

March 1948

TECHNOLOGY REVIEW

Title Reg. in U. S. Pat. Office



FORGINGS . . .



To Control
PRESSURE



THE **HARVEY**

METAL CORPORATION

• *Engineers & Manufacturers* •

74th STREET and ASHLAND AVENUE • CHICAGO 36, ILLINOIS

FORGINGS IN ALUMINUM • BRASS • BRONZE • COPPER • MAGNESIUM • MONEL • ALLOYS

MACHINING FACILITIES

Industrial Eye Accident Costs **UP 78½%**

*You Can CUT this Expense
in these days of Rising Costs*



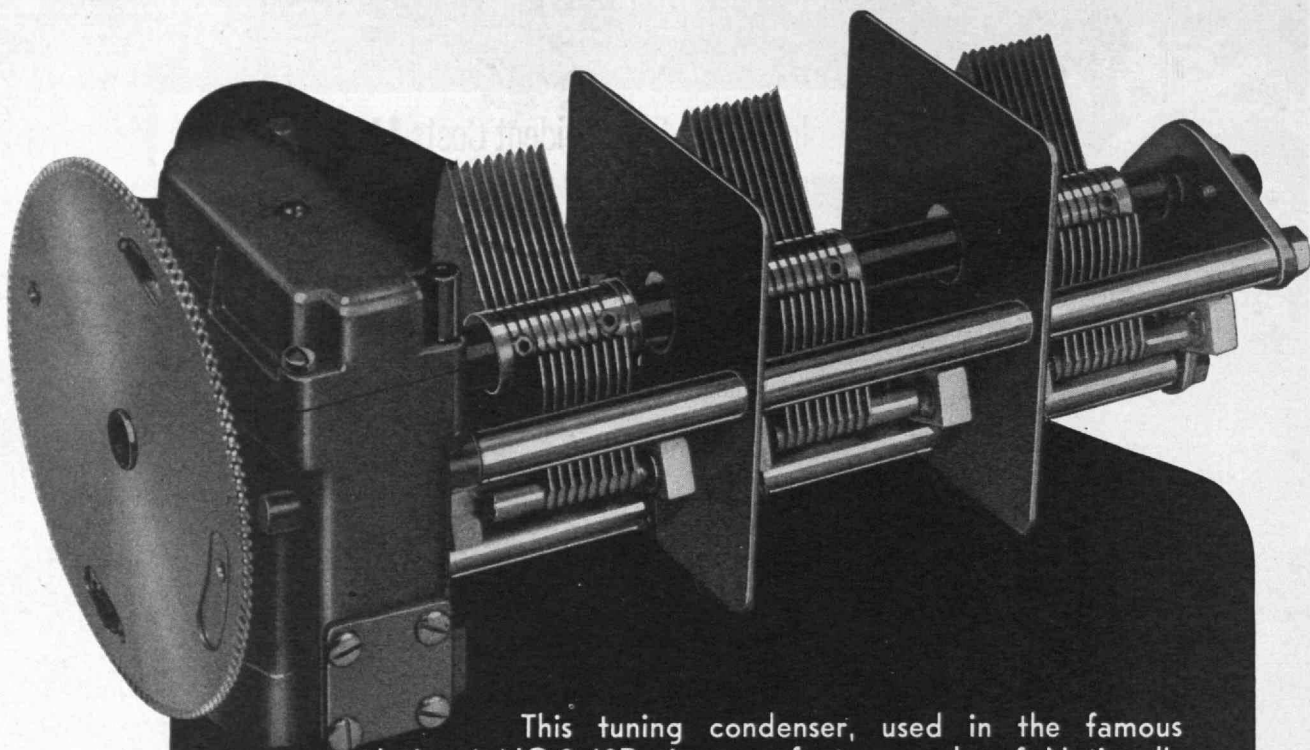
Unlike today's other rising costs which may be compensated for by larger volume, eye accidents are out-and-out embezzlers of your profits. THEY CUT BACK PRODUCTION—by putting "green" workers on the job, lowering shop morale, placing expensive equipment in less trained hands. All this, *in addition* to the direct cost of a major eye accident which some authorities estimate at \$350 or more. Good business judgment dictates that these costs be cut *immediately*. Your AO Safety Representative can show you how 98% of all eye accidents can be prevented by an eye protection program that will pay for itself in six months or less.

