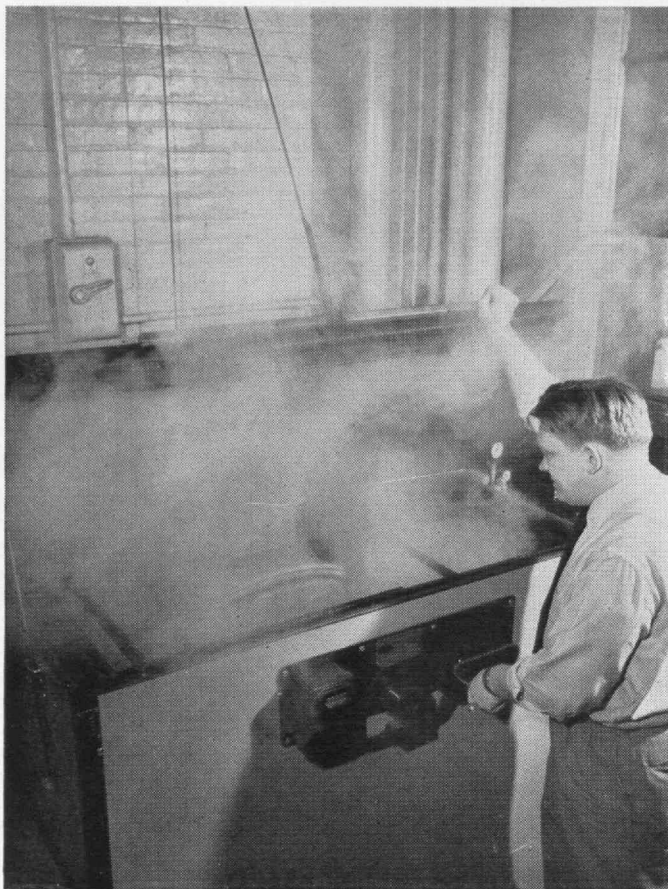


# TECHNOLOGY

REVIEW *May* 1950



Who in the world  
wants a  
smog box?



Only an engineer would think of a practical use for this gadget. Faced with the problem of what will happen to street lighting units where smog shrouds a city, this "box" becomes a vital piece of testing equipment. For, with it, the effects of 20 years of corrosion exposure can be determined in 1,000 hours.

Creative engineers are constantly challenged to develop tests and testing devices that will reveal the true character-

istics of the products of their imagination. For great names in business cannot risk reputations when they introduce new or improved merchandise.

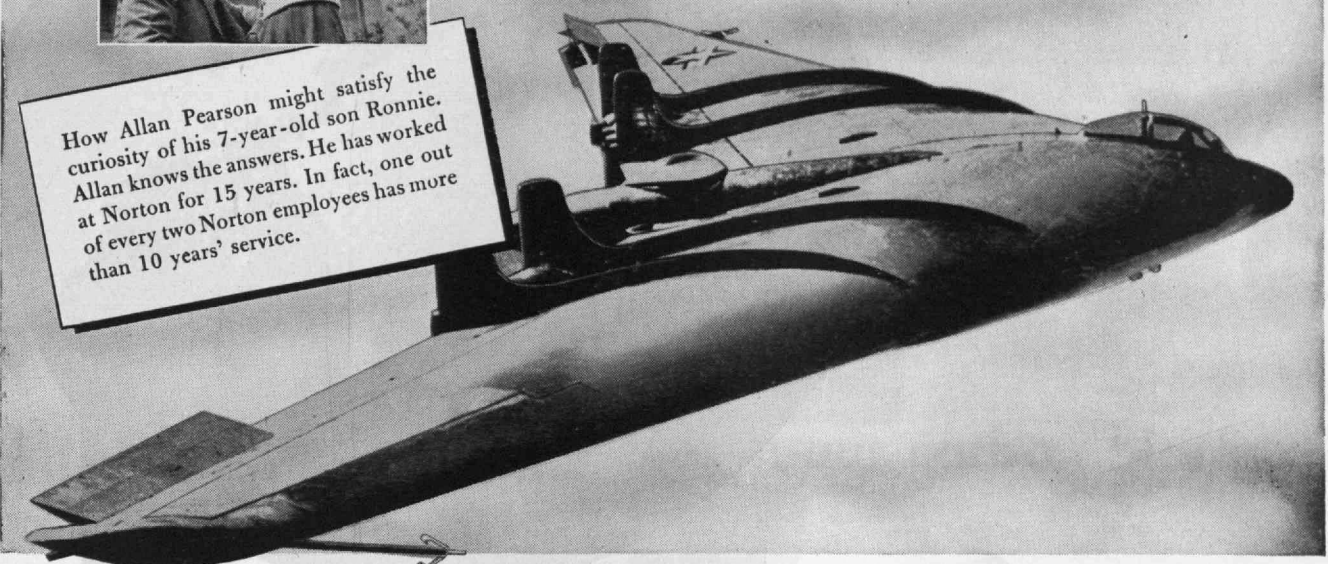
Over the years, Westinghouse has recognized the importance of constant research in its development of new products and improvement of present products . . . research, proved by exhaustive tests. That is why we are always prepared to fulfill the commitment . . .

