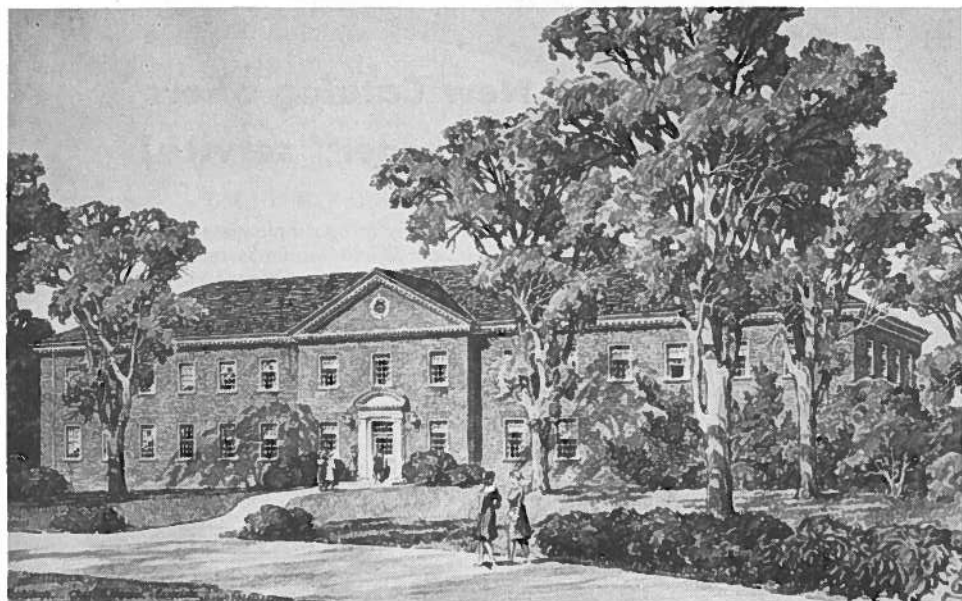
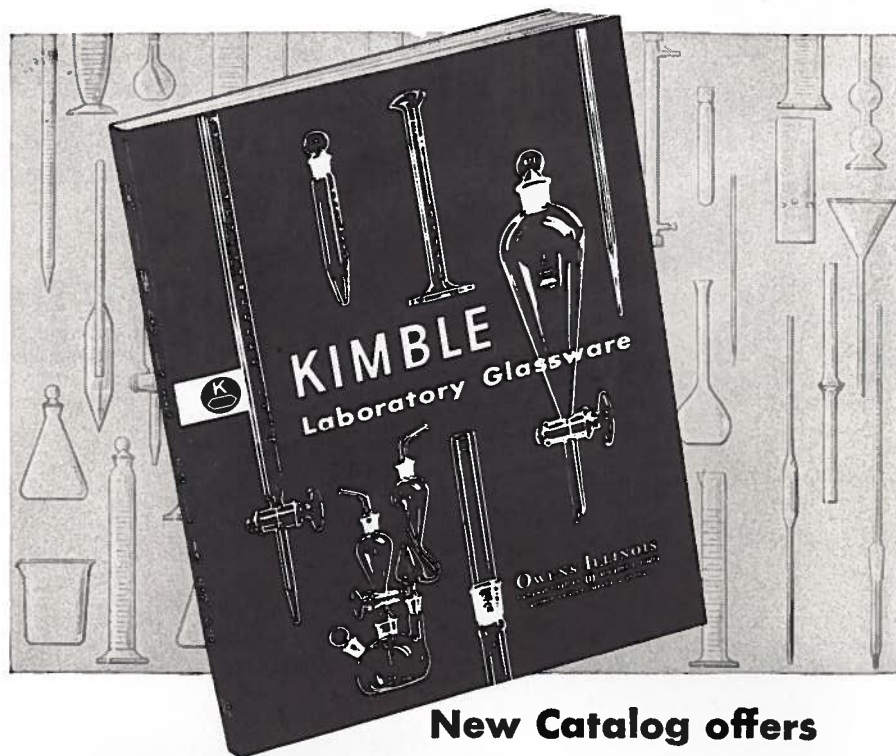


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AMERICAN CHEMICAL SOCIETY



October, 1957



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### TABLE OF CONTENTS

	Page
The October Meeting . . . . .	5
Hodson Science Hall . . . . .	6
New Section Members . . . . .	10
Food Machinery and Chemical Corp. . . . .	12
Section News . . . . .	13

### COVER

Our cover shows the new Lillian Brown Hodson science building at Hood College where our October meeting will be held. Dedicated this month, it houses laboratories, faculty offices, and lecture and seminar rooms for Chemistry, Physics and Biology.

