

stories as chemical labels. Only by realizing all of these matters does a student see the meaning of the *tenths of a per cent.* The electrical way of making organic combustions seems worthy of general adoption.

This shows the spirit of the book. With the good points, however, some mistakes ought to be pointed out. There is no distinction between work and energy, so the watt is wrongly defined; it measures the rate of consumption or production of energy, *i. e.*, it is a joule per second. It should be stated that Thomson's rule gives only an approximate decomposition value (p. 494). On p. 24, if the weights of a set have been calibrated with one another as they should be, it is *not* necessary to consider the different densities of the small platinum and large brass weights, to reduce to vacuum, for the difference in buoyancy is automatically eliminated by the calibration. Silver chloride can be better washed by decantation than by rinsing it after it is on the Gooch filter. In electro-analysis no mention is made of the enormous saving of time effected by a rotating anode. A mercurous salt is better than ferric chloride for purifying mercury and of course its mercury is regained as pure substance. Nine significant figures for an oxygen equivalent on p. 456 look bad. Atomic weights should be on the oxygen basis.

Of course this work makes no attempt to supplant a great many special treatises. On the whole, teachers ought to find this a suggestive book, and students could profit much by owning it.

ROGER C. WELLS.

CHEMISCHE-TECHNISCHE UNTERSUCHUNGSMETHODEN, HERAUSGEGEBEN VON DR. GEORG LUNGE. Vol. III, with 119 cuts and 3 plates. 8vo. pp. xxvii+1305+44. Fifth completely revised and enlarged edition. 1905. Berlin: Julius Springer. Price, 28.50 marks.

This work is so universally and favorably known that the reviewer deems it best to show wherein it differs from the preceding edition.

The chapters on Oils, Fats and Waxes and Special Methods in the Oil and Fat Industry by Lewkowitsch*, Manchester, on Rubber and Rubber Goods by Frank and Marckwald of Berlin, and on Beer by Prof. Lintner, Munich, are new, these writers contributing for the first time to the treatise.

Other subjects and authors are as follows: Mineral Oils and Lubricants,* Prof. Holde, Berlin; Drugs, Resins, Balsams and

Gums,* Dr. Dieterich, Helfenberg; Essential Oils,* Dr. Gilde-meister, Leipzig; The Sugar Industry,* Prof. E. von Lippmann, Halle; Starch, Prof. von Eckenbrecker, Berlin; Alcohol, Dr. Ebertz, Hohenheim; Brandy, Liquors and Vinegar, Dr. Schüle, Strassburg; Wine, Prof. Windisch, Hohenheim; Tannin, Etc., Dr. Councler, Münden; Leather,* Dr. Paessler, Freiberg; Paper,* Prof. Herzberg, Berlin; Inks,* Director Schluttig, Dresden; Organic Preparations, Dr. Messner with Merck in Darmstadt; Citric and Tartaric Acids, Dr. Rasch, Berlin; Organic Dyestuffs, Textiles and Printing, Prof. Gnehm, Zürich.

Many of these writers, notably those starred, have written monographs upon their respective subjects and are among the highest authorities in their specialties. The volume has been increased by about 20 per cent. over the fourth edition and represents the very latest and best work upon those subjects.

While it may be of advantage in some cases to have books unbound (geheftet) yet the writer feels, particularly in books which are sent for review, that these at least should be bound, so that they may be inspected at once without requiring the trouble either of cutting leaves or binding. A. H. GILL.

UNTERSUCHUNG DER MINERALÖLE UND FETTE SOWIE DER IHNEN VERWANDTEN STOFFE, MIT BESONDERER BERÜCKSICHTIGUNG DER SCHMIERMITTEL. BY DR. D. HOLDE, Professor, Director of the Royal Testing Station at Grosse Lichterfelde and Docent at the Technical High School, Berlin. Second edition, 8vo. pp. 408 with 99 figures. 1905. Berlin: Julius Springer.

The present edition represents about double the material contained in the former one, the increase relating not so much to the mineral oils as to the allied subject of lubricants.

The work is divided into four parts: 1, Petroleum; 2, Tars and Pitches; 3, Saponifiable Fats and Waxes; 4, Technical Products from Fats and Waxes. An excellent feature of the book is the fact that all the methods described have been tested under the supervision of the author, some of them being original.

The part relating to petroleum constitutes rather more than half of the volume; the subjects considered are, crude petroleum, its testing and evaluation particularly on a semi-industrial scale with a metal retort rather than a glass boiling flask. A full discussion follows of the tests applied to benzines, kerosenes, gas and lubricating oils; fuel, cleaning, and "water-soluble" oils; vaseline and