American  Optical

COMPANY

*Safety
Division*

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES



This tuning condenser, used in the famous National NC-2-40D, is a perfect example of National's flawless construction and design. Engineered and manufactured in National's own plant, it is of extremely rigid construction, preventing unwanted frequency modulation due to vibration. Three bearings on the rotor shaft assure permanent alignment. The drive is through a large pre-loaded gear. No strings to deteriorate, no backlash! Each rotor is individually insulated and has its own contact. Stator insulation is low-loss steatite.

With precise, rugged components like this, no wonder National communication receivers lead the field — in any climate, under all operating conditions! National precision components are available at your dealer's.

NATIONAL COMPANY INC., MALDEN, MASS.

The National NC-2-40D

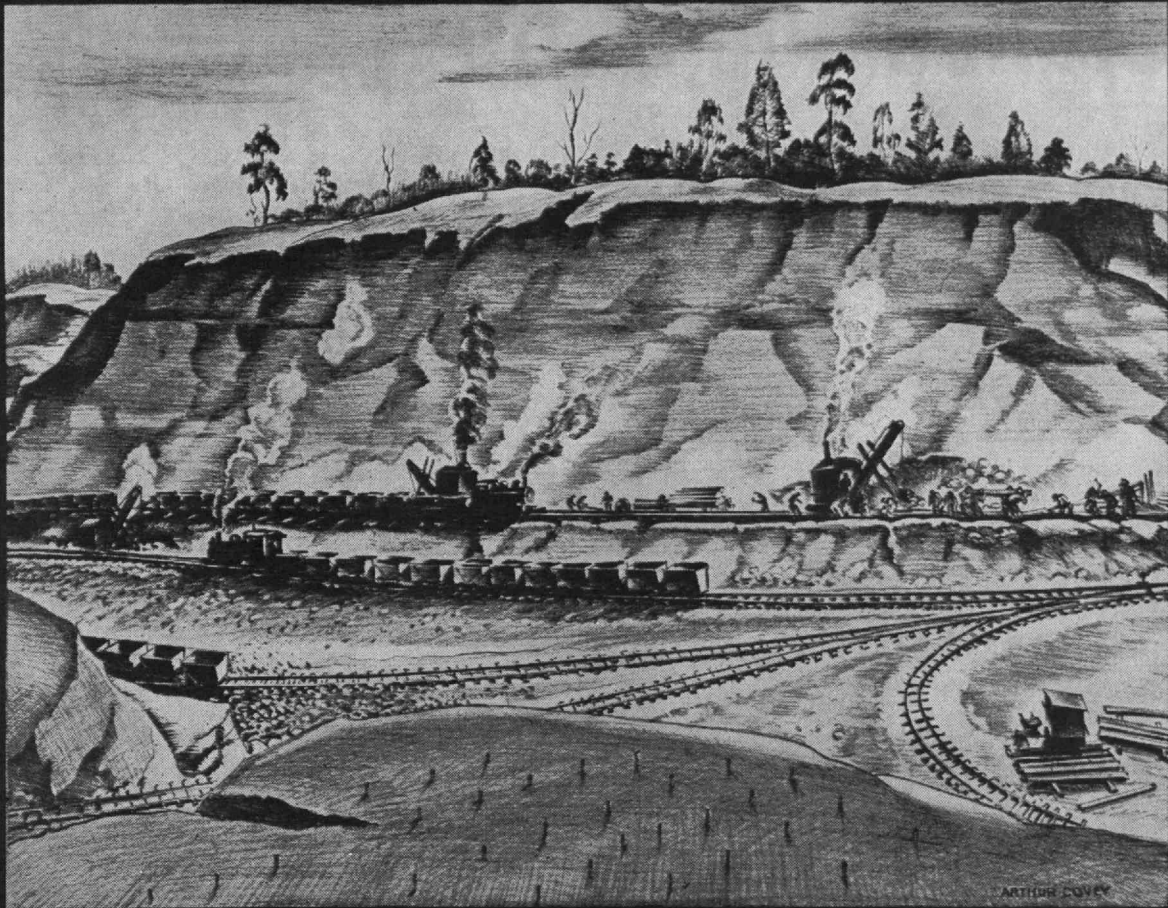


A superb receiver for either commercial or amateur use covering frequencies from 490 kcs. to 30,000 kcs. Calibrated electrical band-spread tuning on the 80, 40, 20 and 10-meter bands. A 40 to 1 