**A new, corrosion-resistant  
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## THE OCTOBER MEETING

**Date:**

Friday, October 25, 8:00 P.M.

**Place:**

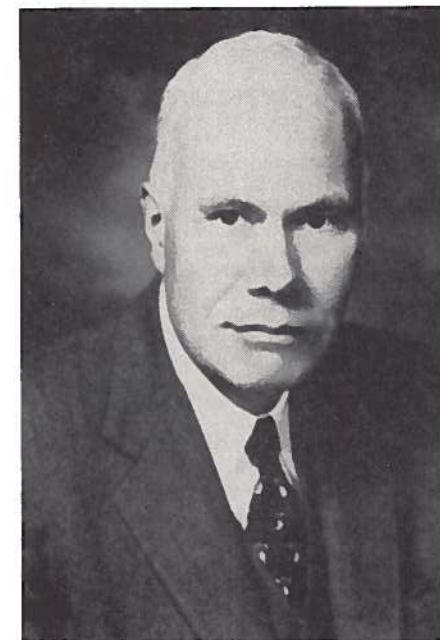
Lillian Brown Hodson Science Building  
Hood College, Frederick, Md.

**Speaker:**

Dr. Randolph T. Major, Professor of Chemistry, University of Virginia and Scientific Advisor to Merck and Company

**Subject:**

Organic Derivatives of Hydroxylamine



Dr. Major will discuss the methods of synthesis of these compounds and some of their interesting reactions. Also, he will mention the occurrence of such compounds in nature, including an antibiotic, the structure and synthesis of which will be discussed. The properties of these compounds and their biological and pharmaceutical activities will be reviewed.

Dr. Major is Scientific Adviser to Merck and Co., Inc., manufacturing chemists of Rahway, New Jersey. He is also a Professor of Chemistry at the University of Virginia in Charlottesville, Virginia. He obtained his A.B. and M.S. Degrees at the University of Nebraska and completed his Ph.D. at Princeton University in 1927. An honorary Degree of Doctor of Science was conferred on him by the University of Nebraska in June 1949. He was the recipient of the 1951 Industrial Research Institute Award. This medal is awarded annually to honor "outstanding accomplishment in leadership in or management of industrial research which contributes broadly to the development of industry or the public welfare".

After carrying on research in Paris and Berlin for a year and later serving as instructor and research associate at Princeton, he joined Merck and Co., Inc., in 1930 as Director of Pure Research. In 1936 he was appointed Director of Research and Development; in July 1947, Vice President and Scientific Director; in October 1953, Scientific Vice President; and in March 1956, Scientific Adviser to the Merck Sharp and Dohme Research Laboratories. He and his wife, the former Grace E. Lowe of Swampscott, Massachusetts, have one son and three daughters, two of whom are married.

Dr. Major is former Chairman of the Committee on Chemical Warfare of the Research and Development Board of the U.S. Department of Defense. He is a Director-at-large of the American Chemical Society and a Fellow and former Councillor of the New York Academy of Sciences and a Fellow and former Vice President of the American Association for the Advancement of Science.

**Dinner:**

Hood College Dining Hall

8:00 P.M.

Hood College is located in Northwest Frederick. From Baltimore via. U.S. 40 turn right at College Avenue. From Washington via U.S. 240 drive through town and turn left at Fourth Street. Frederick will have daylight time during October.



## HODSON SCIENCE HALL

— A Greater Opportunity for Hood

by

Professor Jane McCarrell  
HEAD OF THE DEPARTMENT OF BIOLOGY

### The Building

The new science facilities provided by the Lillian Brown Hodson Science Hall include, in addition to adequate laboratory and lecture rooms, many features completely lacking in the old science quarters. Among such features are a chemical balance room, adequate storage and preparation rooms, seminar and research rooms, a dark room, a greenhouse, and animal rooms.

