of the sun—is reached. The light source is 0·5 mm. diam. × 50 mm. long, the pressure 100–200 atmospheres and the power consumption 1,000 watts. An efficiency of 60–70 lumens per watt is obtained. While the life of these lamps is at present only about 100 hours, the red end of the spectrum of the discharge is about ten times as strong as that of an ordinary street-lighting mercury lamp. The colour rendering of the light obtained is thus far more akin to that obtainable by daylight. Even the commercial high-pressure quartz lamp, which will probably be marketed in a few months' time and which works at a pressure of about five atmospheres and a temperature of about 1,000° C., shows a substantial improvement in the red end of the spectrum. Spectrometer demonstrations of the light from these lamps compared with that from tungsten filament lamps are shown.

Universities of the British Empire

FIFTH QUINQUENNIAL CONGRESS

AT the fourth Congress of the Universities of the British Empire in 1931, Sir Donald MacAlister observed that not merely for historical or statistical records, but also for the clear and cogent setting forth of current university problems, and for pertinent and practical suggestions for their solution, it had long been his practice to consult the reports of the Proceedings of these Congresses, and seldom in vain.

The Proceedings of the Fifth Congress, held on July 13–17, 1936 in Cambridge*, in no way fall below the standards established by its predecessors, and suggest that the analysing and Socratic methods of the world's earliest university are alive in the modern world's counterparts of the Academy of Athens. "They say. What say they ? Let them say," is the background of their work and effort—taking toll of the past, working for the present, planning for the future—a readiness to discard the unprofitable, to adapt means to ends and to envisage change.

The Prime Minister in his opening address took his stand on the plane of a lofty idealism which stressed the presence of the spirit of youth, of growth, of vigour, of expansion and of adventure in his own university and the hatred of standardization and mass production—common to all universities ; and pleaded for the production of poets like Wordsworth who might inspire Europe and the world with a sense of unity and freedom.

On other aspects of the problems confronting universities, Mr. Baldwin was no less insistent. Research workers should be freed from the trammels of too much teaching and relieved from financial anxiety. Communal life is by no means the least important part of the training obtained at universities—a view strongly expressed in the latest report of the University Grants Committee. Universities may have to specialize in certain subjects and arrange for an exchange of students in the event of their being unable to provide for complete instruction in any subject—the latter suggestion recently happily adopted by the Universities of Oxford and Cambridge.

It was appropriate that the Chancellor should be followed by the Vice-Chancellor, who discoursed on some problems which confront universities. He, too, referred to undue specialization and its dangers—making mention of the arrangement come to with the University of Oxford in respect of the School of Forestry. He had also much that was pertinent to say about training for citizenship—a subject to the discussion of which Sir Ernest Simon made a valuable contribution in his remarks on general, as an alternative to specialized, honours courses, matriculation standards (a question of vital concern to all educational institutions, schools as well as universities), pass degrees, intensive courses in honours subjects, research, libraries, need for wider exchange and health measures for students.

Following this address, the subject of the provision in Great Britain for post-graduate studies for British and overseas students was introduced by Lord Macmillan, who made an eloquent appeal for the establishment of an institute of legal research. The Vice-Chancellor of the University of London gave a lucid description of what is being done for post-graduate medical education by the British Post-graduate Medical School. Lord Rutherford explained what his department is doing at the Cavendish Laboratory, Cambridge ; and one of his colleagues, Prof. J. A. Ryle, told of the development of research in pure medicine at Cambridge. Lord Nuffield's recent munificent gift to Oxford will enable research to be conducted in other departments of the medical faculty.

The functions of universities in the training of teachers was introduced by Sir T. Percy Nunn. One of the more important and trenchant of his observations was that the universities through their technical departments of education should do more to foster education as a national function. Others spoke on the subject from the point of view of overseas institutions, while the Board of Education, through its chief inspector, suggested certain criticisms of university methods to which full consideration should be given. Among these is the isolation of the teacher's life which, as Prof. Frank Smith of Leeds said, must not constitute what is really a condition of imprisonment.

Dr. H. J. Cody, president of the University of Toronto, delivered an address on the relation of Canadian universities to national life, making particular mention of academic freedom, the importance of the great and inspiring teacher and of physical training.

Two subjects for discussion—careers for university students and physical education in the universities—were, as was appropriate, concerned with the well-being of those for whom university education is provided. Great Britain is happy in that it has not experienced as yet the effects of a surplus of failed aspirants for university degrees or even of 'failed matrics'. A career for the university graduate is not

* Fifth Quinquennial Congress of the Universities of the British Empire, 1936. Report of Proceedings. (Published for the Universities Bureau of the British Empire.) Pp. viii+262. (London : G. Bell and Sons, Ltd., 1936.) 21*s*.

the problem it is in India or in many countries of Europe. More than one warning, however, was uttered that the universities are nearing saturation point, and that a pass degree or one of the hundreds of diplomas conferred by universities may not in the future be the qualification for an appointment which it is to-day. It was even suggested that already some employers place small value on the Ph.D. degree.

