

Book Reviews

THE CHEMICAL FORMULARY, VOLUME XIII, edited by H. Bennett. Chemical Publishing Co., Inc., New York. 1967. 447 pages, indexed. Price \$8.

The 13th edition of the now familiar series of chemical formulary brings countless new formulas in sixteen broad areas to the chemical and amateur formulator. The first chapter again presents the well-known basic principles for compounding the formulations and is a fitting introduction for the volume, as well as a source of useful recipes. While several of the topics found in volume XII are included in volume XIII, none of the formulas are duplicated, and a large number of new fields are surveyed as well.

The formulations are for the most part grouped under appropriate subject headings, making it easy to browse through and compare. However, industrial disinfectant cleaners are misplaced in Chapter IV, "Cosmetics and Drugs," and should rightfully be in Chapter XIV, "Soaps and Cleaners." Hard surface disinfectants are not drugs. Chapter V, "Emulsions," contains one formula for a self-polishing floor wax which should be included in Chapter XI,

"Polish," although admittedly it is an emulsion. Chapter XVI, "Miscellaneous," includes a number of unrelated items. Fortunately, the index is complete and fairly accurate and directs one to the proper pages.

Especially helpful are the alphabetical lists of chemicals and suppliers, which make it easy to locate the source of raw materials. The writer agrees with the editors of the volume that trade names for materials should be used to afford as many meaningful formulas as possible, but a description of the products should also be included so that a formula can be evaluated. There is no way of knowing, for example, whether a material is an active ingredient, a filler, a preservative, or an activator unless one is already familiar with it. Several formulas are simply composed of a dozen specialty items giving no clue to their nature. As far as could be determined, only one material, Detergicide (page 121), is not listed among the chemicals.

Most of the chapters are well written, with both formulas and compounding procedure spelled out. Chapter XIII, "Rubber, Plastics, Waxes," is one exception—with formula upon formula and never a manu-

facturing procedure, time, or temperature—and could be useful only to an expert. The chapter on soaps and cleaners is occasionally difficult to read because formulas are broken up and the continuation may be found at the top of the next column or part way through, since the printing varies haphazardly from two columns per page to one.

Chapter XII, "Pyrotechnics," is a disappointment because it is merely a detailed summary of one U. S. patent on halogenic smokes. Such a narrow phase of a subject should not have over 50 pages devoted to it.

The formulas for the kinds of products with which the writer is familiar appear reasonable and workable with the exception of artificial vanilla, page 28. Coumarin has been banned for use in foods as a toxic adulterant by the FDA and, of course, cannot be used.

The cosmetic chemist will find in Chapter IV, "Cosmetics and Drugs," a wealth of information since it includes typical formulations for almost every kind of cosmetic and toilet article which can serve as starting points for his own work, while the other chapters can supply new ideas and raw materials. Volume XIII of *The Chemical Formulary* is a valuable addition to the shelf of the formulating chemist.—RICHARD K. LEHNE—Cyanamid International.

SCIENTISTS IN ORGANIZATIONS, by Donald C. Pelz and Frank M. Andrews. John Wiley & Sons, Inc., New York, N. Y. 1966. 318 pages, indexed. Price \$10.

This volume describes the results of a massive study of scientists by two social psychologists. One may expect that it will be much quoted and will become a major source of important information to managers of research and development groups. Basically, the authors studied research personnel in industrial and governmental laboratories and in universities. The subjects were 1311 scientists in 11 different laboratories.

Scientists were rated according to their performance in four categories: scientific contributions, usefulness, patents, and unpublished reports. The ratings in the last two categories appear of minor interest, but the areas identified as scientific contributions and usefulness deserve careful scrutiny. "Scientific contributions" refer to the man's own work to help the field move forward, regardless of whether anybody benefits from his activity. "Usefulness" refers to his value to the organization within which he works, regardless of whether he himself performs the research or service. Ratings of these parameters were made by five judges, on the average, selected from the scientists's peers within his own laboratory. These ratings were then combined by the "Ford" technique to yield percentile ranks. It is interesting to note that these two parameters generally run parallel and that one measurement might have been sufficient. One can, therefore, inquire whether these parameters measure different characteristics of individuals or whether the judges tend to confuse these two particular ratings.

It is desirable, of course, to surround scientists with an environment which makes their performance as productive as possible. The findings of this study actually suggest management techniques which would allow a scientist to achieve his full potential. Interestingly enough, scientists perform better when their activities were fairly thoroughly coordinated and when their "freedom" was somewhat limited. Similarly, higher performance was achieved whenever there was communication with colleagues and whenever the scientist was allowed to work on three or four research and development functions; a sharp lowering of performance was noted whenever the number of functions exceeded four. Some other interesting findings reported by the authors concern the influence of the age of the scientists, the time spent in technical work, and laboratory conditions.

In reviewing this massive accumulation of statistical data, one is struck by the fact that scientists appear to perform better if, as noted above, management employs certain administrative techniques. The question arises whether it is legitimate to assume that the caliber of scientists in the various laboratories is homogeneous and that comparisons between different laboratories are meaningful. It is quite possible that good management practices attract or find the more highly endowed and effective scientist; poorer management may be satisfied with less capable individuals. Although the book does not answer this puzzling problem, scientists and administrators can benefit much from

this significant contribution because it describes either how to attract the well-performing scientist or how to make scientists perform well.—M. M. RIEGER—Warner-Lambert Research Institute.

COLLOID CHEMISTRY, by A. Sheludko, Elsevier Publishing Company, Amsterdam, London, New York. 1966. 277 pages. Price \$14.50.

This book was developed from the lectures given by Dr. Sheludko, Professor of Physical Chemistry at the University of Sofia, Bulgaria. The Bulgarian text (1957-58) was revised and translated into Russian in 1960. This material was further revised in the translation to English. The subject is developed from basic principles. Where needed, an adequate mathematical background is assumed. The whole exposition is very readable.

Each chapter is well referenced. The index is confined to major topics only. It is an excellent book for use as a colloid text or as a small reference book. The chapter titles—Preparation and Purification of Lyophobic Colloidal Systems, The Optical Properties of Colloids, The Molecular Kinetic Properties of Colloidal Solutions, Physical Chemistry of Surfaces, Electrokinetic Phenomena, Thin Layers, Stability of Lyophobic Sols, and Foams and Emulsions—give an idea of the scope of the book. Considering the total size of the book, the coverage of the more applied areas of the last three chapters is very complete and is a remarkably concise ex-

position of the theories involved in a very controversial area.

The fact that this book was written as a teaching text makes it a desirable book for anyone approaching a study

of colloid chemistry, particularly for self-education on the background of the many phenomena so important to the cosmetic chemist.—JOHN H. WOOD—Bristol-Myers Products.