The first floor houses the Biology Department and includes:

A tiered lecture room seating 187 and equipped with screen and outlets for visual aids; three large laboratories each with desk space for 24 students; two laboratories for general biology and one for advanced biology; a small greenhouse with automatic heat, ventilation, and humidity controls; a research room for honors and other research projects; a seminar room with a large table and chairs, and two walls lined with book shelves and cabinets; offices with individually chosen color schemes.

The entrance hall has a built-in display case with glass doors and shelves and fluorescent lighting.

On the second floor, the facilities for chemistry and physics include:

A class room to seat 60 students; three large chemistry laboratories, one for general chemistry, one for analytical and physical chemistry, and one for organic and biochemistry; one physics laboratory which is used also for research projects; two preparation rooms and a balance room; seminar room and offices as on the floor below. The laboratories throughout the building are equipped with Kewaunee furniture.

The basement contains:

A machinery room; two large storage rooms, part of which can be converted to a class room if needed in the future; two animal rooms, one for warm-blooded animals such as mice and guinea pigs, and one for cold-blooded animals such as frogs and turtles.

Hood College has a science building of which it can be proud. Friends of the College are especially pleased that there are generous spirits such as Mrs. Hodson who are interested in the future of this institution.

### The Science Graduates

Hood has a tradition of excellent preparation for students in the sciences. Living testimony of this is given by our alumnae who have gone into fields where a strong science background is required. These women are holding responsible positions in medical schools, hospitals, and research laboratories in various parts of the country. Included in the group of graduate Doctors of Medicine, in addition to those who are in general practice, are: the head psychiatrist and director of the Child Guidance Clinic in Los Angeles, the head anaesthetist at a Baltimore hospital, a psychiatrist at a hospital in Washington, D. C., and two who are conducting research and teaching at the University of Michigan and Cornell Medical Schools, respectively. One graduate of whom we are particularly proud is a research fellow and biologist at the Cancer Institute of the National Institutes of Health in Bethesda, Maryland.

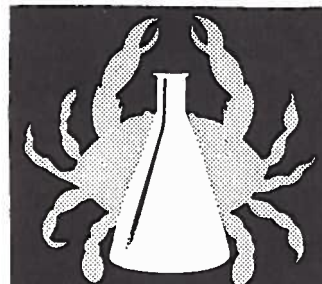
Other Hood science graduates are holding responsible positions in the Bureau of Standards, the Atomic Warfare Laboratory, the Biological Warfare Laboratory at Fort Detrick, the National Institutes of Health, the Johns Hopkins Hospital School of Nursing, the Newton D. Baker Veterans' Hospital, and the Frederick Memorial Hospital.

The teaching profession is represented by Hood graduates from the secondary school level to the graduate and professional school level. Many other science graduates are doing, or have done, laboratory technical work in a variety of hospital, public health, or industrial laboratories. The fields of physical and occupational therapy are also represented in the list of vocations chosen by Hood science graduates.

A recent study concerning the post-graduate activities of Hood science majors in the last ten graduating classes, those from 1947 through 1956, brought forth many interesting facts. During this period 98 graduates, slightly over 10% of the total number graduated from Hood, majored in chemistry or biology. Even though a large majority of our graduates eventually marry, 74% of those who were science majors in college

(Continued on page 8)

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- In Titrimetry—EDTA as its disodium salt serves as titrant in the EDTA titration by which over 40 elements may be determined. This titration usually employs metal indicators, some of which have been introduced or offered by J. T. Baker in the reagent grade with controlled sensitivity. These include Eriochrome Black T, murexide, PAN, Pyrocatechol Violet, Zincon and calcon.

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(Continued from page 6)

worked or did post-graduate study in fields directly associated with their college science training.

**SURVEY OF HOOD SCIENCE GRADUATES, 1947-1956**

Post-graduate activities:		
Laboratory technical work (hospital, industry, government, etc.)	42%	
Graduate or professional school study	23%	
Teaching	9%	74%
Miscellaneous work experience		
.....	14%	
No work or graduate Study		
.....	12%	26%
		100%

**Science of Hood**

The science departments offer introductory courses, one of which each student is required to take in the basic education program, as well as advanced courses in chemistry and biology for those students who elect these sciences in their Fields of Special Interest. The science courses, both introductory and advanced, also serve many students who major in other departments, especially home economics, sociology, and psychology. In addition, the honors study program offers qualified seniors the opportunity to do independent research problems in their major Fields of Interest. This frequently stimulates an interest in post-graduate study. At the present time, six recent graduates are studying for the M.S. or the Ph.D. de-

gree, and two are in medical school. Several of these students did honors work as undergraduates.