G-10097

**YOU CAN BE SURE..IF IT'S** Westinghouse



How Allan Pearson might satisfy the curiosity of his 7-year-old son Ronnie. Allan knows the answers. He has worked at Norton for 15 years. In fact, one out of every two Norton employees has more than 10 years' service.



# GEE, DAD, WHAT MAKES IT GO SO FAST?

"It's power that does it, son. Power from its new jet engines. Engines built with parts made from today's strongest, toughest metals . . . parts that fit within one ten-thousandth of an inch."



"Those tough parts are shaped by tougher tools. Tools sharpened by Norton grinding wheels made from our 32 Alundum abrasive, the fastest, coolest cutting abrasive ever made . . . and our famous Diamond Wheels, a Norton first in 1930.



"Then those engine parts are shaped smooth and true by Norton grinding wheels. And those parts fit each other just right. That's because of the sure finishing touch of Norton grinding wheels and machines.



"And when that giant lands, it lands safely because Norton engineering created a special grinding machine that helps make the landing gears' odd-shaped parts fit true and tight and strong."



"Yes, Ronnie, Norton helps make airplanes better. Other products, too. In fact, there's hardly anything man makes that doesn't get a lift from Norton somewhere along the line. That's why I'm proud of my job of making better products to make other products better."

**NORTON**  
TRADE MARK REG. U. S. PAT. OFF.

*Making better products to make other products better*

ABRASIVES

GRINDING WHEELS

OILSTONES

ABRASIVE PAPER & CLOTH

GRINDING AND LAPPING MACHINES

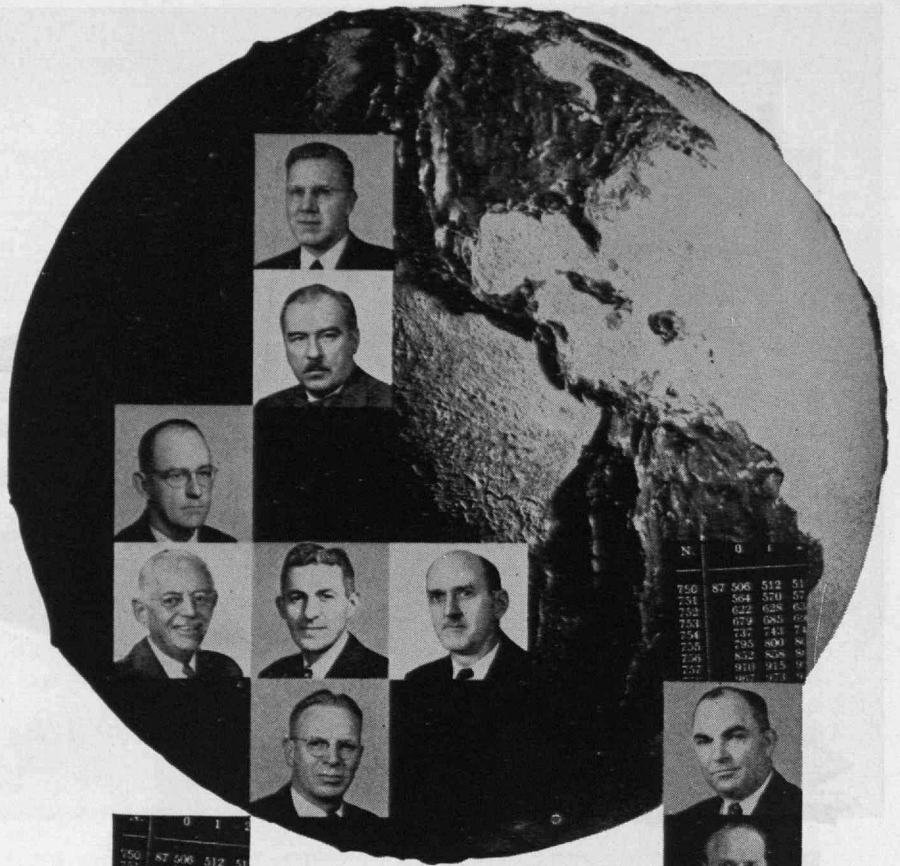
LABELING MACHINES

NON-SLIP FLOORING

REFRACTORIES, POROUS MEDIUMS & LABORATORY WARE

NORBIDE PRODUCTS

**NORTON COMPANY, WORCESTER 6, MASSACHUSETTS**



N	O	I
750	87	506
751	364	570
752	622	638
753	679	685
754	737	743
755	755	890
756	832	858
757	910	915
987		974

N	O	I
750	87	506
751	364	570
752	622	638
753	679	685
754	737	743
755	755	890
756	832	858
757	910	915
987		974

# in project engineering

*look to these Lummus men for worldwide performance*

## The Lummus man

engaged in project engineering has a well diversified background of practical experience. Directly from a mechanical course at college, he entered the petroleum field and acquired his early experience with an oil company, either in the Engineering Department or in the Operating Department. He joined Lummus approximately 15 years ago, where his experience was extended covering all phases of engineering from laboratory, through design and planning to actual field construction. Keeping abreast of developments, he has maintained his standing as a licensed professional Engineer.

In his wide field of project engineering are included many of the world's outstanding refinery installations as well as petroleum chemical units.

