the transmission of infection. Ross was able to indicate the cycle of changes of the malarial organism in the tissues of a mosquito (*Anopheles*) which had been fed on the blood of a malarial patient. His work is the basis of modern methods for the prevention of malaria. Sir Ronald is a Nobel laureate, and a Royal medallist of the Royal Society.

Sir HORACE DARWIN may be, not inaptly, termed the apostle of methods of instrumental precision. Receiving his early training at Messrs. Eastons and Anderson, Erith, Kent, he graduated at Trinity College, Cambridge. He is chairman of the Cambridge Scientific Instrument Company, Ltd. Sir Horace gave the first Wilbur Wright Memorial Lecture before the Aeronautical Society in 1913 on "Scientific Instruments: their Design and Use in Aeronautics." It was prefaced by some interesting considerations respecting birds, the flight of insects, and 'winged plants.' Sir Horace was a member (1915 onwards) of the Munitions Inventions Panel.