Each year the Department of Biology offers a scholarship to a junior majoring in that subject for summer study at a recognized biological laboratory. On this scholarship, students have taken courses at the Woods Hole, Mass., Marine Biological Station, the Roscoe B. Jackson Memorial Laboratory, at Bar Harbor, Me., Duke University Marine Laboratory at Beaufort, N. C., Biological Station of the University of Virginia, Mountain Lake, and the University of Michigan Biological Station.

During the past year, one biology major has been pursuing an independent study problem financed by the Maryland Inland Fish and Game Commission. A grant for the academic year 1955-56 from the Chesapeake Biological Laboratory permitted a member of the Hood College Department of Biology to hire a student assistant for a research problem.

Although Hood is a small woman's college, it is justly proud of the accomplishments of its science graduates. It is evident that in spite of lack of space and adequate facilities, a large majority of our science majors in the past have utilized their undergraduate training to advantage, not only to themselves but for the advancement of science and the welfare of man. With expanded and modernized facilities, it is exciting to anticipate and to visualize the increased research and educational training that can be offered to Hood science students—and thus to a group of future women scientists in this country.

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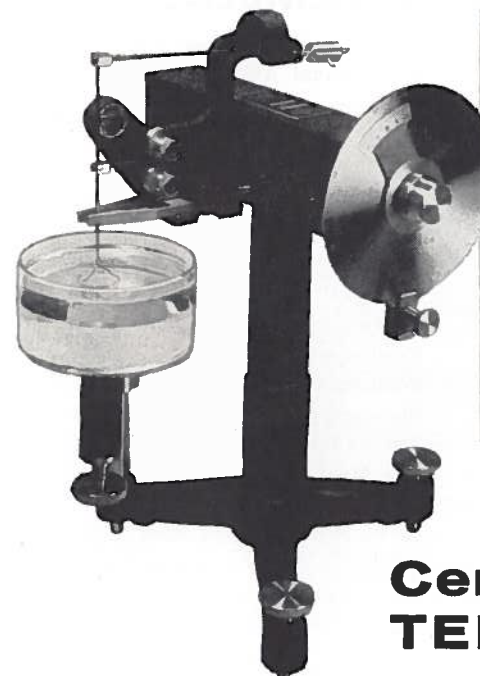
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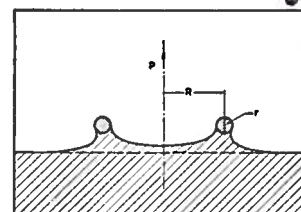
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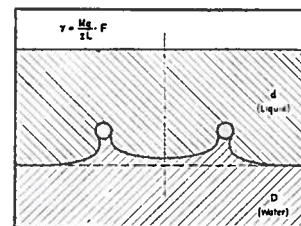


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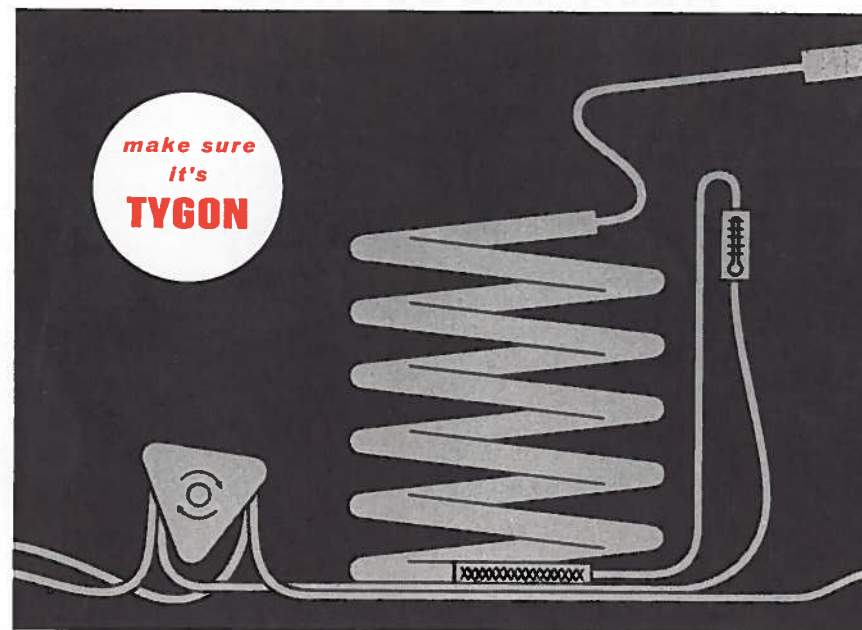
Walter Reed Army Medical Center

