

This we have already been promised, and while the conditions of test and the limits permissible are settled after consultation with the manufacturers, the enforcement of those conditions and the power to refuse the licence rest with an independent body. Such a plan, it seems to me, is far preferable to the alternative under which an association of the manufacturers would run its own testing laboratory.

A similar scheme is clearly applicable to other industries. For engineering work the standards of the Engineering Standards Committee are mostly adopted. The laboratory holds the standard screw gauges of the committee as well as the rail templates and other similar standards. Some organisation whereby standards employed locally for testing purposes are controlled by the laboratory and kept in close correspondence with those at Teddington ought not to be difficult to devise, and would secure much of what is needed, though with screw gauges at present identity of the method of testing rather than of the standard of comparison is what is difficult to secure.

Or, again, with electrical instruments, supply meters, ammeters, voltmeters, and the like can be, and are, sent to the laboratory, and where high accuracy is required this must be done. Very large sums depend now on the measurement of the energy supplied from central stations to big works, tramway systems, collieries, and other large installations, and very high accuracy is needed. This, too, is true in the case of acceptance tests of large machinery. The necessary accuracy can be obtained only in a properly equipped laboratory, and, indeed, in the case of meters, an individual test is always necessary, but where the type has been tested and approved the individual tests could be carried out by inspectors at the works, or at some convenient local institution. And there are many pieces of apparatus and small plant which could be dealt with in a similar manner to the chemical glassware.

The Engineering Standards Committee has specified the performance tests for motors and dynamos requisite before the term "British standard" can be applied to them. It is clearly impossible to expect that every small motor should have been put through these tests. It would be quite simple to arrange that some limited number of the type were tested out at the National Physical Laboratory, that steps were taken, by inspection and occasional tests, to secure that in subsequent production the same standard was attained; and, so long as this was done, to license the manufacturer to put the E.S.C. mark on his machine, and call it a "British standard machine."

The process can be extended to other electrical products; it has already been suggested for lamps, and four years ago I had good hopes that some action of the kind would be taken—1914 stopped it for the time. I would urge that now is the time to develop a scheme of the kind so that we may be ready when once more peace reigns on earth among men of good will.

The scheme is a large one, one that as director I cannot hope to see fully developed. It is enough perhaps for me to have indicated how the laboratory may grow, both as a National Research Laboratory and as a National Proving House and Standardising Laboratory.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

MISS PHYLLIS M. BORTHWICK, lecturer in physics at the Ladies' College, Cheltenham, has been appointed assistant-professor of physics and chemistry at the Lady Hardinge Medical College for Women, Delhi.

ON the first Saturday of each month from May to October, at 3.30 p.m., free public demonstrations on

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practical bee-keeping will be given in the Horniman Gardens or the Museum, Forest Hill, S.E., by Mr. W. H. Prior, of the Kent and British Bee-keepers' Associations.

M. PAUL OTLET's article in the *Revue générale des Sciences* for February last on "The Future of the International Catalogue of Scientific Literature" contains a short account of the foundation of the catalogue and some proposals for its future development. The vast experience which M. Otlet has acquired at the International Institute of Bibliography at Brussels entitles his opinion on such a subject to respect. It is, however, difficult to reconcile his statement that "before the war the German Government had decided to withdraw from the International Catalogue" with the fact that at the meeting of the International Council of the catalogue held in London on June 11 and 12, 1914, about six weeks before the war broke out, the representative of the German Government, Dr. Uhlworm, proposed the resolution:—"That the International Catalogue of Scientific Literature shall be continued during the years 1916-20," which was adopted by the council. M. Otlet would like to see the International Catalogue extended to include technology, industrial sciences, medicine, agriculture, social sciences, philology, literature, the fine arts, history, geography, philosophy, and religion. In view of such extension he thinks the work of the regional bureaux in the various co-operating countries should no longer be controlled by scientific societies, but undertaken by the authorities of the National Library in each country. M. Otlet suggests that in view of the continual increase in the number of scientific journals, authors should agree not to publish original papers in any periodical that was not included in a list drawn up by mutual agreement. In order that subscribers to the catalogue may be in possession of the latest information, M. Otlet recommends that the index-cards received at the Central Bureau should be printed and issued at once. As each volume appeared, the cards corresponding with that volume would be destroyed by the subscribers, who need keep only such cards as had not yet been published in a volume.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, March 21.—Sir J. J. Thomson, president, in the chair.—Dr. C. Chree: The magnetic storm of December 16-17, 1917, as recorded at Kew and Eskdalemuir Observatories. The magnetic storm of December 16-17, 1917, was of very considerable though not outstanding magnitude. It commenced between 8h. and 9h. on December 16, and had not wholly subsided before the afternoon of the following day. Attention is directed in the paper to the curves for the twenty-four hours commencing at 8h. on December 16. The most active period of disturbance was between 15h. (3 p.m.) on December 16 and 4h. on December 17. A prominent feature in the curves was a succession of oscillations of periods averaging about twenty minutes. There were also, especially at Eskdalemuir, some very large short-period oscillations. The paper compares the oscillations recorded at the two observatories, and gives estimates of the rate of change of the magnetic elements during the most rapid movements. The amplitude and rapidity of the changes proved to be much greater at the more northern station.—E. A. Owen: The absorption of X-rays. (1) The absorption coefficients of a number of substances for a radiation of wave-length 0.586×10^{-8} cm. (the α -line of palladium) have been determined, and the values