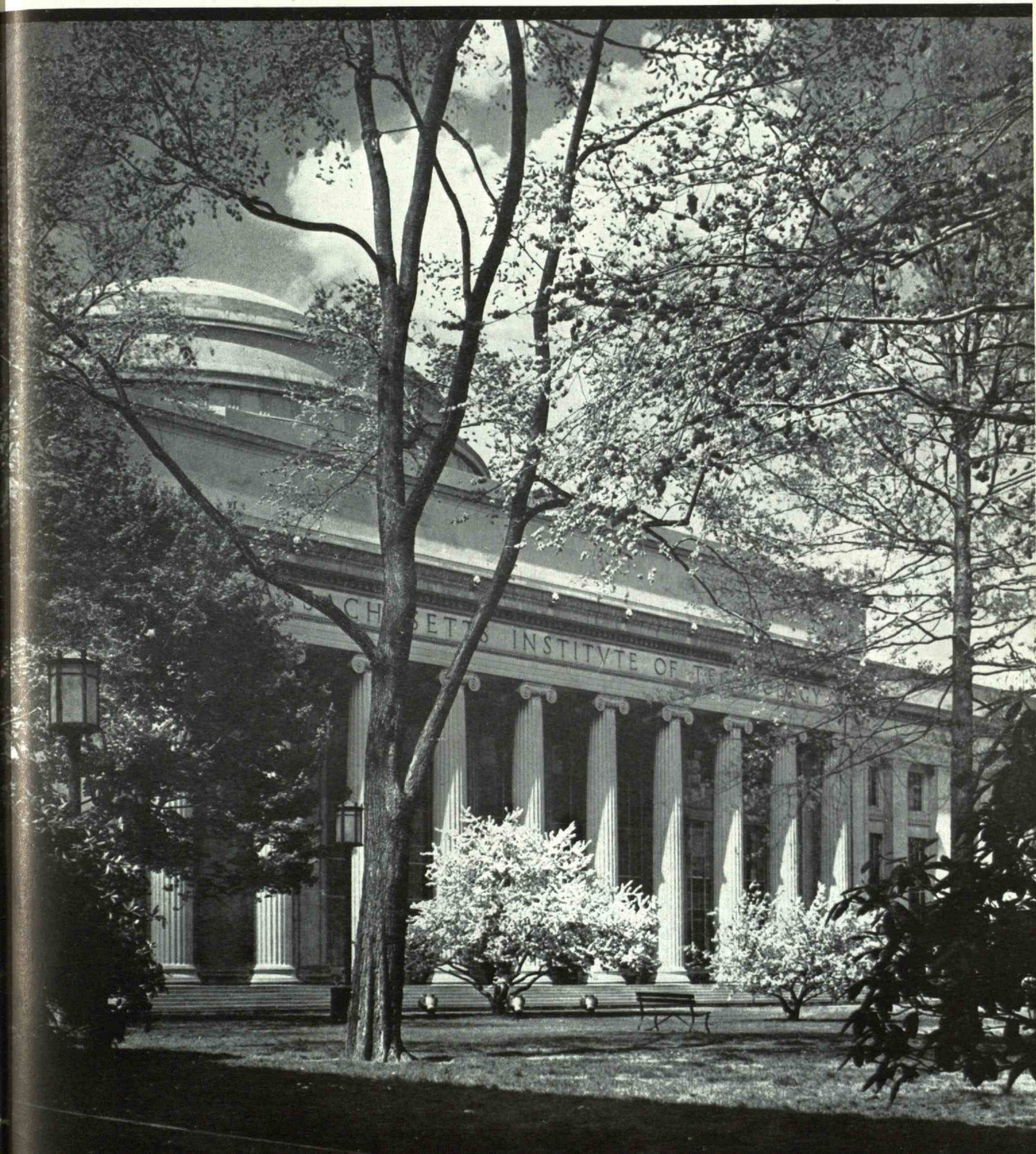


TECHNOLOGY

REVIEW *July* 1951



DISTILLATION

processes and equipment for ...



DISTILLATION ENGINEERING AND EQUIPMENT

Write for copy of
technical bulletin
"Distillation Engineering
and Equipment"

- • • 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.

