hypotheses that fail to explain so many facts or to conform with so many basic principles are no more entitled to acceptance than folk tales.

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CORRECTION: In the short paper by Heston and Schneiderman that appeared on page 109, SCIENCE, January 30, there is an error at about the middle of column 2. The chemical name for the mustard oil should be "allyl iso-thiocyanate" and not "ethyl iso-thicyanate," as printed. This is our error.

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Book Reviews

The Yeasts: A Taxonomic Study. J. Lodder and N. J. W. Kreger-Van Rij. Amsterdam: North-Holland Pub.; New York: Interscience, 1952. 713 pp. Illus. $19.80.

This single volume of 713 pages is a condensed and revised translation of three earlier volumes: *Die sporogenen Hefen* (1931), *Die anaskosporogen Hefen,* I Hälfte (1934), and *Die anaskosporogen Hefen,* II Hälfte (1942). It also includes the family of Sporobolomycetaceae, which was not covered in the previous editions. Examinations are reported on 1317 strains of yeast.

There are seven chapters in the book and an author and culture name index. A short introductory chapter defines the term "yeasts" and outlines the scope and intent of the book. Chapter II describes 6 morphological and 12 physiological properties that are applied in the classification. Additional properties not previously considered are the formation and shape of the ballistospores and sugar assimilation. There is an interesting discussion of why additional physiological properties, like the assimilation of certain carbon, nitrogen, and sulfur compounds, as well as the vitamin requirements of yeasts, applied by various investigators, were not used.

Chapter III surveys the different types of variation that may occur in yeasts and discusses their significance in relation to taxonomy. Chapter IV has the main line of the classification under the ascosporogenous yeasts, family Endomycetaceae, the yeasts producing ballistospores, family Sporobolomycetaceae, and the asporogenous yeasts, family Cryptococcaceae. The last three chapters discuss the species, and each has a key to the various genera belonging to the three families.

This book on the taxonomy of yeasts is a very thorough study and a most significant accomplishment. It would appear, however, that more physiological properties need to be considered in order to clear up the confusion that now exists, especially at the species level. The names of many yeast species are listed as synonymous. The authors record 67 strains of yeast belonging to the single *cerevisiae* species and 53 strains belonging to its *ellipsoideus* variety. The latter differentiation is based solely on a slightly greater ratio between the length and width of the cells. A single example will suffice to show that these yeasts are not all synonymous but can be differentiated further in some cases. The well-known *cerevisiae* strains Rasse M and Rasse II have similar growth factor requirements but are different in their assimilation of sulfur compounds, whereas the strain Rasse XII is different from both these strains in its growth factor pattern.

This book is highly recommended not only for those mainly concerned with the identification of yeasts but for anyone interested in the ever-expanding and important study of this single-celled organism.

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Livestock Health Encyclopedia. The control of diseases and parasites in cattle, sheep and goats, swine, horses and mules. Rudolph Seiden, Ed. and Compiler. New York: Springer Pub., 1951. 614 pp. $7.50.

Into *Livestock Health Encyclopedia,* the author has packed an immense amount of information, which makes it useful to farmers and their advisers, and as a college text for students of medicine and pharmacology. By using a system of symbols and abbreviations, which are translated in two pages at the back of the book, this condensation of knowledge is achieved. The plan does not detract from the reading, in this reviewer's opinion. Whether it will confuse farmers or will be too technical for them remains to be seen.

Allied fields—i.e., wood preservation—for which drugs are used on the farm, are covered, as well as animal health. With so much information packed into 614 pages, there is but little space to tell readers "how to do it," but it is not a how-to-do-it book—

rather, it is an encyclopedia of 3700 entries, illustrated with more than 300 pictures. The whole book is an index; there is no need for a separate one. A bibliography of 9 pages is included.

A copy of this book on every farmer's bookshelf would go far toward bolstering the health and productivity of America's livestock.

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Prism and Lens Making. 2nd ed. F. Twyman. London: Hilger and Watts, 1952. (U. S. distrib.: Jarrell-Ash, Boston.) 629 pp. $11.25.

