

CHEMICAL TESTS AND STANDARDS.

AS is well known, the Bureau of Standards of the U.S. Department of Commerce¹ issues from time to time circulars and technological or scientific papers upon various matters which have come before it for investigation. Among a budget of these publications received recently are papers dealing with the questions indicated below.

In Technologic Paper No. 31, Mr. E. T. Montgomery describes experiments made with "Some leadless borosilicate glazes maturing at about 1100° C." In ceramic practice glazes containing lead have certain advantages, but are often potentially poisonous. The object of the experiments was to make a general comparison between lead glazes and leadless glazes for white ware and china at a firing temperature of about 1100° to 1120° C. Seger's work on leadless glazes was taken as the basis. The author concludes that both kinds have special faults and special virtues, but it is not likely that any leadless glaze will be found "which will exactly duplicate the many excellent properties" of glaze containing lead as an ingredient.

Paper No. 33 describes a method of determining the carbonic acid, obtained from the combustion of carbon in iron, by converting it into barium carbonate and titrating this salt. This avoids certain errors to which the use of potash bulbs or soda-lime tubes for weighing the carbonic acid is liable. The principle of the process is well known; the point of the paper lies in the details given for obtaining accurate and fairly rapid results.

In Paper No. 35 Mr. L. G. Wesson explains a "combustion method for the direct determination of rubber." It consists in converting the rubber into a nitrosite, which is then dissolved out with acetone, and a combustion analysis made upon an aliquot part of the solution after expulsion of the solvent. The process promises to be a useful one.

The "Scientific Paper" (No. 221) is a discussion of the "influence of atmospheric conditions in the testing of sugar." During the operations of clarifying and filtering solutions of sugar for polarimetric examination, the liquids, if not kept covered, lose water by evaporation. The concentration of the sugar is thus increased, and the polarisation-value rendered too high. The magnitude of this effect, and the conditions modifying it, have been investigated by the authors of the paper. By keeping the liquids covered during the operations practically all increase in the polarisation-value may be prevented.

Of the "Circulars" in question one (No. 16) is a small pamphlet which describes the testing of hydrometers as carried out by the Bureau of Standards, and gives instructions with a view of promoting uniformity in the construction and verification of these instruments. The other (No. 44, "Polarimetry") treats of the principles which underlie the construction and use of the polariscope and the analysis of sugars. It is written from the point of view of the standards department, and deals at some length with the different systems, scales, and sources of illumination employed in modern polarimetry. This publication is distinctly of value both to polariscope makers and to sugar analysts.

WAR AND THE RACE.

THE Manchester Statistical Society has printed an eloquent address by Dr. C. W. Saleeby, "The Longest Price of War." The thesis is the old, but politically ignored, result of war in "reversed selection." Quoting Michelet's epi-

¹ Bureau of Standards. Technologic Papers, Nos. 31, 33, 35; Scientific Paper No. 221; Circulars Nos. 16, 44.

gram that the campaigns of Napoleon lopped a cubit from the stature of the French, and Prof. J. A. Thomson's observation that not even the discoveries of Pasteur could restore the physique which the victories of Napoleon's armies had destroyed, Dr. Saleeby notes the small size of the present-day French soldier, as remarked by many observers. To-day, for our own forces, "the brave, the vigorous, the healthy, the patriotic are taken, and the others left. . . . The rejected recruits recruit the race." The whole question is one which statisticians should investigate in special reference to the present war. Dr. Starr Jordan's study, "The Human Harvest," and the late J. Novikow's "Darwinisme Sociale," are the best of a meagre list of popular expositions of the thesis, of which the decay of the Roman Empire is the classic type. Speeck estimated that of every hundred thousand Romans, eighty thousand were slain. "Vir" thus gave place to "homo"; "the Roman Empire perished," says Seeley, "for want of men."

No scientific mind wishes to eulogise war, in the German fashion, which depends for its argument on the primitive athletic form of war, whereas war of to-day is simply peace riddled with casualties. Darwin's famous sentences refer only to a more or less imaginary conscript army in a country which is always at war—"in every country in which a large standing army is kept up, the finest young men are taken by the conscription or are enlisted. They are thus exposed to early death during war, are often tempted into vice, and are prevented from marrying during the prime of life. On the other hand, the shorter and feebler men, with poor constitutions, are left at home, and consequently have a much better chance of marrying and propagating their kind." It seems a fairly obvious inference that the dysgenic results of modern warfare remain to be proved. The deliberate sacrifice of life by exploiting the mass-formation is a special case needing investigation. The whole subject calls for investigation; until this is carried out, nothing is at all clear either for or against the biological effects of war.

STANDARDISATION OF ELECTROTECHNICAL SYMBOLS.

THE International Electrotechnical Commission has recently issued its report (Publication 27¹) upon international symbols in electrotechnics. In the preface to the report, it is pointed out that the subject of international agreement in regard to symbols employed in electrotechnics was first brought before the International Electrotechnical Commission at its meeting in London in 1908. In Brussels, in 1910, a few general rules, together with a certain number of symbols, were adopted for circulation to the various national committees. The question of international agreement in regard to the symbols for the algebraic representation of Ohm's law was briefly mentioned, with the result that the following year, at Cologne, certain definite proposals were made by Dr. E. Budde, president of the German committee, which culminated in international agreement being reached in this important matter at the plenary meeting of the commission held in Turin in September, 1911. At the latter meeting a number of other proposals were provisionally adopted, and a special committee was instituted to continue the work and draw up further proposals to be placed before the national committees for their consideration. At the plenary meeting of the Commission held in September, 1913, at which twenty-

¹ London: Published for the Commission by Waterlow and Sons, Ltd., and to be obtained from the General Secretary, 28 Victoria Street, Westminster, S.W. Price 2s. 1d. post free.