**60 Years
of Service**

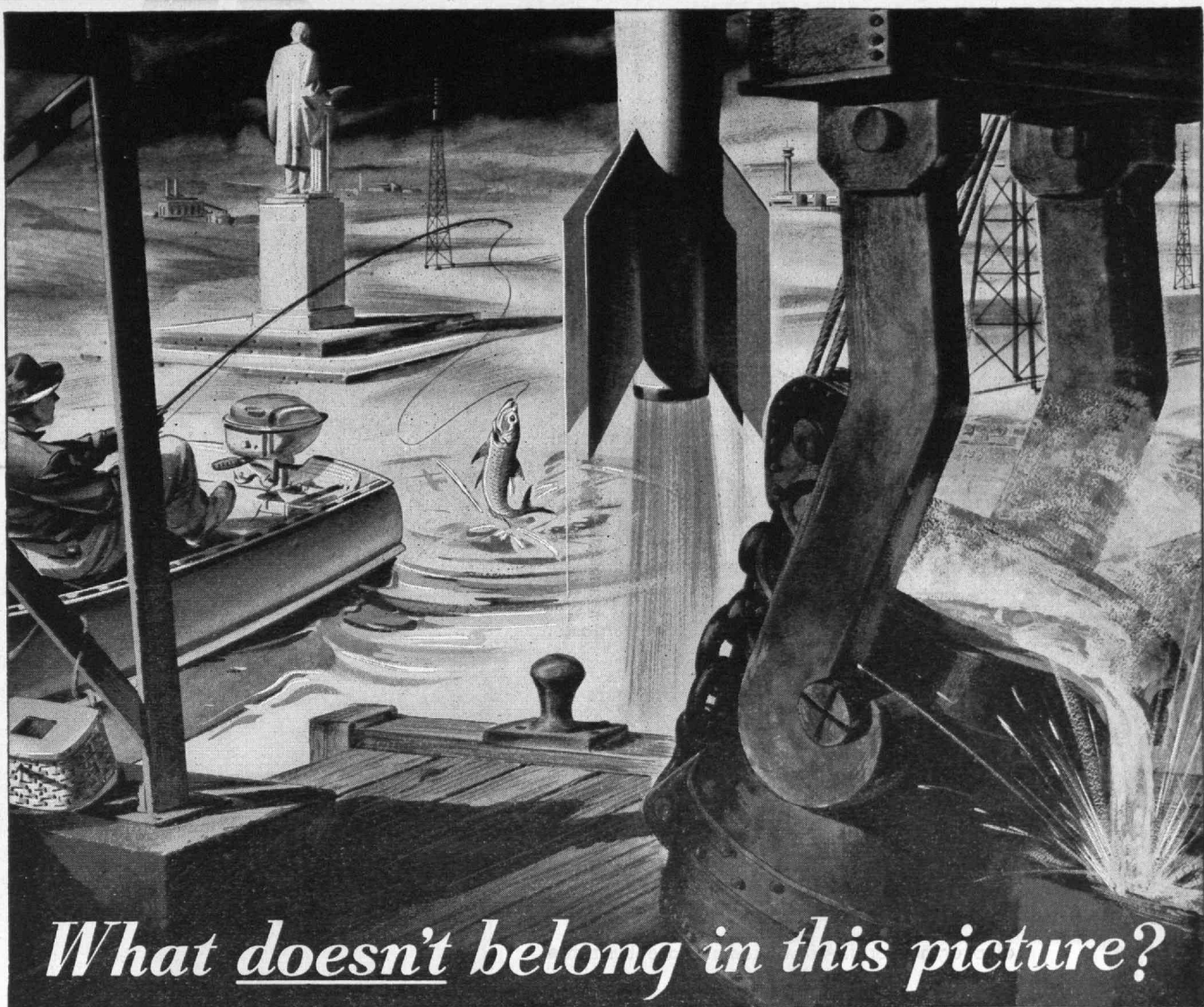
VULCAN • CINCINNATI

ENGINEERS AND MANUFACTURERS OF PROCESS PLANTS AND EQUIPMENT

General Offices and Plant, CINCINNATI 2, OHIO

PHILADELPHIA • BOSTON • SAN FRANCISCO • BUENOS AIRES

• VICKERS VULCAN PROCESS ENGINEERING CO., LTD., MONTREAL, CANADA



What doesn't belong in this picture?

All but one of the objects in this picture have something in common. They were affected directly or indirectly by the kind of products Norton and Behr-Manning make. *Can you find the stranger?*

The TV towers? No! Made of metal, which is processed and finished with the aid of Norton or Behr-Manning abrasive products.

So, too, with many other TV components . . . from tubes and wires to cameras and cabinets.

The molten metal? No! It was melted in a furnace lined with high temperature Norton refractory cements.

The man? No! Whenever he eats, dresses, shaves, sleeps, or plays, Norton and Behr-Manning products are his unseen aids.

The monument? No! Stone for monuments and

buildings is shaped and finished with Norton and Behr-Manning abrasives and grinding wheels. The lettering, too, is carved by Norton abrasives blasted through nozzles lined with Norton (NORBIDE*) boron carbide — the hardest material made by man.

The stranger in the picture is the fish . . . but only until he grabs the abrasive-finished lure. Remember . . . any man-made product . . . whether of metal, wood, paper, cloth, leather, ceramics or plastics . . . depends on abrasives, abrasive products, refractories and grinding machines that bear such well-known trade-marks as Norton and Behr-Manning . . . world's largest manufacturers of abrasives and abrasive products.