The Lummus Project Engineer is "at home" with operations in foreign fields. He has a broad knowledge of the unique problems encountered in Europe, the Near East, India, the Orient, Latin America, and Canada, as well as in the U. S. A. Project Construction in isolated locations presents unusual difficulties in connection with problems of water supply, water disposal, housing facilities, personnel, etc., problems which the Lummus Engineer has handled successfully.

Your Project at Lummus will receive the attention of those Engineers whose experience will best fulfill your specific needs. Frequent requests by customers for reassignment of the same Engineers for "repeat" jobs is the best evidence of their competence.

**THE LUMMUS COMPANY**  
385 Madison Avenue, New York 17, N. Y.

# LUMMUS

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HOUSTON—Mellie Esperson Bldg., Houston 2, Texas  
The Lummus Company, Ltd., 525 Oxford St., London, W-1, England  
Société Française des Techniques Lummus  
39 Rue Cambon, Paris 1er, France  
Compañía Anónima Venezolana Lummus—Edificio "Las Gradillas"  
Esquina Las Gradillas, Caracas, Venezuela



**PARDON ME . . .**

**but you're stepping on our carbon black . . .**

— And it's a good thing, too—for Cabot Carbon Black in your rubber soles and heels, boots and footwear, insures resistance to cracking and aging; gives lasting resilience and durability. The same Cabot Carbon Black that adds years of life to automobile tires and to rubber compounds in transportation units of all kinds helps to keep you stepping along.



**GODFREY L. CABOT, INC.**

77 FRANKLIN STREET  
BOSTON 10, MASSACHUSETTS

The 39-story Secretariat, first of three impressive structures which will comprise the United Nations' new home.

## HEATING THE FUTURE HOME OF THE UNITED NATIONS

The new United Nations buildings will have one thing in common with other famous Manhattan landmarks. Like the Pennsylvania and Grand Central Stations, Radio City, the Empire State and Chrysler Buildings, the Waldorf Astoria and literally hundreds of others . . . they will be heated with steam supplied by the Kips Bay Station of the New York Steam Corporation, supplemented by exhaust steam from the topping turbines of the Waterside Station of the Consolidated Edison Company of New York.

All of the five steam generating units in Kips Bay and eight of the ten units in Waterside were designed and built by Combustion Engineering-Superheater, Inc. The thirteen C-E Units in both stations have an aggregate capacity of approximately 8,000,000 pounds of steam per hour.

In cities and towns throughout the country you will find C-E boilers in the plants of leading utilities and industrials. Why? Because the engineers who select equipment for such plants know from experience that the best steam generating equipment they can buy will prove to be not only the most efficient and reliable, but—in the long run—the most economical. And this applies to small plants as well as large . . . so whatever your steam requirements for power, process or heating, it will pay you to investigate C-E boilers before you buy.