main tuning drive mechanism provides exceptional tuning accuracy on all bands. Design features include temperature compensation, automatic voltage stabilization, a series valve noise limiter, new flexible crystal filter and phono input. Operates from 115 or 230 volts AC. Eleven tubes plus rectifier. Try it — compare it — today at your dealer's!

\$225.00 (speaker extra)



NATIONAL COMPANY, Inc.
MALDEN, MASSACHUSETTS



NORTON BAUXITE MINE AT BAUXITE, ARKANSAS

Ore from Arkansas becomes the world's most widely used abrasive

BAUXITE ore from mines like this is converted by Norton into one of industry's most useful products.

In unique, Norton-developed electric furnaces the bauxite is fused into aluminum oxide abrasive—known the world over by the trade-mark "ALUNDUM".

Industry uses Alundum abrasive for grinding, for polishing, for honing, for tumbling, for pressure blasting, for sharpening, for non-slip walkways.

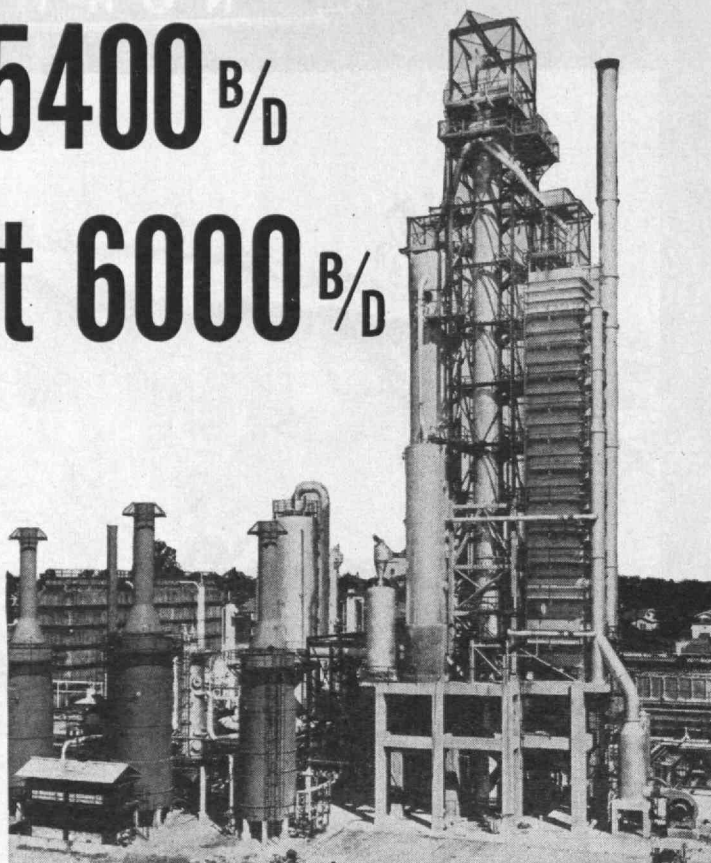
And because of its heat-resistant properties Alundum abrasive material is also the basic ingredient of a varied line of Norton refractories.

NORTON COMPANY • WORCESTER, 6, MASS.