*Trade-Mark Reg. U. S. Pat. Off. and Foreign Countries.



Making better products to make other products better

NORTON COMPANY

MAIN OFFICE AND WORKS
WORCESTER 6, MASSACHUSETTS

ABRASIVES • GRINDING WHEELS • REFRACTORIES
NORBIDE GRAIN AND MOLDED PRODUCTS
GRINDING AND LAPPING MACHINES • NON-SLIP FLOORS



BEHR-MANNING

DIVISION OF NORTON COMPANY
TROY, NEW YORK

ABRASIVE PAPER AND CLOTH • OILSTONES
ABRASIVE SPECIALTIES
BEHR-CAT BRAND PRESSURE-SENSITIVE TAPES

COMMERCIAL EQUIPMENT

Designed and Built to Exacting Specifications

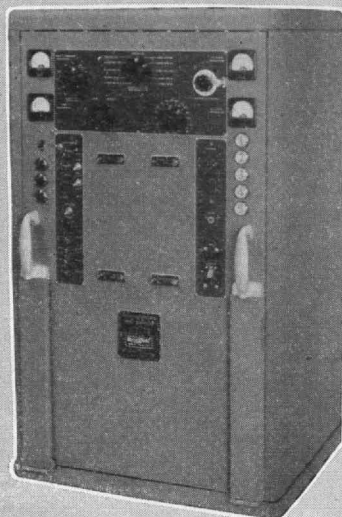
Over the years, the National Company has been called upon by the government and industry to design and build radio and electronic equipment for specialized purposes. National engineers have met this challenge by producing equipment that, in all cases, has more than met the most exacting specifications... equipment that is operating dependably today all over the world. A few examples are illustrated at the right.

If you use or need similar equipment, why not write National today for further information. Address inquiries to the Commercial Division.

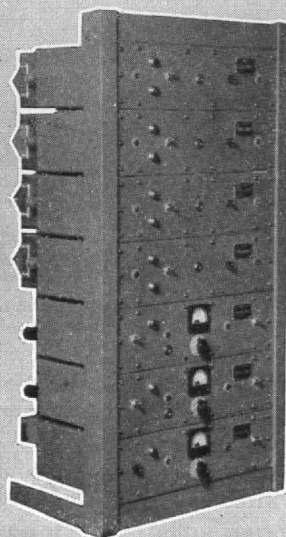


EXPORT INQUIRIES on all National products — television, communication receivers, commercial equipment and components — should be addressed to Export Div., Dept. HB.

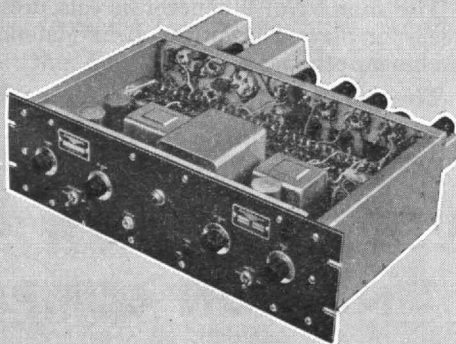
NATIONAL COMPANY, INC.
61 Sherman St., Malden, Mass.



VHF Transmitter



Frequency Shift Equipment



Single-Channel Receiver

CARBON BLACK FOR DEFENSE

Carbon black triples the usefulness of any rubber product that must stand up to the terrific pounding and abrasion that is the normal life of a tire and most other rubber products used in modern warfare. In fact, you cannot build a modern truck, tank, gun carriage, airplane or even a battleship without rubber reinforced with carbon black.

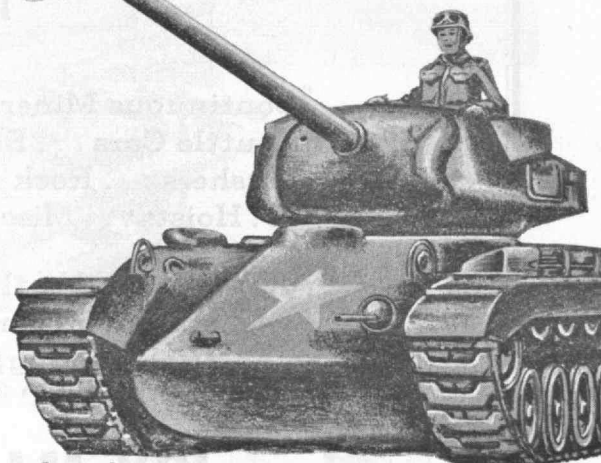
There is no adequate substitute for carbon black and that's why in 1945, it was Number One on the list of Critical War Material Shortages. Since it is essential to the conduct of war, it is equally important to defense.

