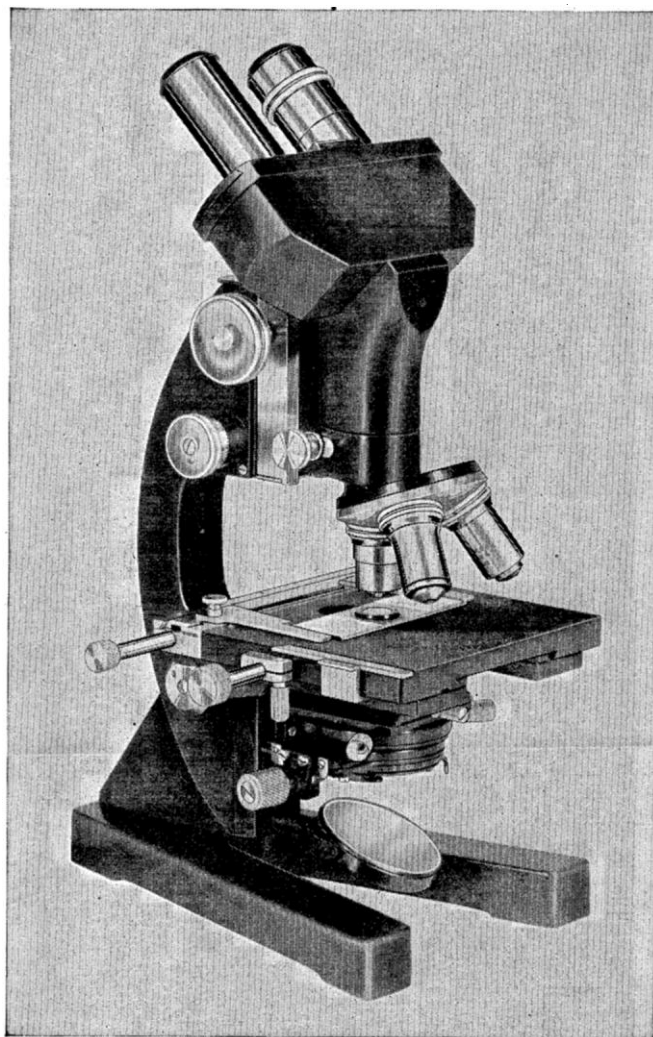


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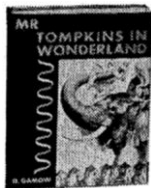
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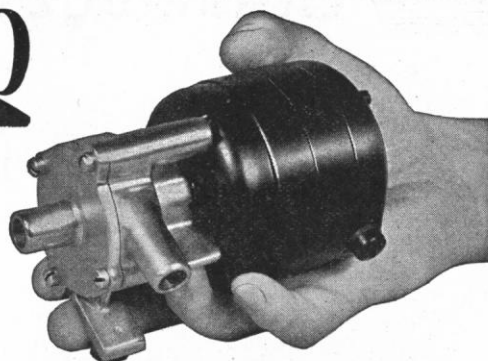
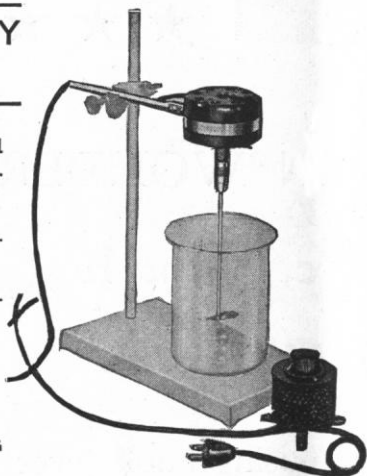
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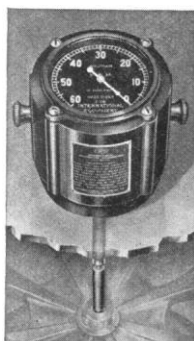
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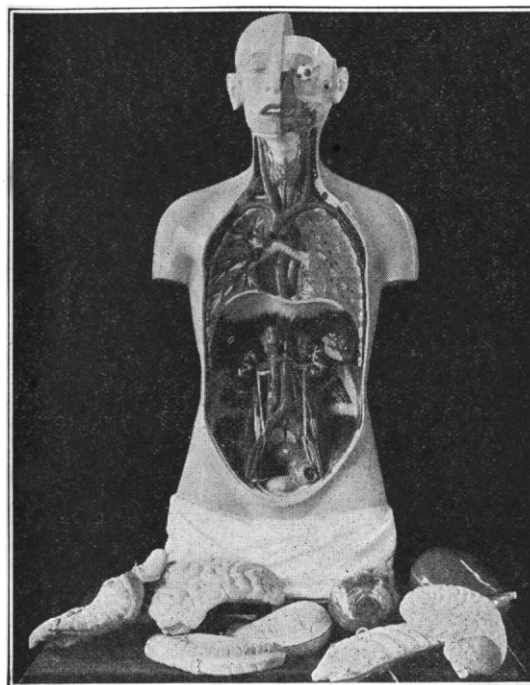