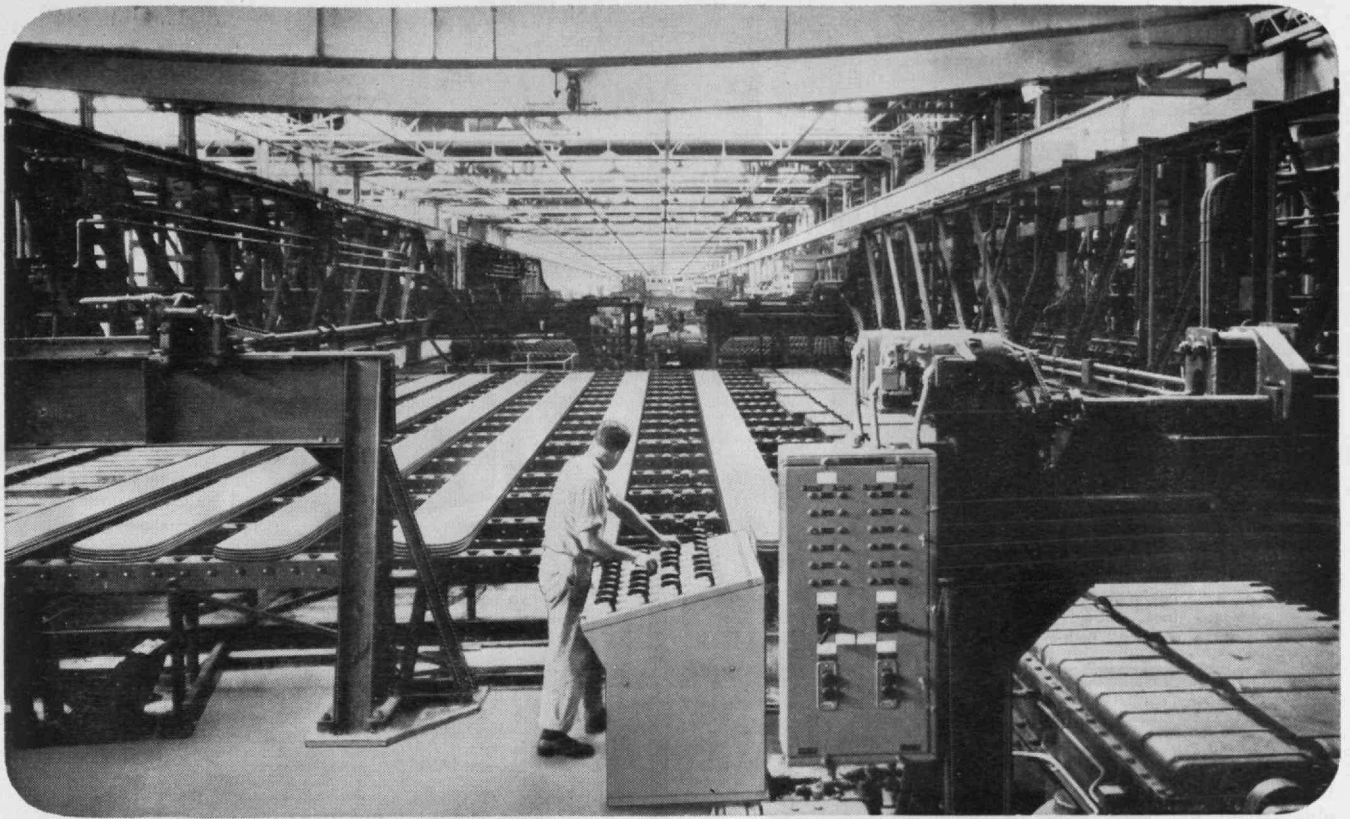
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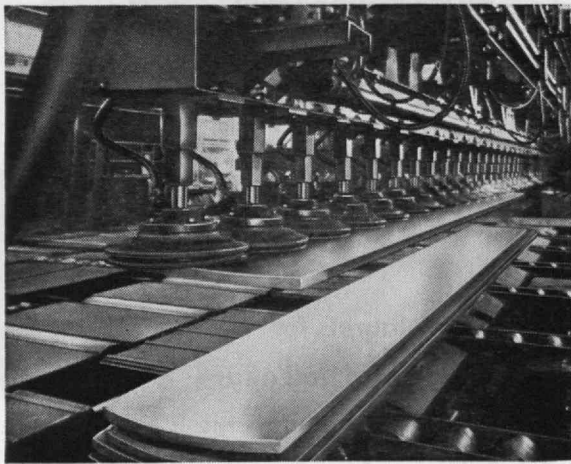
**COMBUSTION ENGINEERING —  
SUPERHEATER, Inc.**

200 Madison Avenue • New York 16, N. Y.

ALL TYPES OF STEAM GENERATING,  
FUEL BURNING AND RELATED EQUIPMENT



# T O BUILD OR NOT TO BUILD



The smaller illustration is of the vacuum cup handling equipment operating in conjunction with the 2-Hi Cold Rolling Mill. Because of the massive size and weight of individual brass bars, all handling is mechanical.

