

and dependencies and all foreign countries that grant patents. Of special interest to its readers will be the accessory information, such as the dates of the various patent laws digested and the populations concerned, which are systematically given. We miss from this what was very useful information in the earlier editions of the book, that is to say, notes of the patent office fees in the various countries.

There is one point of very general interest in respect of which Mr. Thompson has made himself the mouthpiece of a curiously mistaken notion about the British Patent Office. On page 19, speaking of the renewal fees payable under British patents, he says:—"The Board of Trade has power to reduce these taxes, which are much too high and bring large profit to the Treasury." The fact is that the Patent Office, although at present safely paying its way, can hardly be regarded as a revenue producing department at all. The Comptroller General's report for the year 1919 shows a total income from all sources, including profit on the sales of specifications, etc., of £104,474, whilst the expenses of running the establishment were £350,150, showing a profit income of £54,324, which is no more than would be expected to be realised on a commercial venture of corresponding magnitude. No doubt there are risks attending ordinary commercial enterprises from which the business of conducting the Patent Office is free, and the 12 per cent. profit balance may be looked upon as a tax charged upon patentees; but it certainly is a very moderate tax and, having regard to the fact that no patentee pays it unless it is worth his while to do so, the complaint in these days of inevitably high taxation is a little unworthy.

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THE VOLATILE OILS. By E. GILDEMEISTER and FR. HOFFMANN. Second Edition by E. GILDEMEISTER. Authorised translation by EDWARD KREMERS. Second Volume. Pp. xx.+636. (London: Longmans, Green and Co., 1920.) Price 32s. net.

Gildemeister and Hoffmann's work on "Essential Oils" is so well known as to need no recommendation from reviewers. The present volume, however, comes into existence under very unfortunate circumstances. Written mainly in 1912 in German, it was published in Germany in 1913. It appears to have been translated between 1913 and 1916 by Dr. Kremers, printed in 1916, and published in 1920. The translator has allowed himself to translate Dr. Gildemeister's preface, dated "Miltitz, near Leipzig, June, 1913," as "Miltitz, near Leipzig, June, 1916," which we think should not have been done, as no attempt has been made either by author or translator to bring the work beyond the original date of 1913.

The present volume follows the plan of Volume I., the essential oils being enumerated in the order of Engler's "Syllabus der Pflanzen-familien," and the oils dealt with are those up to and including those of the *Zygophyllaceae* and some of those of the *Rutaceae*.

If this work were being reviewed in 1913, the reviewer's task would be an easy one, and nothing but praise and commendation could be accorded to it. Unfortunately it is 1920, and the book is so considerably out of date that we think it a pity that it should not have at least been brought up to the latest date possible by the translator. The reason for this serious shortcoming is obvious, but none the less, although every chemist interested in essential oils will welcome the book, the work done between 1913 and 1920 in this field is so great that the book loses very much of its utility.

To illustrate this, attention may be called to a few only of the more important omissions as types of those occurring throughout the volume.

Under the various cedar-wood oils no account is to be found of the work of Roberts on the oil of *Cedrus deodara* (1916), and the interesting researches of Schimmel and Co. on the ketone contained therein (1917). The latest work on cryptomeria oil dealt with is that of Kimura (*cf. Berichte*, 1909, p. 372); but in 1916 So Uchida discovered a crystalline diterpene in the oil, and published interesting details of the odorous alcohol present in the oil. The latest work on the chamæcyparis oils is dated 1910, so that Schorger's work (1914) and Uchida's (1916) are not mentioned. Still, keeping to the *Pinaceae*, we find no references to Parry's work on "Russian Oil of Turpentine," which was published in 1912, nor, of course, to the exhaustive reports on the various turpentine and wood-turpentine oils of the different pines in the United States made by Schorger and Adams in 1915.

Turning to the oils of the *Gramineae*, we are pleased to notice that at last we have a definite agreement that "the quality of citronella oil is best ascertained by the quantitative determination of the acetylisable constituents." Those who have perused Messrs. Schimmel's reports for the past ten years will remember how strenuously certain British analysts insisted upon this for years, and how vigorously Messrs. Schimmel and Co. opposed it. It is, however, regrettable that the acetylation is directed to be carried out with equal volumes of the oil and acetic anhydride. This will always give too low results, especially with oils of the Java type, and 10 c.c. of the oil should be treated with 15 c.c. of acetic anhydride. The data concerning ginger oil are, from the cause indicated above, quite out of date, as Brooks in 1916 identified in it the following substances:—methylheptenone, nonyl, aldehyde, linalol, and zingiberol.

A few words only are devoted to the important oils of False Cubebs. This subject was exhaustively dealt with by Oranje in 1914, and any account must necessarily be quite incomplete without reference to this work. Equally true is it that Rabak's interesting work on "Oil of Hops" (1914) is unnoticed; the oil of *Cinnamomum Oliveri* is dealt with on the basis of Baker's work of 1897, which has been superseded and partially contradicted by that of Hargreaves in 1916; oil of massoy bark is stated to contain safrol, Messrs. Schimmel and Co. being the authority; whereas in 1917 the same authority stated that safrol could not be detected. The above are merely a few examples of the inevitable result of publishing in 1920 a work written in 1913 on a rapidly moving branch of chemistry. Due allowance having been made for this circumstance, and judging the book as in 1913, one may accurately describe it as being particularly free from errors of any kind.

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PUBLICATIONS RECEIVED.

ORGANIC MEDICINAL CHEMICALS. By M. BARROWCLIFF and F. H. CARR. *Industrial Chemistry Series*, edited by S. RIDEAL. Pp. 331. (London: Ballière, Tindall and Cox. 1920.) Price 15s.

INDIA-RUBBER GOODS MANUFACTURE. By "FACTORY MANAGER." Pp. 496. (London: Maclaren and Sons, Ltd. 1920.) Price 32s. 6d.

A TEXT BOOK OF CHEMICAL ENGINEERING. By E. HART. Pp. 211. (Easton, Pa.: The Chemical Publishing Co.; London: Williams and Norgate. 1920.) Price \$4.

THE ANALYST'S LABORATORY COMPANION. By A. E. JOHNSON. Fifth edition. Pp. 176. (London: J. and A. Churchill. 1920.) Price 10s. 6d.