(BEHR-MANNING, TROY, N. Y. IS A NORTON DIVISION)

designed for 5400^{B/D} operating at 6000^{B/D}

**Lion Oil cat cracker
accepted
after 28 days
initial run . . .**



Typical of Lummus design, careful inspection, skilled construction and experienced operation is the performance of the catalytic cracker designed and built for Lion Oil Company, Eldorado, Arkansas.

This plant—the 31st Lummus catalytic cracking plant—went on stream September 16th. It not only met all guarantees but soon exceeded design capacity. It was accepted by Lion on October 13th after 28 days of continuous operation. On the 85th day of the initial run, the reactor was by-passed for the insertion of larger orifice plates to permit increased charge capacity. 6024 B/D of fresh gas oil charge have already been processed with a possible 7000 B/D in the near future—against a design capacity of 4500 B/D of fresh feed plus 900 B/D recycle.

The unit has also exceeded the guaranteed percentage yield of high-octane gasoline and has produced 3070 barrels per day of 10 lb. RVP gasoline against a 2040 B/D guarantee.

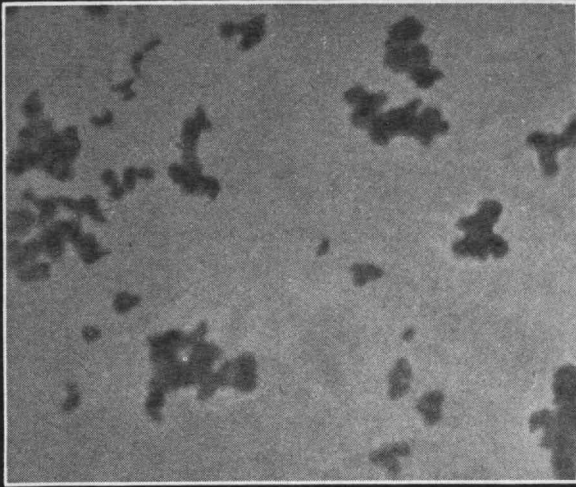
Long initial runs have always been characteristic of Lummus plants. Among many outstanding initial runs is that of a Lummus catalytic cracking plant which ran 240 days before it was shut down for inspection.

THE LUMMUS COMPANY
420 Lexington Avenue, New York 17, N. Y.

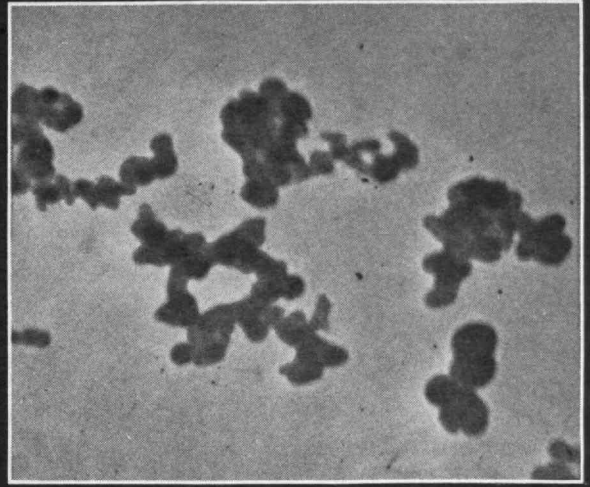
LUMMUS

CHICAGO—600 South Michigan Avenue, Chicago 5, Ill.
HOUSTON—Mellie Esperson Bldg., Houston 2, Texas
LONDON—78 Mount Street, London, W. 1, England

Cabot Research and Development



Spheron 6. Magnification 59,000 times. Average particle size .0285 microns.



Sterling S. Magnification 59,000 times. Average particle size .06 microns.

Cabot Spheron 6 has added millions of miles of road wear to the nation's tire treads, while millions of pounds of Sterling S are consumed annually in the production of inner tubes, tire carcasses and mechanical goods.

Invisible under the ordinary microscope, individual particles of each are clearly revealed by the RCA Electron Microscope. Spheron 6 particles are less than .03 microns in diameter. Those of Sterling S nearly twice as large.