Baltimore, Maryland

Baltimore, Maryland

U. S. Public Health Service

Baltimore City Hospitals

*(Continued on page 14)*when life hangs by a thread . . . of *Plastic*

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# CHEMISTRY AND CHEMICAL ENGINEERING IN CHESAPEAKE AREA INDUSTRIES

Edited by F. Timothy Parr



*Fairfield Plant of the Food Machinery and Chemical Corporation taken from pilot plant building located adjacent to Research and Development laboratories. Manufacturing facilities are pictured, with building in right foreground being occupied by plant and sales office.*

The following is the second in a series of articles which will be published from time to time describing the various chemical industries in the Chesapeake Area.

## FOOD MACHINERY AND CHEMICAL CORPORATION

Located in the 1700 block of Patapsco Avenue in the Fairfield section of southwest Baltimore, the Fine Chemicals Department and the Fairfield Branch of Central Chemical Research of Food Machinery and Chemical Corporation are among the largest chemical plants and chemical research organizations in the Baltimore area. They comprise over 70 buildings consisting of production and storage facilities, research laboratories and pilot plant buildings occupying an area of about 100 acres.

### First Production in 1915

Chemical production was first undertaken at the Fairfield site in 1915 by the Curtis Bay Chemical Company which later became U.S. Industrial Chemicals Company, Inc. In 1951, U.S.I. became part of National Distillers Products Corporation which, in 1954, sold the Baltimore plant to Food Machinery and Chemical Corporation.

### 465 Employed

Approximately 465 people are employed by Food Machinery in Baltimore; of these, more than 100 are engaged in research, production control, pilot plant and engineering activities. Research effort is divided principally between the areas of organic chemistry and entomology. Organic chemical research is conducted on a wide variety of projects ranging from exploratory investigations to process development and improvement. Analytical laboratories are maintained in support of the pilot plant and production operations as well as research. Extensive facilities are available in the entomological laboratories for the evaluation of insecticides, synergists and insect repellents. These facilities help Food Machinery (Fairfield) maintain its leading position in the production of pyrethrins and piperonyl butoxide—the combination of which is marketed as Pyrenone.

During its history, the Baltimore plant has produced a wide variety of organic chemicals including acetic acid, acetone, acetate solvents, ethyl ether, ethylene, phthalates and methionine.

*(Continued on page 13)*

*(Continued from page 12)*

### New Products Added

In the short time that Food Machinery and Chemical has owned the plant a variety of new products has been added to those remaining from the U.S.I. era. A partial list of current products includes pyrethrins, piperonyl butoxide, ethyl acetoacetate, phosgene, chloroformates, carbamates, dichlorocyanuric acid, methallyl chloride and others ranging from rocket propellents and gasoline additives to tranquilizing drugs and dye intermediates. Of particular interest is the manufacture of the important insecticide, Pyrenone. Dried pyrethrum flowers imported from Kenya and the Belgian Congo, are extracted to isolate pyrethrins, the active ingredient. Pyrenone is a mixture of pyrethrins and piperonyl butoxide. The latter is a synergist for pyrethrins which increases the potency of the insecticide as much as 16

times and also improves its stability. Pyrenone has the unique property among insecticides of possessing very low mammalian toxicity so that it can safely be used where most other insecticides are too dangerous.