This Mill, designed and constructed by Stone & Webster Engineering Corporation, is capable of producing the heaviest non-welded coils of strip brass, and includes the largest cold breaking-down mill in America.

For Scovill Manufacturing Company, Stone & Webster Engineering Corporation carried on continuing studies of the client's production operations over a period of four years. Analysis was made of production pattern for anticipated requirements, with costs of production in proposed mills compared with costs in the existing plant.

Companies today, faced with improving production facilities or lowering cost of plant operation, find comprehensive engineering reports by Stone & Webster Engineering Corporation valuable in developing sound, long range production plans.



**STONE & WEBSTER ENGINEERING CORPORATION**

A SUBSIDIARY OF STONE & WEBSTER, INC.



**16" Console**

Features the sensational new 16" rectangular "black-face" tube — 139 square-inch screen with no "lost corners." Built-in antenna. . . . . \$339.95



**12 1/2" Console**

Ninety-two square-inch picture plus a 10" high-fidelity speaker in a rich-grained mahogany veneer cabinet. Built-in antenna. . . . . \$269.95



**16" Table Model**

New 16" rectangular "black-face" screen (139 square inches) lets you see the whole picture exactly as transmitted — no lost corners. Built-in antenna. . . \$289.95



**12 1/2" Table Model**

Ninety-two square-inch screen and twin "binaural" speakers for unsurpassed FM tonal fidelity in a table model. Built-in antenna. . . . . \$229.95

**NATIONAL TELEVISION** is winning new laurels for the engineers of the National Company whose technical skill and knowledge have made National electronic products famous throughout the world — for outstanding performance and unflinching dependability.



**NATIONAL COMPANY, Inc., MALDEN and MELROSE**





New technical bulletin,  
DISTILLATION  
ENGINEERING AND  
EQUIPMENT, is  
available on request.



Distillation column of type 316 stainless steel measuring 56 feet in height,  
10 1/2 feet in diameter, having six shell sections.

## distillation processes and equipment for . . .

. . . the separation of hydrocarbons or other organic chemicals, should be designed for efficiency in terms of overall operating costs and amortization of capital investment. Tray efficiency, cleaning facility and resistance to corrosion are the principal factors to be considered. For practical purposes, tray efficiency or tray spacing may be reduced to keep tower cost at a minimum. A balance of utility costs against chemical recovery may indicate the desirability of sacrificing some of the recoverable material, with a corresponding reduction in the capital outlay for columns and associated calandrias, condensers and heat exchangers.

Particularly when potential changes in process or product specifications are foreseen, distillation columns with sectional shells and removable trays of light alloy construction offer special opportunities for economy because of the ease of transfer from tower to tower as well as cleanability and resistance to corrosion.

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PILOT PLANT

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PROCESS DESIGN

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MECHANICAL DESIGN

---

SHOP FABRICATION

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FIELD ERECTION

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INITIAL OPERATION

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# Vulcan

THE VULCAN COPPER & SUPPLY CO.  
SAN FRANCISCO

distillation  
evaporation  
extraction  
processes and equipment

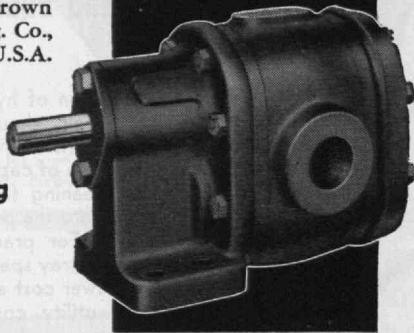
General Offices and Plant, CINCINNATI, OHIO  
NEW YORK BUENOS AIRES

IN CANADA — YICKERS VULCAN PROCESS ENGINEERING COMPANY LTD. — MONTREAL

Equipped with helical gears and roller bearings, these Brown & Sharpe Rotary Geared Pumps offer smoother, more efficient operation in hydraulic systems. Available in two sizes: No. 53 has a capacity of 4 to 23.2 gpm, and No. 55 from 9 to 34.1 gpm. They operate under pressures up to 200 lbs. per sq. in.