Military men alone know how vital is the dependability of a product to the lives of numbers of men. That's why Cabot Carbon Blacks are preferred to all others. Manufactured to rigid, high standards, they are guaranteed to give the same, quality performance, time after time.

Weapons of defense or war—whatever the circumstance or purpose—give the best possible length and kind of service, when rubber is reinforced with a Cabot Carbon Black.

GODFREY L. CABOT, INC.

77 FRANKLIN STREET, BOSTON 10, MASS.



JOY

The World's Largest Manufacturer of Underground Mining Equipment...the Pioneer in Modern Mechanized Mining Methods

Continuous Miners . . . Coal Cutters . . . Loaders . . . Shuttle Cars . . . Belt, Chain and Shaker Conveyors . . . Slushers . . . Rock and Core Drills . . . Fans . . . Blowers . . . Hoists . . . Miscellaneous Mining Equipment.

JOY also builds the most modern line of portable and stationary compressors available for general industrial, mining, quarrying, and construction needs.



JOY MANUFACTURING COMPANY

Henry W. Oliver Building, Pittsburgh, Penna.

PLANTS AND REPRESENTATION THROUGHOUT THE WORLD

Among the JOY executive personnel, we are proud to number the following men who are graduates of the Massachusetts Institute of Technology

James Andrew DRAIN '26
Vice Pres.-General Manager
Galt, Ontario, Canada

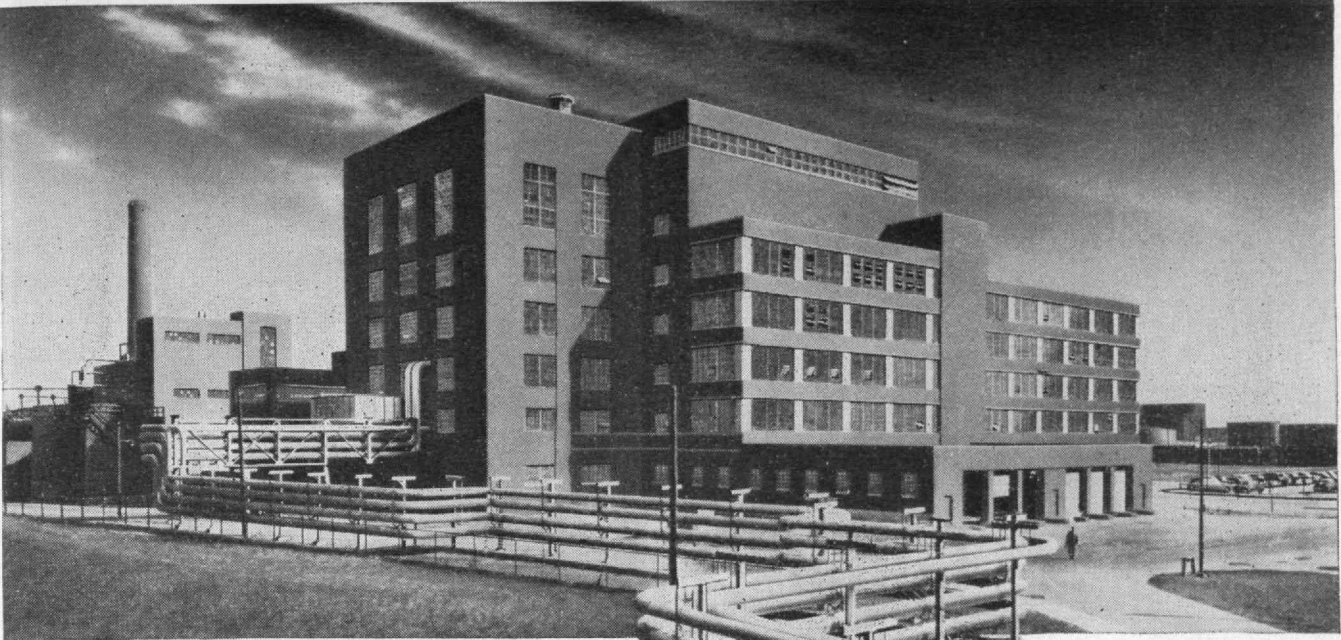
George Walter BERGMAN '27
District Manager
Knoxville, Tenn.

Benjamin Philbrick LANE '23
Special Representative,
Export Department
New York, N.Y.

Raymond MANCHA '26
Vice President
Ventilating Equipment
Pittsburgh, Pa.

Robert Wesley SCOTT '23
Production Manager
Air Compressors
Michigan City, Indiana

Jonathan A. NOYES, '12
District Manager
Dallas, Tex.



