life should be interrupted during its earlier years, there is an urgent demand on the part of students for greater facilities of migration. In this brief article we can but give examples of the kind of subjects put down for discussion, but those to which we have referred will suffice to illustrate the thought which has guided the committee in their selection. All the items on the agenda paper are such as will lead to decisions which may issue in practical results.

A congress of this magnitude could not be organised without long and laborious preparation. Two years have elapsed since the Colonies were first consulted. Preliminary conferences were held in Canada and in Australia last summer, and in Delhi just before the Durbar. The subjects proposed for discussion by the several universities of the United Kingdom and of the Empire overseas were considered by the committee early in the autumn. The paper of agenda was drawn up in November. All the universities have sent in returns of information regarding their regulations and customs so far as these are relevant to the subjects to be discussed. Speakers will be in no uncertainty as to matters of fact.

The importance attached to the congress is indicated by the names of those who have promised to take part in it. There are absolutely no gaps in the list. All the Chancellors and Lord Rectors of the home universities are members of the general London committee. The executive committee consists of the Vice-Chancellors. The chairmen of its several sessions will be: Lord Rosebery, Chancellor of London and Glasgow; Lord Curzon, Chancellor of Oxford; Lord Rayleigh, Chancellor of Cambridge; Lord Strathcona, Chancellor of McGill and Aberdeen; Mr. Arthur Balfour, Chancellor of Edinburgh; Lord Haldane, Chancellor of Bristol. We shall take the opportunity of giving the names of invited speakers and readers of papers at a later date. Delegates will be received in the Marble Hall of the University of London by H.R.H. Prince Arthur of Connaught, president of the general London committee, on Tuesday, July 2.

In addition to the delegates and representative members nominated by the various universities, associate members, whose names are approved by the committee, will be admitted on payment of a fee of ros. 6d. They will receive the report, and will be invited to certain entertainments offered to the members of the congress, but will not be entitled to take part in its discussions. Further information can be obtained from the secretary, Dr. Alex. Hill, at the Congress Office, University of London.

THE NATIONAL PHYSICAL LABORATORY.¹

VOL. VIII. of the *Collected Researches of the National Physical Laboratory* maintains the high standard we have learnt to expect in the publications issuing from our national scientific consultants. It is almost impossible to omit mentioning any one of the thirteen memoirs which the volume contains without feeling that an injustice has been done to a research of great interest.

In the standards department Dr. Kaye has constructed a standard meter of silica which by its low coefficient of expansion seems specially adapted for such a purpose. Advantage has been taken of the setting up of the Blythwood dividing engine in the laboratory to secure photographs of the various parts, and these add materially to the interest of the

¹ "Collected Researches of the National Physical Laboratory." Vol. viii. Pp. iv+251. (1912.)

description of the instrument contributed by Mr. Scoble. Every spectroscopist will join with Dr. Glazebrook in the hope that at no very distant date Lord Blythwood's engine will be turning out diffraction gratings free from periodic error.

The research on the alloys of aluminium and zinc carried out by Dr. Rosenhain and Mr. Archbutt under the auspices of the Alloys Committee of the Institution of Mechanical Engineers proves that these alloys are much more complex than has been previously supposed. Mr. Batson's work on the mechanical properties of hard-drawn copper and bronze wires for the Engineering Standards Committee shows that the uniformity obtained in modern manufacture is such that tests on specimens a few inches long agree with those on lengths of 50 ft.

Dr. Stanton breaks new ground in his measurements of the shearing stress in the flow of air through pipes with speeds which render the motion turbulent or eddying, and the frictional resistance at the surface proportional to the square of the velocity.

At the request of the Wiring Rules Committee of the Institution of Electrical Engineers, Messrs. Melsom and Booth have investigated the rise in temperature of electric cables of different sizes and types when transmitting current. They find that the currents allowed by the 1907 wiring rules of the institution give rises of temperature of much less than 20° F. for cables under 0.05 square in. in section and more than 30° F. for 1 square in. cables. According to the tests made by Messrs. Paterson and Kinnes on instruments sent on long railway and road journeys, watt hour meters of the induction type can be relied on to remain constant to within 0.5 per cent. The report by Messrs. Campbell, Booth and Dye on the results of tests of five samples of magnetic sheet iron and steel made in the first place at the laboratory, then at the Reichsanstalt at Charlottenburg and at the Bureau of Standards at Washington, and then again at the laboratory, shows that the methods now in use at the various laboratories give results which are in close agreement.

The methods and apparatus used in testing the flash points of petroleum products have received a thorough investigation at the hands of Dr. Harker and Mr. Higgins, who conclude that the temperature which determines the flash is not that of the bulk of the oil as indicated by the thermometer, but that of the oil and vapour interface which is not measured. It is hoped that the further work on the subject in contemplation will lead to a marked increase in the value of flash-point determinations. The report on the equipment of the Froude national tank by the superintendent, Mr. Baker, shows that it is now in order, and that preliminary runs have been made.

One cannot close the volume without realising how important the work carried out at the laboratory must be for the future of many of our industries. It seems now almost incredible that those industries were without such a national institution until the beginning of the present century. C. H. LEES.

THE ETIOLOGY OF KALA-AZAR.

ON March 27 of this year Captain W. S. Patton, I.M.S., gave a university lecture at the Senate House, Madras, on his investigations into the etiology of kala-azar. His Excellency Lord Carmichael, Chancellor of the University, presided, and there was a large audience of fellows and graduates. Captain Patton first directed attention to the deadly nature of kala-azar, and pointed out that little at present was known regarding the extent of the disease either in Madras or in the Presidency. He