

contain, in addition to the above-mentioned substances, exceedingly small amounts of methyl and ethyl alcohols and also a small amount of furfural. Inasmuch as the last compound is doubtless produced by chemical changes in the material during its distillation, it can not be regarded as one of the odorous constituents of the apple.

4. The essential oil, as extracted by means of ether from a concentrated distillate of either ordinary apple parings or those of the crab apple, is at ordinary temperatures a yellowish, somewhat viscid liquid, becoming much darker on keeping. When slightly cooled it forms a concrete mass, due to the separation of small acicular crystals, which consist of a paraffin hydrocarbon. It possesses in a high degree the characteristic, fragrant odor of fresh apples. Besides the esters mentioned, it has been found to contain, by specific tests, small amounts of acetaldehyde and furfural. The yield of oil from the parings of the Ben Davis apple was 0.0035%, and that from the more odorous crab apple 0.0043%, which corresponds to about 0.0007 and 0.0013% respectively of the entire ripe fruit.

5. Although amyl valerate is generally designated in chemical literature as "apple oil," it is quite certain that this compound has never been identified as a constituent of apples, and in the course of this investigation no evidence could be obtained of its presence. On the other hand it has been shown that the characteristic, fragrant odor of ripe apples is due to a mixture of the previously enumerated substances, which may exist in varying proportions in the numerous varieties of the fruit, thus giving rise to slight differences of odor.

WASHINGTON, D. C.

NEW BOOKS.

Practical Physiological Chemistry. A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. 6th edition, revised and enlarged. By PHILIP B. HAWK, M.S., PH.D., Prof. of Physiological Chemistry and Toxicology in the Jefferson Medical College of Philadelphia. P. Blakiston's Son & Co., Philadelphia, 1918. xiv + 661 pp., 185 figs. and 6 plates. 16 × 24 cm. \$3.50 net.

Despite the fact that the general plan of this book was adversely criticized when it first appeared more than 10 years ago, it has probably found more widespread use as a laboratory manual and text of physiological chemistry than any other book. The reason for this is not hard to find. Although this book contains more exercises and quantitative methods than it would be possible to utilize in an extended course in physiological chemistry, it allows the instructor such a wide choice in the selection of the exercises he might desire to employ as to fit almost any need. As a handbook of quantitative methods in physiological and pathological chemistry the book is most valuable, since nearly all the methods which the laboratory worker has occasion to use may be found in this handy

volume. The frequent editions have kept these quantitative procedures thoroughly up to date.

The present edition contains a new chapter on acidosis which gives an excellent presentation of current views and methods on this subject. The discussion on gastric analysis is likewise most excellent, particularly of the fractional methods of analysis developed in Hawk's own laboratory. Considering the fact that the tube developed for use in fractional gastric analysis is a modification of a tube originally employed for securing duodenal contents, it is to be regretted that no mention is made of this latter fluid. The book also contains a very good chapter dealing with the comparatively recent subject of chemical blood analysis, although this is not quite as authoritative as the chapter on gastric analysis.

The printing of the more important laboratory procedures in bold faced type, as in the previous edition, is a great advantage to the laboratory worker. The book is well printed and is comparatively free from typographical errors.

VICTOR C. MYERS.

A Glossary of the Mining and Mineral Industry. By ALBERT H. FAY, Mining Engineer. Published as Bulletin 95 of the Bureau of Mines, U. S. Department of the Interior, 1920. Supplied by the Superintendent of Documents, Government Printing Office, Washington, D. C. Pp. 754. 15 X 23 cm. Paper covers. \$0.75.

This Bulletin is a very successful attempt to supply a comparatively complete glossary of scientific, technical and popular words and phrases used in mining and the mineral industries, and, less completely in such allied fields as coking, quarrying, oil, geology, chemistry, ceramics, glass making, building construction and power plants. The number of terms listed is stated to be 30,000 and the definitions 20,000. It contains in addition to terms in the English language used in limited localities, "over 2,000 Latin-American mining terms" and many obsolete words and phrases.

It is distinctly a popular dictionary. All extraneous information is, as a rule, carefully eliminated, and highly technical explanations are rigorously avoided, as can be seen by the following typical examples.

Air jig. An apparatus for separating ores without water, by intermittent puffs of air. (Lawver.)

Cinta. 1. (Sp.) A surveyor's tape. 2. (Mex.) A layer or band of mineral in a vein. 3. (Colom.) Pay dirt in placers. (Halse.)

Lid. 1. (Eng.) A flat piece of wood placed between the end of a prop or stempel and the rock. (Raymond.) 2. (Forest of Dean.) The roof of an ironstone working. (Gresley.) 3. (Scot.) The cover or flap of a valve. (Barrowman.) 4. A cross-beam on an upright prop. (Standard.)

Porcelain Lace. A decorative material formed by soaking lace in porcelain slip and firing it. The threads of the fabric are consumed, leaving the pattern in a fine lace-like porcelainware. (Standard.)

Nitrite. A salt of nitrous acid. (Standard.)

The language of the definitions is simple and colloquial enough to

be understood by the elementary student and the untrained worker, and exact enough to be valuable to the superintendent and the engineer. Very frequently the origin of a term is indicated, information which should be invaluable to lexicographers and etymologists of the future. It is particularly interesting to note the variety of terms which are not popularly used in the United States. Vocabularies in use in the British Isles, Australia, South Africa, and India are fully represented.

About 140 books, journals, reports, glossaries and other sources of information are cited as references, and modern great dictionaries have been freely quoted. As a rule each definition is preceded by the locality in which the word originated, where this is known and useful, and followed by a reference to the authority, in choosing which the compiler has exercised all necessary judgment. A strict alphabetical arrangement has been followed. There is an avoidance of unnecessary cross-referencing which is wholly praiseworthy.

The only adverse criticism to the book which perhaps should be made has to do with its completeness. It is undoubtedly almost impossible, humanly speaking, to produce a work of this kind which shall include all of the terms ever used in the language and literature relating to a chosen field, and every compiler must draw an arbitrary line between the pertinent terms which he must include and the irrelevant words which should be omitted. But it seems to the reviewer that in this glossary some subjects have been unwisely slighted. A rather obvious example is that of metallurgy. To test the matter, about 55 terms were picked entirely at random from 3 standard text-books on metallurgy. These terms were then looked up in the glossary, when it was found that 30 of the 55 were not defined. These 30 terms, however, included a number relating to metallography, a subject which might perhaps be assumed to be outside of the scope of the Glossary, although it would seem that this subject is as closely related to the mining industries as is pottery, for example,

The chemistry of some of the definitions is not wholly satisfying, as for example,

Oxidation. A chemical union with oxygen, (Raymond);
and

Mass Action. Chemical action as affected by the masses of the reacting substances. (Webster.)

Water is not defined as a chemical substance.

In general the paper, printing and typography are what one usually finds in a Government publication. The wisdom of issuing a volume of 750 pages of thin paper with only a paper cover seems doubtful. A better binding should at least be available for those who might desire it. There are few typographical errors, and most of these are of such a nature as to be entirely obvious.

WILLIS A. BOUGHTON.