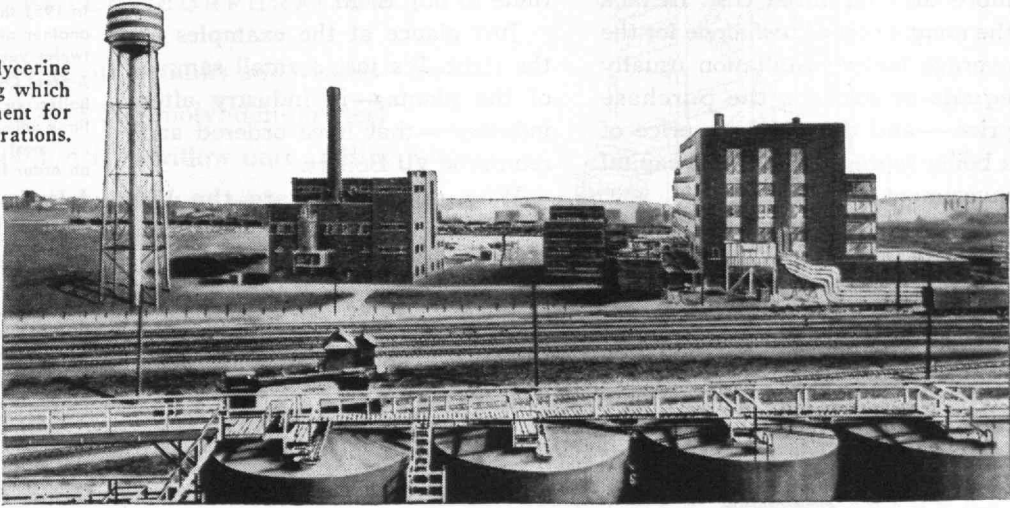
Finishing Building with
Boiler Plant in
left background

FROM REPORTS... to *Producing Plant*

For Lever Brothers Limited, Stone & Webster Engineering Corporation prepared a series of reports covering alternative plans for consolidation and expansion of the company's manufacturing facilities in Toronto.

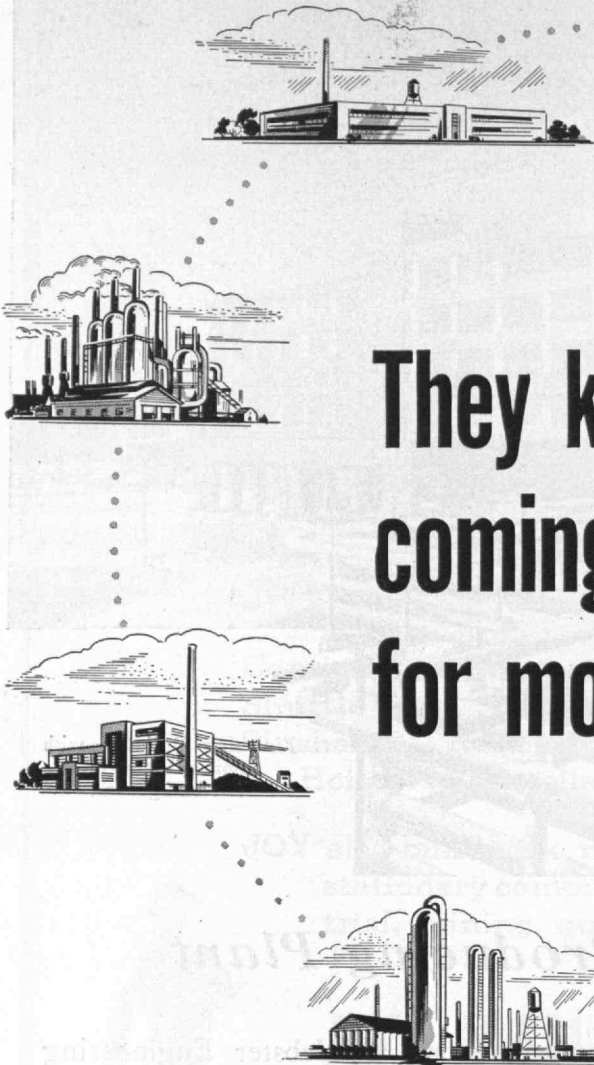
The resulting new plant facilities, selected to achieve more efficient and economical operation, were designed and constructed by Stone & Webster Engineering Corporation.

Left to right, Boiler Plant, Glycerine Refinery and Finishing Building which includes manufacturing equipment for soap products and toilet preparations.