Present plans are for continued development of the production facilities as well as further expansion of the pilot plant which is to be used by the entire Corporation in semi-commercial evaluation of new processes. Close co-operation with the new Central Research Laboratory in Princeton, New Jersey will permit rapid development of new products from the laboratory through the pre-pilot and pilot-plant stages to commercial production.

*William B. Trummer*

## MARYLAND SECTION NEWS



### INDUSTRIAL

#### CRIPPEN & ERLICH

Crippen & Erlich Labs., Inc., subsidiary of Foster D. Snell, Inc. announce the organization of a mouse colony in air conditioned rooms in its Baltimore laboratories. Colonies of two separate strains are being bred for use in various research laboratories in this area.



### ACADEMIC

#### JOHN HOPKINS UNIVERSITY

Walter S. Koski, Professor of Chemistry at Johns Hopkins University attended the XVI International Congress on Pure and Applied Chemistry in Paris July 18-24. He presented a paper entitled "The Kinetics of Two Isotopic Exchange Reactions between Diborane and Dihydropentaborane" by W. S. Koski and T. E. Larson. Professor Koski has published a number of papers on boronhydrides. The most recent of these are:

"Applications of Gas Phase Chromatography to the Boron Hydrides", Joyce J. Kaufman, Joseph E. Todd and Walter S. Koski, *Anal. Chem.* 29, 1032 (1957).

"Nuclear Magnetic Resonance Study of the B.D.-B.H. Exchange Reaction", Walter S. Koski, Joyce J. Kaufman and Paul C. Lauterbur, *J. Am. Chem. Soc.* 79, 2832 (1957).

John W. Gryder has been promoted to the rank of Associate Professor of Chemistry.

Professor Alsoph H. Corwin spoke before the Summer Institute for High School Teachers of Chemistry at Clarkson College of Technology in Potsdam, New York on August 13. The title of the talk was "The Colors of Life". Professor Corwin gave the same lecture at Colby College, Maine on August 20 for the 19th Summer Conference of the New England Association of Chemistry Teachers.

G. Wilse Robinson, Assistant Professor of Chemistry, presented a paper at a Symposium on the Structures and Reactivities of Excited States of Molecules at the University of Ottawa in September. The title of the paper was, "The Nature of Formaldehyde in its Low Electronic States".

The other papers published by the department are:

"An Efficient Chemiluminescent System and Chemiluminescent Clock Reaction", Emil H. White, *J. Chem. Educ.* 34, 275 (1957).

"Transition from Quantum to 'Classical' Partition Functions", Robert Zwanzig, *Phy. Rev.* 106, 13 (1957).



(Continued from page 10)

## NEW SECTION MEMBERS

Transfers	Professional Affiliation	From
Vyto-Albin Adomaitis	Baltimore, Maryland	Boonton, N. J.
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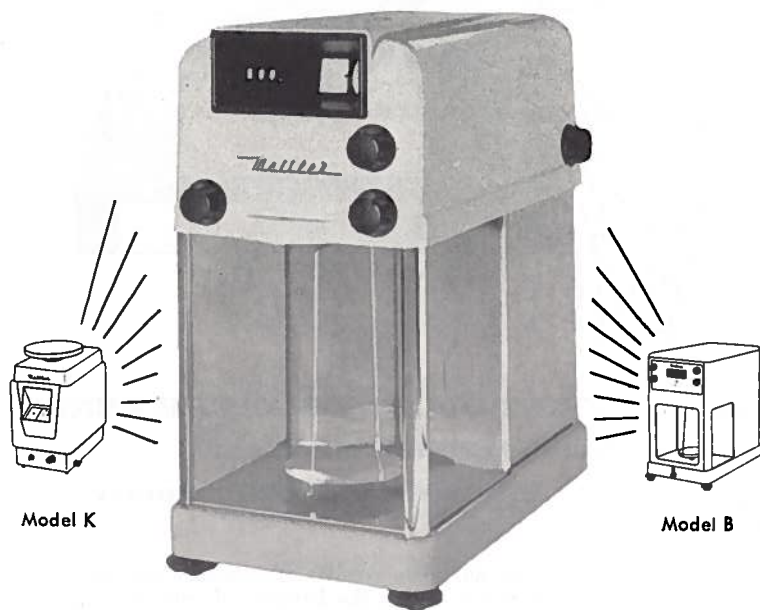


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