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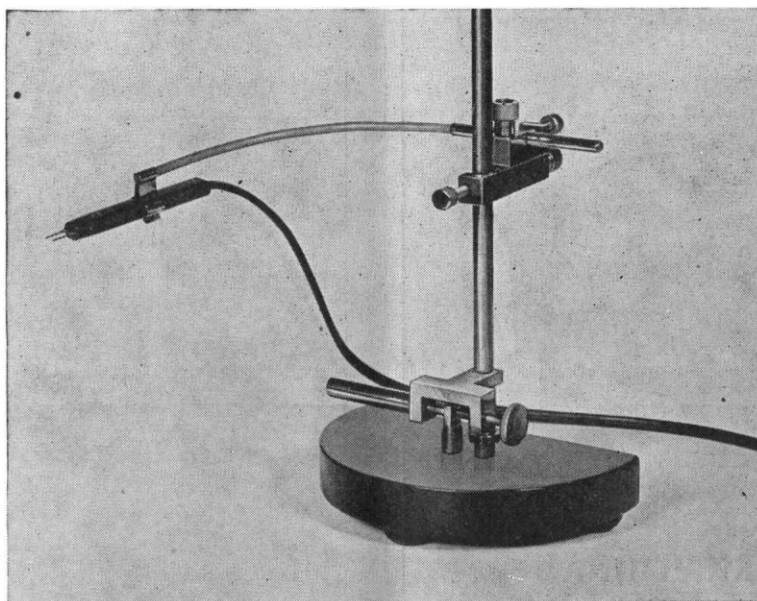
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## RECENT ADVANCES IN CHEMOTHERAPY<sup>1</sup>

By Dr. M. L. CROSSLEY

DIRECTOR OF RESEARCH, CALCO CHEMICAL DIVISION, AMERICAN CYANAMID COMPANY

Two paintings, "The Alchemical Making of a Medicine in the 16th Century," by Michael Diemer, and the "Elixir of Life" by John A. Lomax, tell an inspiring story of man's belief that from chemical investigations would result new and potent drugs capable of combating diseases and alleviating human suffering. The discoveries of the past few decades in chemistry are encouraging evidences that the alchemist's dream is being realized. Chemical compounds having no counterparts in nature have been produced and shown to be effective therapeutic agents. A beginning has been made; new and important discoveries will follow. Man may confidently look forward

to a time when he will have available the means of destroying the parasitic hosts that find access to his body and conspire to destroy him.

These agents of destruction are many. They are all about man. He is always on the defensive. His life depends upon the state of his preparedness for constant chemical warfare against both plant and animal invaders. He is attacked by worms; roundworms, hookworms, pinworms, other kinds of worms; protozoa, bacteria and viruses. They would convert him into a regular British Museum of infirmities, as Mark Twain once said. They invade his intestines, his muscles and his vital organs, producing diseases which reduce his efficiency and often deprive him of life. These disease-producing organisms are the "reds" of

<sup>1</sup> An address before the Western Connecticut Section of the American Chemical Society, January 22, 1940.

liquids and dialysis contained a greater degree of skin-reacting activity per unit of dissolved material than did the original extracts from which the purified extracts were processed.

The extract purified by fractionation and refractionation with organic liquids was further purified by treating it with high concentrations of soluble sulfates such as ammonium sulfate, sodium sulfate and zinc sulfate. The fraction precipitated from concentrated solutions of these sulfate salts contains a very high degree of specific allergic activity. It produces uniformly strong positive scratch-test reactions in house-dust sensitive individuals in concentrations of 0.5 per cent.; specific intracutaneous tests are obtained with this extract in dilutions of 1/50,000 to 1/5,000,000.