That the universities are awake to the problem of ensuring that a university degree is not a dead end is patent from the efforts made by appointments boards such as that at Cambridge to discover men for the work for which they are best adapted. The discussion suggested, however, that many appointments boards are left with the surplus, and do not supply the best men, particularly for posts abroad, for which, though eminently suited, they are deterred from making application by hopes of promotion in the mother country, by home ties, by ease of living and by the decay of the spirit of adventure. The speech of one of the Indian delegates may be read as an indictment of the spinelessness of the youth of Great Britain. Physical training is excellent as a means of creating the *mens sana in corpore sano*, but if it produces little more than brawn and muscle attached to a partially functioning purpose, it is but a play *in vacuo*.

The need for wider interchange of the best products of university training was again and again emphasized. Famous interchanges do occur. The vice-chancellors of Cambridge, of Bristol, of Aberdeen and of Melbourne are instances. That they are not more frequent is not the fault of Great Britain alone. It is understandable that a local candidate for an appointment has a better chance than one who has to rely on academic qualifications, teaching experience and successful research—reported at second hand and based on testimonials supplied by the candidate himself. Unless, however, a sense of responsibility for 'circulating' the abilities available becomes more sincere than it is at present, the outlook is poor. The hope was expressed that an inquiry into the possibility of providing better facilities for interchange might be fruitful.

With those who, while not specialists in the narrow sense pleasing to the pure academician, are capable of undertaking research in industry, in commerce, in agriculture and in Government services under direction and with particular ends in view, possibly the future may lie. This possibility has some relevance to the question of the value of general as an alternative to specialized honours courses, because in spite of the disdain of those who think only in terms of pure scholarship, the graduate who has not pursued his studies in one subject only may find a natural aptitude for research in a subject other than the main subject in which he has taken his degree. In any case, he may be less rigid and more adaptable. This view has recently been reinforced by the president of Princeton University who, in his annual report, uttered the warning that many of the world's vexing problems fall in the interstices between the organized departments of scholarship. It is incumbent upon science and learning to develop an attack upon the 'no man's land' of knowledge and if such an attack is to be successful, universities must strive to surmount departmental boundaries and consciously encourage young men to think comprehensively, and, as a step to this end, to develop new tools of thought with which to reason more broadly.

The volume under review also contains an address by the president of the Board of Education on the relation of secondary schools to the universities, in which he stressed the historical connexions between schools and universities.

The discussion on university examination methods revealed a very wide diversity of opinion, particularly in respect of internal and external examiners. In view of recent criticisms of examination methods, it was perhaps well that it should be proclaimed that no examination of standing was ever conducted in the manner devised by the group which "examined examinations".

Other contents are a paper by Sir Geoffrey Evans on tropical agriculture as a career and a note by Prof. J. Stanley Gardiner on Wicken Fen.

One subject which was not discussed—probably because so far it has not become an acute problem in the British Empire—is the revolt of youth in other countries against university standards of integrity and dispassionate inquiry. Lord Eustace Percy, in a recent address to the London School of Economics, went so far as to suggest that the universities of the world are as a whole losing their position of authority and leadership, and uttered the warning to universities in Great Britain that the danger to fear is a growing impatience with their traditions and practice —a mood of indifference not unmixed with contempt. In a similar vein of thought the Vice-Chancellor of the University of Oxford in his annual review observed: "The belief in dispassionate inquiry and impartial knowledge has many enemies in the world to-day, and perhaps the most alarming fact about the perversion of University standards which we have seen happening elsewhere is that the change seems on the whole to have been welcomed rather than resisted by the younger generation. It looks as though it was going to be harder to hand on to coming generations than it has been in the past the true faith of a University." Perhaps, as the latter further observed, hope for the future is to be found in that in Oxford and Cambridge with their collegiate system and in other universities with the establishment of halls of residence, the members of universities are living or are coming to live together in com munities in which all elements and classes in the country are represented, where, whatever their different views as to the needs of the country and the ways of meeting them, they can share in common standards of learning and scholarship.

The free discussion of problems connected with university affairs such as was the marked feature of the Cambridge Congress may also serve as a corrective of present-day discontents.

Throughout the Congress, which was one of the most successful held, continual references were made to the Universities Bureau of the British Empire—the work it is performing and the possibility of the extension of that work. The Quinquennial Report of the Executive Council reproduced in the Proceedings is a clear indication of the need for the Bureau. Its "Universities Yearbook", its recently published Handbook of Information for Overseas Students on the facilities available at university institutions of Great Britain and Ireland, the number of appointments for overseas institutions which it makes, the scholarships it distributes—among which the most valuable have been those made possible by a grant from the Carnegie Corporation of New York —are in themselves sufficient indication that the Universities Bureau is meeting a want in the university system of the Empire.