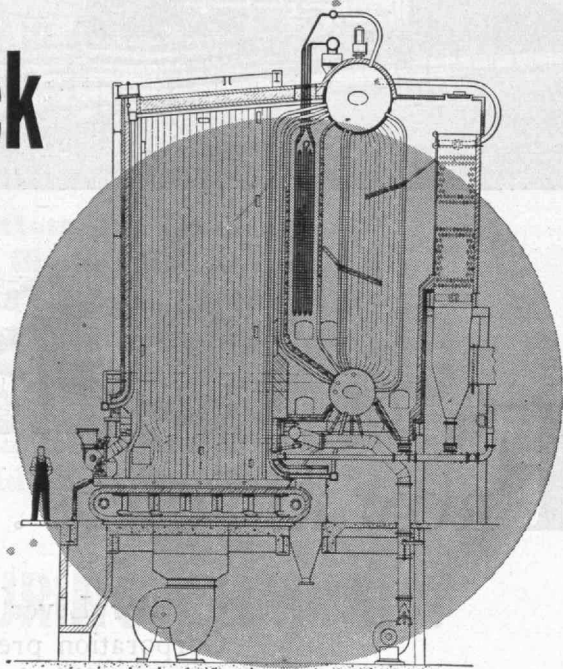


STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY of STONE & WEBSTER, INC.



They keep coming back for more



One thing that distinguishes a boiler from most other types of equipment is that its *annual* operating cost is more than its initial cost. In fact, the annual cost of *fuel alone* for the average boiler installation usually *equals* or *exceeds* the purchase price—and the purchase price of a boiler represents a sizable capital investment.

With fuel costing what it does today, it is more important than ever before to select a boiler that will assure the most efficient performance possible. That is why it is especially significant that people

who have bought C-E Vertical Unit Boilers—and know these boilers *through their own experience*—continue to buy them.

Just glance at the examples at the right. It's just a small sample of the plants—in industry after industry—that have ordered and *reordered* VU Boilers.

Why not investigate the VU Boiler for *your* next installation. Our recommendations as to the most suitable type of VU Unit for your particular requirements are available to you or your consultants without obligation.

A Chemical Company ordered two VU Boilers in 1939. In 1946 five more were ordered for three of their other plants. In 1949 two more were ordered for one of these same plants, and in 1950 two more units for a fifth plant. In 1951 three more units were ordered for still another plant—thirteen units for six plants in twelve years!

A Steel Company now has a total of eleven VU Boilers in four different plants. Starting with three units in 1936, it has reordered three times . . . most recently in the fall of last year with an order for three more units.

A Textile Manufacturer ordered two VU Units in 1936. Another unit was installed in 1940 and a third in 1944. Still another textile company installed one unit in 1945, a second in 1949 and has just ordered another.

An Electric Utility Company installed its first VU Unit in 1941. Two more units were ordered for another plant in 1947, a unit for a third plant in 1946 and still another for a fourth station in 1949.

A Refining Company ordered one VU Unit in 1937, another in 1940 and another in 1949 for one of its plants; also two in 1942 and one in 1947 for another plant.

B-486

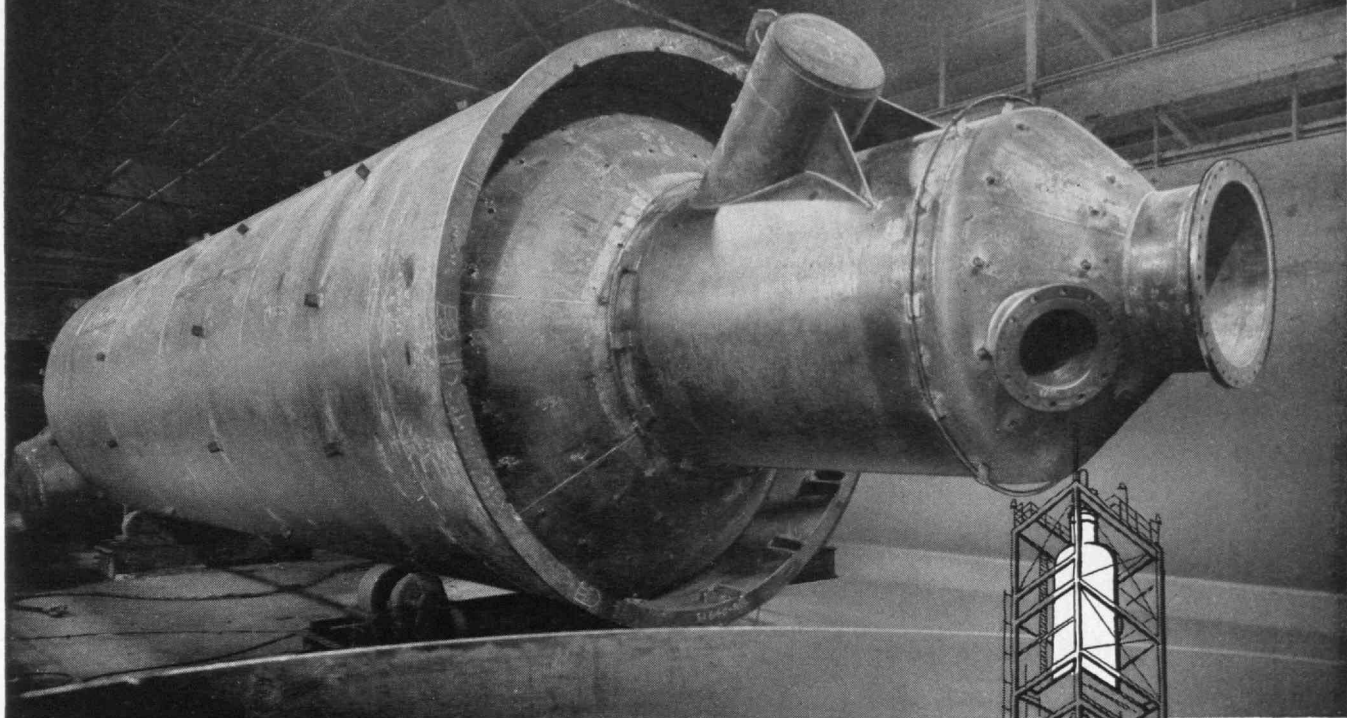
ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT



