

Imperial Airways New Programme

SPEAKING at the annual meeting of Imperial Airways, Sir Eric Geddes outlined the possibilities of, at least experimental, passenger- and mail-carrying operations across the North Atlantic next summer. A 'Mayo' composite aircraft in which a large seaplane, with good 'get off' characteristics, carries a smaller long-distance machine upon its back, releasing it at a suitable height, and also a large flying boat of more normal design are under construction, both of them having sufficient range to fly the Atlantic with adequate reserve. The westward journey will probably be London, Azores, Bermuda, New York, the latter stage being operated in conjunction with Pan-American Airways. Eastwards the direct line New York, Port Botwood (Newfoundland), Cork or Bantry Bay (Ireland), London has been surveyed, although the intermediate stations in Canada and Ireland are not yet definitely settled. The longer route outwards is necessary as stops are needed for refuelling. The prevailing west to east winds make it impossible to fly the more direct route, without landing between Ireland and Newfoundland, with sufficient fuel and still to have an economic load-carrying capacity. On the return journey, this following wind not only reduces the air mileage but also increases the relative speed.

THE distance from Newfoundland to Ireland is about 1,900 miles, and a flying boat with only a little more nominal air endurance will actually have a considerable reserve, owing to the almost constant following wind. There are also envisaged extensions to this route across Canada to Vancouver, Khartoum to Nigeria from the England-South Africa route, and Hong-Kong to Penang from the main Australian route. Sir Eric stressed the fact that there is a great difference between speeds technically possible and those commercially practicable, and stated that there is a greater demand for a reduction in fares than for an increase in speed. Nevertheless, the new aircraft on order will give substantial increases in speed next summer, subject to ground organisation being provided of a suitable standard. For example, it is expected to reach Australia in seven days, South Africa in four days and India in three, with normal schedule working.

Rebuilding Birkbeck College

IN the murky atmosphere of a Strand tavern on a dreary December evening more than a century ago, the germ of a great ideal first struggled into existence. George Birkbeck, who presided on the occasion, was a man of vision, but it is to be doubted whether even he had more than a glimmering of what the future held for his latest child. Since that night—the gathering of a couple of thousand working men did not disperse until 3 a.m.—Birkbeck College has become an integral part of the body scientific. The appeal launched at the Mansion House on November 7 for funds for rebuilding Birkbeck College is of the highest importance not only to the College alumni but also to scientific workers

throughout Great Britain. The Lord Mayor (Sir Stephen Killick), an old student of the College, presided, supported by the Duke of York, president of the College, accompanied by the Duchess, the Archbishop of Canterbury, the Vice-Chancellor of the University of London (Dr. Eason) and the chairman of the Governing Body (Mr. W. L. Hichens). Owing to the general election, Mr. Ramsay MacDonald, another old student, was unable to attend, but wrote a letter strongly supporting the appeal.

THE Lord Mayor said the present buildings of Birkbeck College are inadequate, and that the University of London has offered a position for a new building on the Bloomsbury site. Generous grants towards the rebuilding fund have been offered by the University, the London County Council and the City Corporation. About half of the £250,000 required has been promised. The Vice-Chancellor contributed interesting information about the work of the College, referring particularly to its 200 post-graduate research workers and to Prof. P. M. S. Blackett's research work on cosmic rays, to which £1,150 has been contributed from the Mond Fund of the Royal Society. As the Archbishop of Canterbury pointed out, the movement to bring the worker to the university rather than the reverse process is an ideal to which the energies of all should be directed. The academic record of Birkbeck staff is high, and an increasing volume of significant research is being prosecuted under their direction; research which, in the words of Mr. Ramsay MacDonald, is fraught with possibilities of the highest importance to our great industrial centres. The appeal merits a speedy and generous response. Let him who hath give; and let him who hath not, proclaim the worthiness of a common cause.

School and Museum in London Education

IN order to take fuller advantage of the exceptional opportunities afforded by the museums of London of adding background to the curriculum of the schools, the London County Council decided early in the current year to add to the staff of its inspectorate an officer who would serve as a liaison between museum and school. School visits to the museums have long figured in the time-table; but it had become evident that some organisation of objective was necessary to secure the full return for the time which these visits demand. The resolution of the Council has been given effect by the appointment of Dr. Louis W. G. Malcolm to the post; and arrangements have been made already under his supervision for an extension of the system of school visits and lectures in the museums to cover a wide field of subjects of topical and educational interest. In the Imperial Institute, for example, geographical films are being shown and lectures given on the Mediterranean, Malta, Gibraltar, Cyprus and Suez, and these will be followed by illustrations of the industries and occupations of the more distant parts of the Empire. In the London Museum, the history of London from prehistoric to Stuart times is to be demonstrated. Among other

museums at present participating in the scheme are the Victoria and Albert, Horniman and Geffrye Museums. Dr. Malcolm, who was a research scholar in anthropology of Christ's College, Cambridge, and obtained his Ph.D. degree for a thesis on the history and development of medical museums, not only has a wide and varied experience of museum work, but he has also devoted much attention to the practical development of the museum collection as a part of the machinery of education. His work will be supported by a strong and informed committee of the County Council.

