

the necessity of making both logarithms and numerical trigonometry compulsory for the university matriculation, because the work of the intermediate classes in the universities was being seriously hampered by the lack of such knowledge on the part of a large number of the students. Prof. Whittaker gave a most interesting paper on "Some Mathematical Problems awaiting Solution," which suggested themselves chiefly in computative work, such as the question of the convergence of certain approximative processes in the case of a large number of simultaneous equations. Mr. R. C. Fawdry opened a discussion on the teaching of mechanics to beginners, and said that, after many years' experience, he still could not decide whether to teach statics or dynamics first. A vigorous protest was entered by Dr. S. Brodetsky, Prof. W. P. Milne, and Mr. A. W. Siddons against the practice that had just arisen of teaching "pure mathematics" in the new advanced courses in secondary schools, thereby promoting undue specialisation at a young age and losing entirely the outlook which a combined course of pure and applied mathematics can supply.

The meetings were extremely well attended and very enthusiastic.

WILLIAM P. MILNE.

INDUSTRIAL RESEARCH ASSOCIATIONS.

THE Department of Scientific and Industrial Research has just issued the following list of research associations which have been approved by the Department as complying with the conditions laid down in the Government scheme for the encouragement of industrial research, and have received licences from the Board of Trade under section 20 of the Companies (Consolidation) Act of 1908:—

British Boot, Shoe, and Allied Trades Research Association, Technical School, Abington Square, Northampton. *Secretary*: Mr. John Blakeman.

British Cotton Industry Research Association, 108 Deansgate, Manchester. *Secretary*: Miss B. Thomas.

British Empire Sugar Research Association, Evelyn House, 62 Oxford Street, London, W.1. *Secretary*: Mr. W. H. Giffard.

British Iron Manufacturers Research Association, Atlantic Chambers, Brazennose Street, Manchester. *Secretary*: Mr. H. S. Knowles.

British Motor and Allied Manufacturers Research Association, 39 St. James's Street, London, S.W.1. *Secretary*: Mr. Horace Wyatt.

British Photographic Research Association, Sicilian House, Southampton Row, London, W.C.1. *Secretary*: Mr. Arthur C. Brookes.

British Portland Cement Research Association, 6 Lloyd's Avenue, London, E.C.3. *Secretary*: Mr. S. G. S. Panisset.

British Research Association for the Woollen and Worsted Industries, Bond Place Chambers, Leeds. *Secretary*: Mr. Arnold Frobisher.

British Scientific Instrument Research Association, 26 Russell Square, W.C.1. *Secretary*: Mr. J. W. Williamson.

British Rubber and Tyre Manufacturers Research Association, c/o Messrs. W. B. Peat and Co., 11 Ironmonger Lane, E.C.2.

The Linen Industry Research Association, 2 Bedford Street, Belfast. *Secretary*: Miss M. K. E. Allen.

Glass Research Association, 7 Seamore Place, W.1. *Secretary*: Mr. E. Quine.

British Cocoa, Chocolate, Sugar Confectionery, and Jam Trades Research Association, 9 Queen Street Place, E.C.4. *Secretary*: Mr. R. M. Leonard.

NO. 2621, VOL. 104]

Schemes for the establishment of research associations in the following industries have reached an advanced state of development:—

Research Associations Approved by the Department but not yet Licensed by the Board of Trade.—British Music Industries Research Association, British Refractory Materials Research Association, British Non-Ferrous Metals Research Association, and Scottish Shale Oil Research Association.

Proposed Research Associations the Memorandum and Articles of Association of which are under Consideration.—British Launderers Research Association, British Electrical and Allied Industries Research Association, and British Aircraft Research Association.

Industrial Organisations Engaged in Preparing Memorandum and Articles of Association.—Silk Manufacturers, Leather Trades, and Master Bakers and Confectioners.

In addition to the industries included above, certain others are engaged in the preliminary consideration of schemes for forming research associations.

THE ORGANISATION OF IMPERIAL STATISTICS.¹

POINTING out that it was almost emphasising the obvious to say that any great nation should be thoroughly informed as to its numerical, its social, and its economic drift, the author directed attention to the fact that this had been recently recognised in a petition to his Majesty's Government so late as November 1 last. It was also emphasised by the calling together of a Conference of the Statisticians of the Empire, under the ægis of the British Government. In view of the position of the British Empire in world affairs, it was but little short of amazing that an Imperial Bureau of Census and Statistics was not long ago established. A bureau, to be really Imperial, must recognise the community of interest of all parts of the Empire. It was not something to be created mainly for the purposes of the United Kingdom, but something which would meet equally well the purposes of each part of the Empire. For this reason the needs of the autonomous Dominions must be quite as carefully considered as those of the United Kingdom itself, and it was implied in the paper that any part of the Empire which could not at present meet the common requirements of the whole must be prepared to do so. The interest would be general only in so far as it was Imperial.

In order to overcome departmental frictions and to secure the sympathy and co-operation of all public departments, it was suggested that a Central Statistical Commission should be created, the president of which would, of course, be the Director of the Bureau of Statistics. Such a Commission would be a body of expert advisers, and could make its departments helpful. The scope of an Imperial Statistical Bureau, both as to administrative procedure and as to subject-matter to be dealt with, was outlined, as was also the question of compilation and publication.

To attempt to organise an Imperial Bureau of Statistics with a small and humbly qualified staff would foredoom it to failure, said the author. In its higher professional section it must necessarily have experts in statistical theory, in the technique of the collection and compilation of statistical data, in pure and applied mathematics, in the languages which are important in the statistical field, in statistical editor-

¹ Abstract of a Paper presented to the Royal Statistical Society on Tuesday, January 20, by G. H. Knibbs, Statistician of the Commonwealth of Australia.