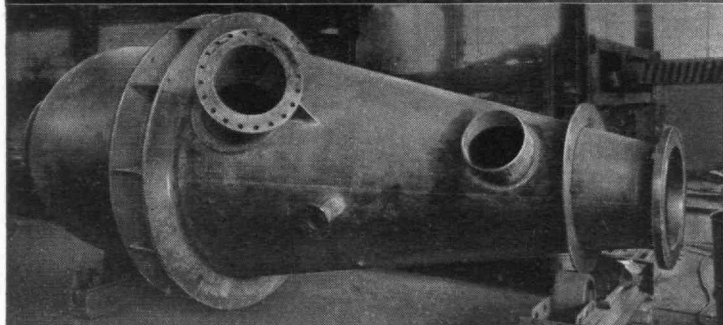
COMBUSTION ENGINEERING—SUPERHEATER, INC.

Combustion Engineering Building
200 Madison Avenue • New York 16, N. Y.

REFINERY VESSELS



Graver-built Catalyst Disengaging vessel 12' x 50' 4 1/4" of A 204 Molybdenum Steel.



Molybdenum Catalyst Lift Engaging Drum 6' x 19' 0-3/4".

for GREAT LAKES REFINING COMPANY

DIVISION OF PETCO CORPORATION

Fabricated by Graver—among other tanks and vessels—are two refinery vessels of ASTM A 204 molybdenum steel for Great Lakes' new 6,000 b/d Houdrifiow unit at Blue Island, Illinois. Since Graver's vessels function as part of the steam catalyst lift, the special steel provides great strength at the high temperatures required by the process. These fabrications are typical of the unusual skills that Graver possesses in stainless, alloys and clads, both in its shop work and in field erections.

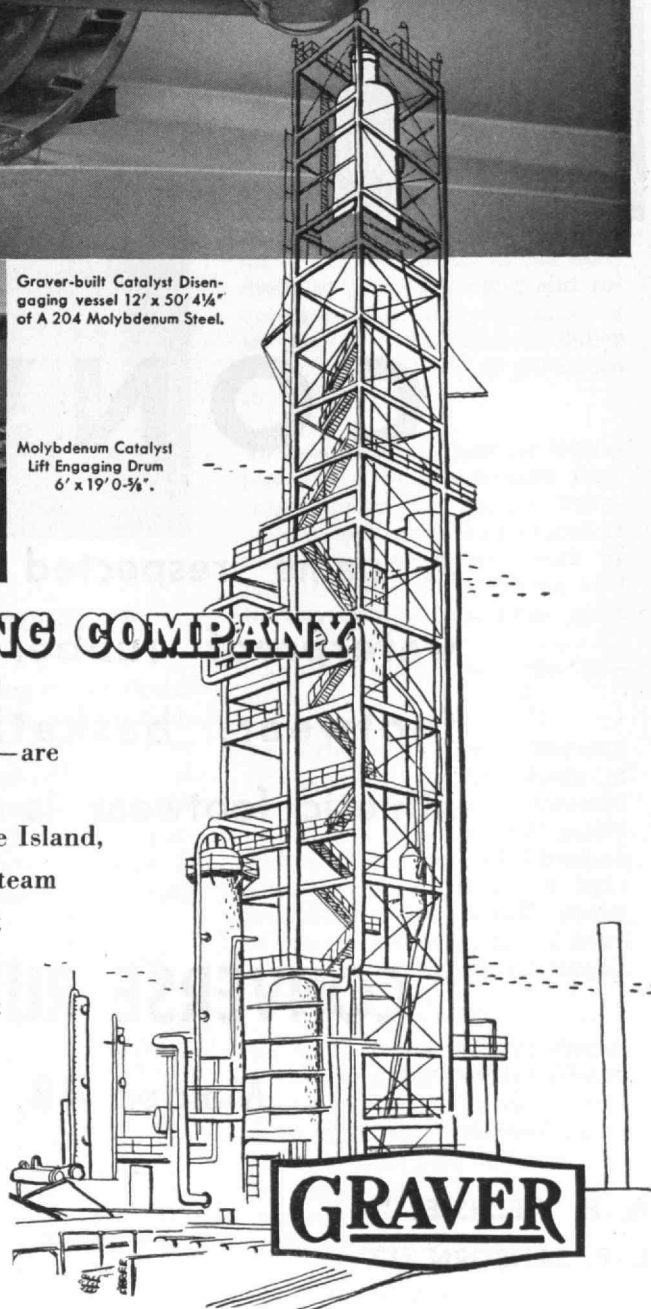
GRAVER TANK & MFG. CO., INC.