Research on Carcinogenic Compounds

THE thirty-first Bedson Lecture was delivered by Prof. J. W. Cook, of the Cancer Hospital, London, to the Bedson Club at Armstrong College, Newcastle-on-Tyne, on November 8. Prof. Cook took as his subject "The Synthesis and Biological Effects of Carcinogenic Hydrocarbons", and said it has long been known that certain forms of skin cancer are due to occupational causes, such cases being prevalent among workers in the coal-tar and allied industries, in the shale oil industry and among mule spinners in cotton mills. This is due to the action of a common constituent of coal tar, and shale and lubricating oil, the isolation and identification of which was successfully accomplished about three years ago in the research laboratories of the Cancer Hospital, London. A very valuable guide in the difficult task of separating this substance from the other constituents of the mixtures was provided by the fact that these tars and oils having carcinogenic properties are all strongly fluorescent. An investigation of the nature of this fluorescence spectrum directed attention to the benzantracene group of hydrocarbons. Many of these have been prepared artificially in the laboratory, and some have been shown capable of producing cancer in mice. The cancer-producing constituent of coal tar, etc., benzpyrene, belongs to this group. More recently, it has been found possible to bring about the artificial conversion of substances normally present in the human body, namely, cholic and deoxycholic acids, into a hydrocarbon of the benzantracene type, methylcholanthrene, and this was found to be more powerfully cancer-producing than any other substance yet investigated. The chemical changes by which it was obtained are of the type which are well known to occur in the body, and it may be that cancer in man is due to some such substance as a bile acid undergoing decomposition in an abnormal manner, with conversion into cancer-producing substances.

Chemistry in the Universities and Schools

"THE Teaching of Chemistry" was the subject chosen by Prof. Arthur Smithells, director of the Salters' Institute of Industrial Chemistry, for his Harrison Memorial Lecture to the Pharmaceutical Society on November 12. The chief difficulty of the university professor of chemistry lies in dealing with a subject in which the advance has been of unparalleled rapidity and, most recently, in changes on the

theoretical side which have not only led to the acquisition of tracts of new knowledge, but also have affected science at its very base. Prof. Smithells believes that these advances have placed a great burden on the student, and especially on his memory. The reduction and emendation of the curriculum would result in a gain far exceeding in importance any possible loss in its range. Passing to the teaching of chemistry to those whose dominant interest is its application to some particular calling, reference was made to students of medicine as an example. Prof. Smithells himself had placed such students in a course apart, where he had striven, without any intellectual sacrifice, to invest the teaching throughout with facts and illustrations connected with the medical calling. The teaching of chemistry in schools, after a period of rapid growth, became a mere small-scale replica in contents and form of the early chemical course of a university. This teaching led to the revolt, headed by Prof. H. E. Armstrong, who from then to the present day has stood as the great campaigner against all that has seemed unsound in chemical education, wherever it has appeared, but, above all, in its earlier stages. The influence exerted inevitably by the university teacher has been far beyond what is warranted. Relief of the crowded curriculum has been sought by relegating to the schools so much higher work in science that there is a real danger existing of just that kind of over-balance of one kind of subject, as was the case with classics when science first sought admission to the curriculum.

Weights and Balances in Ancient Egypt

At the Friday evening discourse at the Royal Institution on November 8, Prof. S. R. K. Glanville discussed "Weights and Balances in Ancient Egypt". The actual weights recovered from Ancient Egypt divide into eight main standards, derived from a much larger number in very early times. What we have to go back to prehistoric times and show a gradual fusion of the standards, a process which is completed by the seventh century B.C. The balance may be traced from the Old Kingdom, with a possible example of a balance beam from pre-dynastic times. The New Kingdom balance, which lasted at any rate until the Ptolemaic period, was very efficient, and shows a greater accuracy in its design than the small Roman balance which succeeded it. There is evidence of a standard of exchange in ordinary transactions from the Old Kingdom, though whether this standard was a piece of metal, which could be passed between buyer and seller, is questionable at this period. The explanation of the lack of evidence for such mediums of exchange is probably in the nature of the organisation of the country in earliest times as a huge estate owned by the king, and later as a number of big estates controlled by governors and priesthoods, a condition which to some extent exists to-day. These estates being largely self-sufficing, it was possible to conduct their economic affairs without resort to anything approaching currency. There is, however, evidence of the use in the Middle Kingdom of copper pieces, and of a much more frequent use in the New