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The general procedure is as follows: Duplicate numbers in India ink are put on the fresh leaves in the region from which the sample is to be taken. (Higgins waterproof black American India ink was used with satisfactory results.) A disc-shaped portion of the leaf including one of these numbers is punched out to furnish the sample, and the other number is left to record its source. A crow-quill pen is most satisfactory for producing small numbers without injury to the leaf tissues. With a clean pen no difficulty is encountered in numbering the leaves provided their surface is free of water. Care must be taken, however, that no pressure is applied by the pen to the

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The ink numbers are not dissolved or faded by chrom-acetic or by formalin-acetic-alcohol fixatives, or by any grade of alcohol in the ethyl or butyl alcohol series. The numbers withstand equally well the treatment of the samples with such clearing agents as dioxan and chloral hydrate. The numbered samples are clearly visible in the paraffin block permitting the ready location of any one of them desired for sectioning. The occasional necessity of sectioning directly through the numbers does not impose any restrictions on the use of the technique.

WILLIAM E. GORDON

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#### BOOKS RECEIVED

- Bibliographie Géodésique Internationale*. Tome 2. Années 1931-1932-1933-1934. Pp. A. 64-420. Association de Géodésie de L'Union Géodésique et Géophysique Internationale, Paris.
- HAUPT, ARTHUR W. *Fundamentals of Biology*. Third edition. Pp. xii+443. 288 figures. \$3.00. *Laboratory Directions for General Biology*. Pp. 65. \$1.00. McGraw-Hill.
- JAEGER, EDMUND C. *Desert Wild Flowers*. Pp. xii+322. Illustrated. Stanford Univ. Press. \$3.50.
- MONTAGUE, WM. PEPPERELL. *The Ways of Things: a Philosophy of Knowledge, Nature and Value*. Pp. xviii+711. Prentice-Hall. \$4.00.
- Research Publications of the Association for Research in Nervous and Mental Disease. Vol. XX. *The Hypothalamus and Central Levels of Autonomic Function*. Pp. xxx+980. 319 figures. Williams and Wilkins. \$10.00.
- RICHARDSON, LEON B. and ANDREW J. SCARLETT. *General College Chemistry*. Pp. vi+683. Illustrated. Holt. \$3.75.
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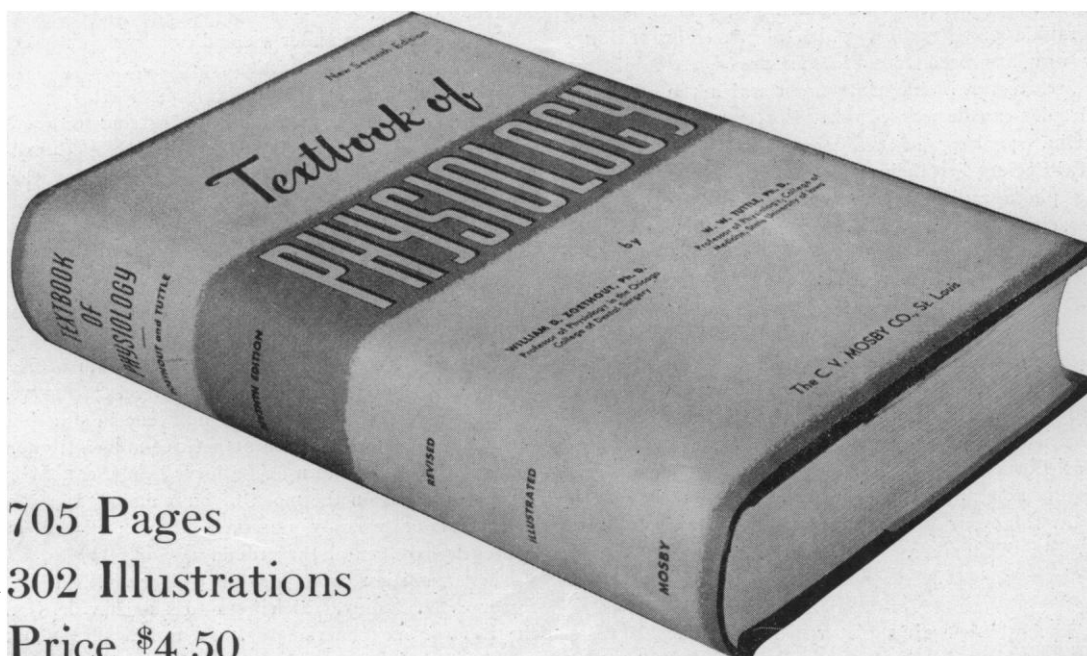
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