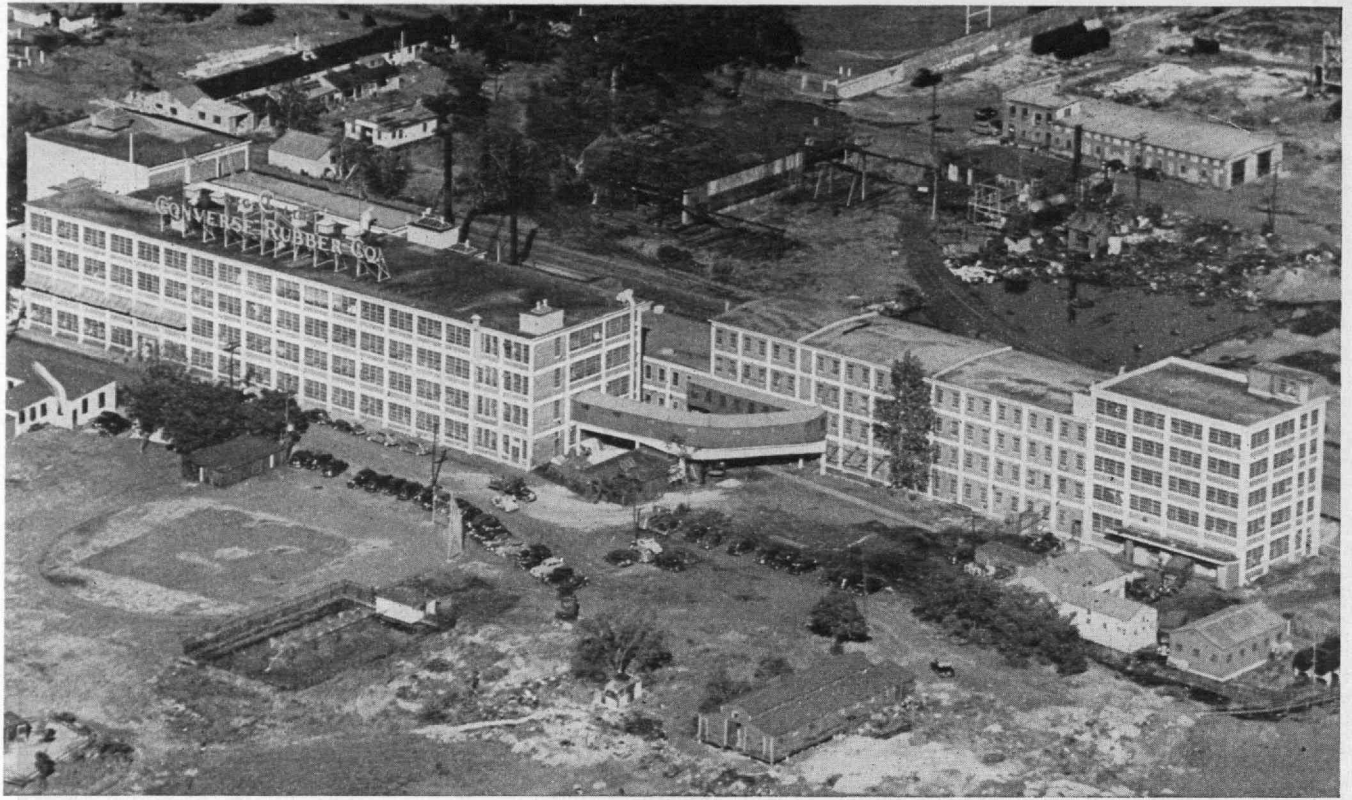
EAST CHICAGO, INDIANA

NEW YORK • CHICAGO • PHILADELPHIA • WASHINGTON

DETROIT • CINCINNATI • CATASAUQUA, PA.

HOUSTON • SAND SPRINGS, OKLA.





CONVERSE

A name respected for quality wherever
waterproof rubber footwear, sporting
footwear, basketball footwear and
athletic footwear is made, sold and worn.

CONVERSE RUBBER COMPANY

Malden 48, Massachusetts

A. H. WECHSLER '21

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