The first edition of this book was published in 1945 and went through three impressions. The present edition has been considerably enlarged and improved. The restriction of the first edition to the methods employed in the famous optical shops of Adam Hilger has been abandoned, and the new edition discusses contributions of other firms as well. Furthermore, several sections have been added covering new fields of development advanced during the past decade.

Most of the book has been written by F. Twyman himself, who devoted his whole life to the solution of practical problems in precision optics. Although the book is intended to serve mainly for the information of optical glassworkers, it is of great interest and value to all scientists who employ optical precision instruments in their research.

The book contains a wealth of expert information about such topics as the nature of grinding, tools and materials, optical glasses, including the new glasses developed in the research laboratory of Eastman Kodak Co., and the artificial crystalline materials for infrared research. Two fascinating chapters deal with testing of optical work and with the application of interferometric methods for testing and correcting lenses and prisms. The last technical chapter treats problems encountered in the making of large objectives and mirrors. Here one also finds notes on the 200-inch mirror on Mount Palomar. The text is elucidated by 260 excellent figures and tables.

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The Evolution of Chemistry: A History of Its Ideas, Methods, and Materials. Eduard Farber. New York: Ronald Press, 1952. 349 pp. Illus. $6.00.

"Science looks forward," as Dr. Farber points out in this excellent book, and so many a promising young chemist, diligently pursuing the discipline, finds no time to look backwards. He makes a grave, but understandable, mistake.

It is wholesome to remember the difficulties and handicaps that the pioneers overcame in laying the solid foundations upon which we build today so swiftly and so proudly. But quite aside from this encouragement to a becoming modesty, a comprehensive grounding in the philosophy of chemistry helps us mightily to develop powers of correlation and generalization. Without these two, no chemist rises to the greatest heights in laboratory or schoolroom, in plant or front office.

Dr. Farber has written no text of chemical history, but a most useful and stimulating book for supplementary reading. His theme of how one thought inspires another, one fact points to another, is admirably sustained and aptly illustrated. He fits together the jigsaw of chemical progress into a splendidly composed, easily comprehended picture. I should like to have the economic environment in which the great chemical discoveries were made delineated more clearly and to have had those discoveries carried through more often to their commercial applications. This is, I suspect, but evidence of my own interests.

Of this I am certain—no one after two years of chemistry (needed to read this volume intelligently) and before reaching the ripe age of forty (when life begins) can read this book without becoming Dr. Farber's everlasting debtor.

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Scientific Book Register

Metal Data. Rev. ed. of *Metals and Alloys Data Book.* Samuel L. Hoyt. New York: Reinhold, 1952. 526 pp. Illus. $10.00.

Indiana Scientists: A Biographical Directory and an Analysis. Stephen Sargent Visher *et al.* Indianapolis: Indiana Academy of Science, c/o The State Library, 1951. 286 pp.

Work Measurement: New Principles and Procedures. Adam Abruzzi. New York: Columbia Univ. Press, 1952. 290 pp. $6.00.

High Speed Photography: Its Principles and Applications. George A. Jones. New York: Wiley, 1952. 311 pp. Illus. $6.50.

Automation: The Advent of the Automatic Factory. John Diebold. New York–Toronto: Van Nostrand, 1952. 181 pp. $3.00.

A Television Policy for Education. Proceedings of the Television Programs Institute held under the auspices of the American Council on Education at Pennsylvania State College, April 21–24, 1952. Carroll V. Newsom, Ed. Washington, D. C.: American Council on Education, 1952. 266 pp. Illus. $3.50.

Soluble Silicates: Their Properties and Uses. Vol. 2, ***Technology.*** American Chemical Society Monograph #116. James G. Vail, with assistance of John H. Wills. New York: Reinhold, 1952. 669 pp. Illus. $15.00.

Ferroelectricity. Investigations in Physics, Study No. 1. Eugene Wigner and Robert Hofstadter, Eds. E. T. Jaynes. Princeton, N. J.: Princeton Univ. Press; London: Geoffrey Cumberlege, Oxford Univ. Press, 1953. 137 pp. Illus. $2.00.

Conformal Mapping. L. Bieberbach; trans. from 4th ed. of *Einführung in die Konforme Abbildung* by F. Steinhardt. New York: Chelsea, 1953. 234 pp. Illus. $2.25.