he conjectures, but the direct evidence for the greater capacity for destruction of tubercle bacilli by mononuclear cells of immune animals is not accepted on the arbitrary judgment that cultural methods are not suitable for such quantitative estimates. Yet histological evidence, in which alone Rich places full credence, leads to the same conclusion. For the same reason Rich does not accept the interpretation that mature epithelioid cells and tubercles result from the destruction of some tubercle bacilli or their products within the mononuclear cells, a concept which explains much of tuberculous lesions.

The discussion of the role of nutrition and bacillary dosage is penetrating. His distinction between "soft" and "hard" tubercles is widely accepted. Apical localization in human tuberculosis, according to Rich, indicates some increased resistance of the lung in which the upper part does not share. Rich feels that both endogenous and exogenous reinfection are responsible for adult tuberculosis. That an arrested primary infection affords some protection against reinfection is unquestioned, but the fluctuating character of acquired resistance, according to Rich, accounts for the hazard of reactivation of dormant primary or postprimary lesions.

Excellent illustrations are given of the different types of adult tuberculosis. Both tuberculous meningitis and pleural tuberculosis are considered as resulting from the extension of lesions into the arachnoid space or pleural cavity, respectively, rather than as due to hematogenous spread. The book is a "must" for all workers in tuberculosis and students of infectious disease, stimulating and absorbing reading with the added asset of an outstanding representative bibliography.

MAX B. LURIE

HENRY PHIPPS INSTITUTE,
UNIVERSITY OF PENNSYLVANIA

USES AND APPLICATIONS OF CHEMICALS

Uses and Applications of Chemicals and Related Materials. Volume II. By THOMAS C. GREGORY. lxviii + 459 pp. 6 × 9¼ in. Bound in green cloth. New York: Reinhold Publishing Corporation. 1944. $9.00.

BASED on data published in the *Oil, Paint and Drug Reporter,* the first volume of this valuable compilation was issued in June, 1939, and a review of it appeared in the November 3, 1939, number of SCIENCE (p. 422). What was said there in appreciation of the many useful features of Volume I applies with even greater justice to Volume II, and the service it can render in the post-war years.

As stated in its preface, this book not only complements the subject-matter of Volume I, but also supplements it by the addition of 2,642 chemicals and related materials.

After explaining what the two volumes contain, and how the information is presented, and listing those individuals and organizations likely to find them helpful, instructions are given as to how to use the books.

Part 1 is an "Index of Uses," which records, in alphabetical sequence, the classified applications of 7,809 chemicals and related materials in the converting, compounding and processing industries. Part 2 sets forth the uses of each in a classification by industry and by application in that industry. Then follow Part 3—"Index of Synonyms and Cross References"; Part 4—"Index of Patents," and Part 5—"Index of Addresses" (*i.e.,* of owners of patents listed in Part 4).

As the reader will gather from the above, the work is encyclopedic in scope and a great mine of useful information.

ANCIENT DYES

Ancient and Medieval Dyes. By WILLIAM F. LEGGETT. Pp. iv + 95. 5 × 7¾ in. Brooklyn, N. Y.: Chemical Publishing Company, Inc. 1944. $2.25.

THIS little book, by the associate technical editor of the *Textile Colorist and Converter,* is made up of brief chapters reviewing the ancient and medieval history of the better known naturally occurring dyestuffs, and seems to cover much the same ground as his articles on "Vegetable Dyes of Ancient Usage," which have been appearing in the *Journal of the New York Botanical Garden.*

The vegetable dyes described are Madder, Indigo, Woad, Saffron, Safflower, Weld, Brazilwood, Logwood, Barwood, Camwood, the Fustics, Orseille, Cudbear, Annatto, Turmeric, Cutch, Gambir and Quercitron. Of the animal dyes, Tyrian Purple, Kermes, Cochineal and Lac are included. The few mineral compounds listed (iron salts, malachite, azurite, ochres and chalk) were much more frequently employed as pigments than as dyes.

As stated above, the treatment of the subject is historical and informative. It describes the discovery of the dyes, the origin of their names, something of the natural history of the plant or animal in which they occur, their isolation or the way in which they were applied and their commercial progress through the years. The chemistry involved is not discussed.

The book is interesting, enjoyable and instructive. It tells how the ancient peoples learned about the coloring matters present in flowers, seeds, leaves, woods, insects, sea snails, etc.

MARSTON TAYLOR BOGERT

COLUMBIA UNIVERSITY