Run in one direction only, either clockwise or counterclockwise. Pumps have positive mechanical seal. Write for free pump catalog. Brown & Sharpe Mfg. Co., Providence 1, R.I., U.S.A.

## Rotary Geared Pumps for Hydraulic Service



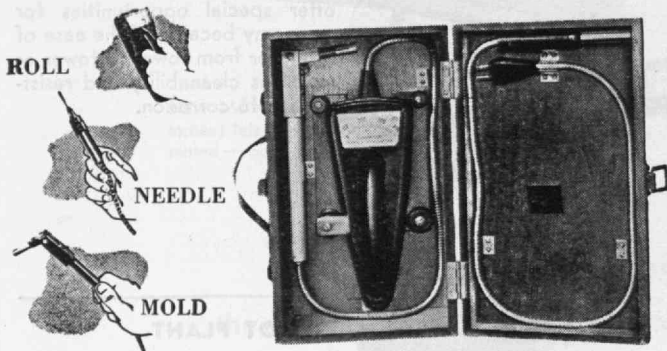
\*Quiet pumping

\*Smooth, continuous flow

*We urge buying through the Distributor*

**BROWN & SHARPE** 

## COMBINATION PYROMETER



### THREE INSTRUMENTS IN ONE

Correct temperature of rolls and molds and the resulting temperature of the product is vital in many processing industries. The only way to obtain this necessary information is by the use of an accurate and dependable surface pyrometer. The Cambridge Pyrometer is an accurate, rugged, quick-acting instrument that is convenient to use. Combination and Single-purpose instruments are available.

*Send for Bulletin 194 S.A.*

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*Pioneer Manufacturers of*

**PRECISION INSTRUMENTS**

## THE TABULAR VIEW

**Dedication.** — This May the Institute's new Charles Hayden Memorial Library will be formally dedicated in ceremonies which are intended to emphasize the part that this new building will play in fostering the humanities at M.I.T. Readers of *The Review* will find a preview of the new library in the article (page 361) by JOHN E. BURCHARD, '23, Dean of Humanities, and VERNON D. TATE, Director of Libraries, both of whom have had an active role in designing, furnishing, and administering this latest of M.I.T. educational buildings. ◀ The varied experience of Professor Burchard includes degrees in architecture (S.B., 1923; S.M., 1925) from M.I.T., a decade of architectural and engineering design culminating with the vice-presidency of Bemis Industries, Inc.; directing the Albert Farwell Bemis Foundation from 1938 to 1944 at M.I.T.; becoming director of libraries, 1944 to 1948, and dean of humanities since 1948. He is the author of several books, and played a major part in administering last year's Mid-Century Convocation at M.I.T. ◀ Dr. Tate, a native of Illinois, is a graduate of the University of California (A.B., 1929; A.M., 1930; Ph.D., 1934). In 1934, Dr. Tate spent the year in research and microphotography in Washington, D.C., and when the National Archives neared completion was given charge of duplicating and photographic reproduction activities of this agency. In 1947 he came to M.I.T. to become librarian. He is now director of libraries.

**Mensuration.** — Upon the occasion of the 100th anniversary of his birth, the life of Edward Weston, pioneer in electroplating, electric street lighting, and particularly in the accurate measurement of electrical quantities, is reviewed (page 369) by DAVID O. WOODBURY, '21. Mr. Woodbury comes unusually well prepared for his present assignment. As "one of D. C. Jackson's boys," he may very well have had his first contact with Edward Weston not alone in the Dynamo Laboratory but from one who knew him personally. For many years, Mr. Woodbury has been a free-lance writer of technical and scientific topics, and has written a dozen books. His latest, in fact, is *A Measure for Greatness — A Short Biography of Edward Weston* which provided background material for his present story. Several of the illustrations in this issue of *The Review* (and which also appear in Mr. Woodbury's latest volume) have been supplied through the kindness of Allan R. Cullimore, '07, President Emeritus of Newark College of Engineering, who knew Mr. Weston intimately.

**Education.** — A realistic, but nevertheless optimistic, attitude is expressed by C. C. FURNAS in the second and concluding portion of his article (page 373) entitled "American Education in a Quandary." Readers of *The Review*, who are engaged in strictly technical work, undoubtedly will be especially interested in the suggestion of Dr. Furnas that the greatest likelihood  
(Concluded on page 354)