whereas my later work, in which I modified my conclusions was ignored without explanation.

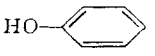
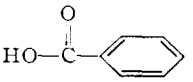
In as large a book as this, however, individual critics, especially familiar with the topics treated in particular portions of the text, could no doubt find many points of disagreement and dissatisfaction, while agreeing that on the whole it will be an essential tool for all specialists in the field. It certainly should be acquired by libraries of chemistry and physics, and research workers in the particular branches covered.

UNIVERSITY OF NORTH CAROLINA
CHAPEL HILL, N. C. O. K. RICE

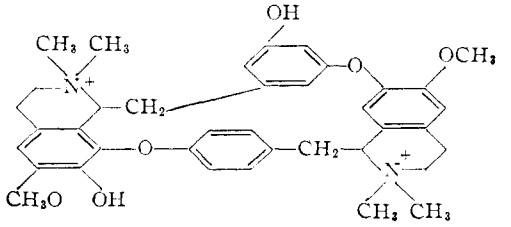
A Line-Formula Chemical Notation. By WILLIAM J. WISWESSER, Head of Industrial Hygiene and Chemical Research, Willson Products, Inc., Reading, Pennsylvania. Crowell Company, 432 Fourth Avenue, New York 16, N. Y. 1954. x + 149 pp. 15 × 22 cm. Price, $2.00.

It is becoming more and more apparent that the skill and industry of chemists in preparing new compounds is outstripping the ability of our nomenclature experts to assign good chemical names and to complete satisfactory indexes by conventional methods in a reasonable length of time. To remedy this weakness, several authors have in recent years invented linear notations for describing compounds in terms of symbols with conventional, evident, or easily remembered meanings. Wiswesser's notation is described in the manual under review.

The nature of the new notation is illustrated by the following examples for (simple) compounds:

Structural formula	*Notation*
$NH_2—NH_2$	ZZ
$NH_2—(CH_2)_4—OH$	Z4Q
$NH_2—\overset{\overset{O}{\|}}{C}—(CH_2)_5—CHO$	ZV6:0
	QR
	QVR

Naphthalene is designated as (66), decalin as (6/6/), quinoline as (66.bN). The notation yields one and only one correct line-formula for each compound; accordingly, in principle the notation can be used for purposes of indexing. The symbols are limited to those commonly found on a standard typewriter keyboard. Complex compounds require rather involved rules, and yield exceedingly complex ciphers (*e.g.*, tubocurarine, shown below), but it is gratifying to note that 36 main rules suffice for handling all compounds (and, if one counts sub-rules, the total is about 90).



2 Cl⁻

Tubocurarine, (-j(6/6.cK)h01iQb1RdQc0-i(6/6.cK)h01b1-Rd0-),.G_2

The presentation of the system is made in a logical and straightforward manner, with numerous examples, and with headings in bold-face type. There are excellent review exercises, with correct answers, at the end of each chapter, and the manual is well indexed (a very important point in a coding manual).

In the opinion of the reviewer, an hour's skimming of the manual enables one to catch sufficient key ideas to encode and decode simple examples, and several hours suffice for handling most of the frequently occurring compounds with a fair degree of confidence. However, many hours of practice and study would be required for one to become letter perfect in the use of the notation, and a small fraction of compounds would probably always give trouble.

It is a revelation to most of us that one man could work out a comprehensive system for representing all chemical compounds by a linear notation. No conventional nomenclature has yet been able to achieve this goal. Furthermore our interest is increased when we learn that the author has given strict preference to "those familiar methods that require the least writing, the least new learning, and the least memorizing." Like Sir Isaac Pitman's shorthand, Wiswesser's notation is a masterpiece to be admired for its ingenuity, but like shorthand its real value will depend on its acceptance and use by others.

FELLOWSHIP IN MEDICINAL CHEMISTRY
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Basic Mechanisms in Radiobiology. II. Physical and Chemical Aspects. By JOHN L. MAGEE, Notre Dame University, Notre Dame, Indiana; MARTIN D. KAMEN, Washington University, St. Louis, Missouri, and ROBERT L. PLATZMAN, Purdue University, Lafayette, Indiana (Editors). National Academy of Sciences–National Research Council, Washington 25, D. C. 1953. viii + 145 pp. 17.5 × 24.5 cm. Price, $1.00.

This volume is an abridged verbatim transcript of the proceedings of an informal conference of twenty-three physicists, chemists and biologists brought together to discuss the interaction of radiation and biological systems in its basic physical and chemical aspects. The subject is reported under five general headings. I. Initial Energy Transfer from Incident Radiation to Matter. II. Energy Transfer from Secondary Electrons to Matter. III. Mechanisms of Energy Degradation and Chemical Change: Effects of Secondary Electrons. IV. Mechanisms of Energy Degradation and Chemical Change: Effects of Electronic Excitation. V. Summary: Importance of Radiation Chemical Effects in Radiobiology.

The presentation of the discussions in verbatim form preserves an atmosphere of informality and gives the reader a sense of vicarious participation in the conference. From time to time interesting glimpses are given of research now in progress or being contemplated. Despite an occasional discontinuity or *non-sequitur* in the report, it is evident that the conference admirably explored the frontiers of this complex and increasingly important area of radiobiology.

The work should prove to be of substantial value to those engaged in teaching and research in radiation biology, and of interest to chemists and physicists studying reaction mechanisms and kinetics.

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ROCHESTER 20, NEW YORK

BOOKS RECEIVED

February 10, 1955—March 10, 1955

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E. C. HORNING, Editor-in-Chief. "Organic Syntheses." Collective Volume 3. A Revised Edition of Annual Volumes 20–29. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1955. 890 pp. $15.00.