Particle size and properties in varied applications of carbon black are clearly related, making the RCA Electron Microscope an invaluable aid in predicting and controlling the properties of carbon black, a commodity essential to the rubber, paint, printing ink and many other industries.



GODFREY L. CABOT, INC.

77 Franklin Street, Boston 10, Massachusetts

VULCAN

DESIGNS AND BUILDS COMPLETE PLANTS AND EQUIPMENT FOR THE PROCESS INDUSTRIES

For almost a half century, Vulcan has furnished the Process Industries with complete chemical processing plants and specially-engineered and fabricated equipment involving distillation, evaporation and extraction operations.

With this background of experience, the Vulcan organization effectively coordinates its complete pilot plant and laboratory facilities, competent engineering staff and modern plant equipment into rapidly evolving projects from initial conception into efficient processing plants.

Vulcan

**distillation
evaporation
extraction
processes and equipment**

THE VULCAN COPPER & SUPPLY CO. - CINCINNATI, OHIO

PILOT PLANT

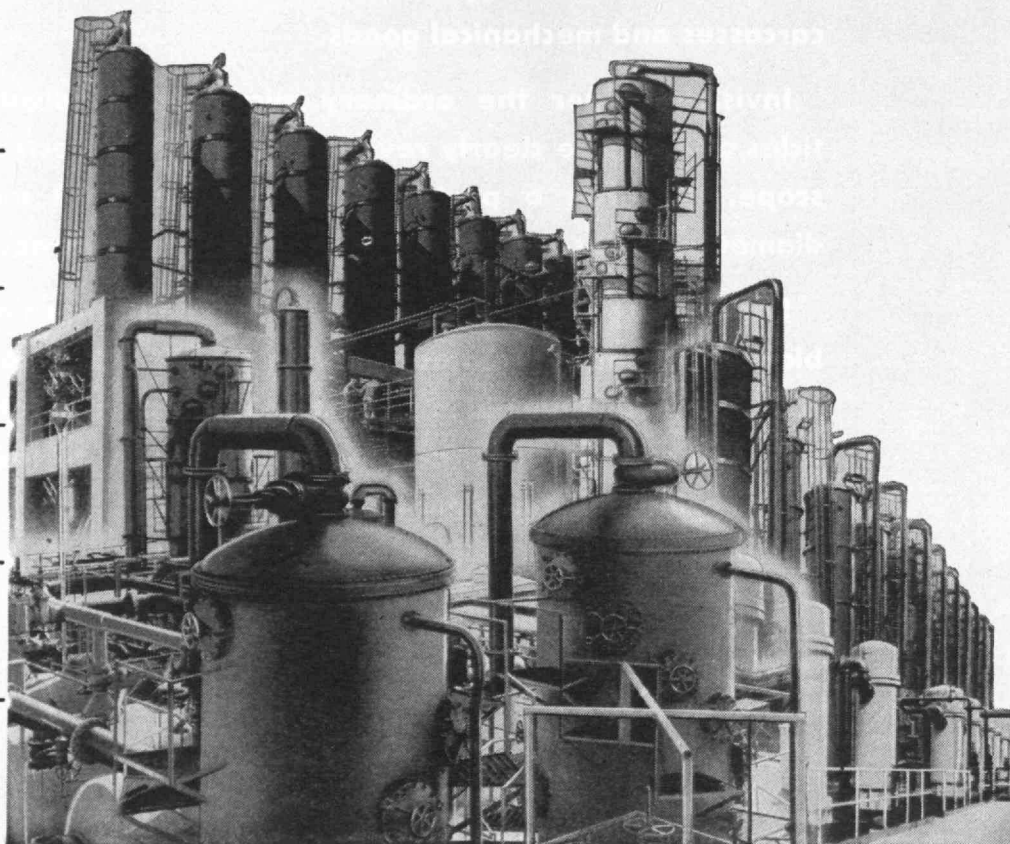
PROCESS DESIGN

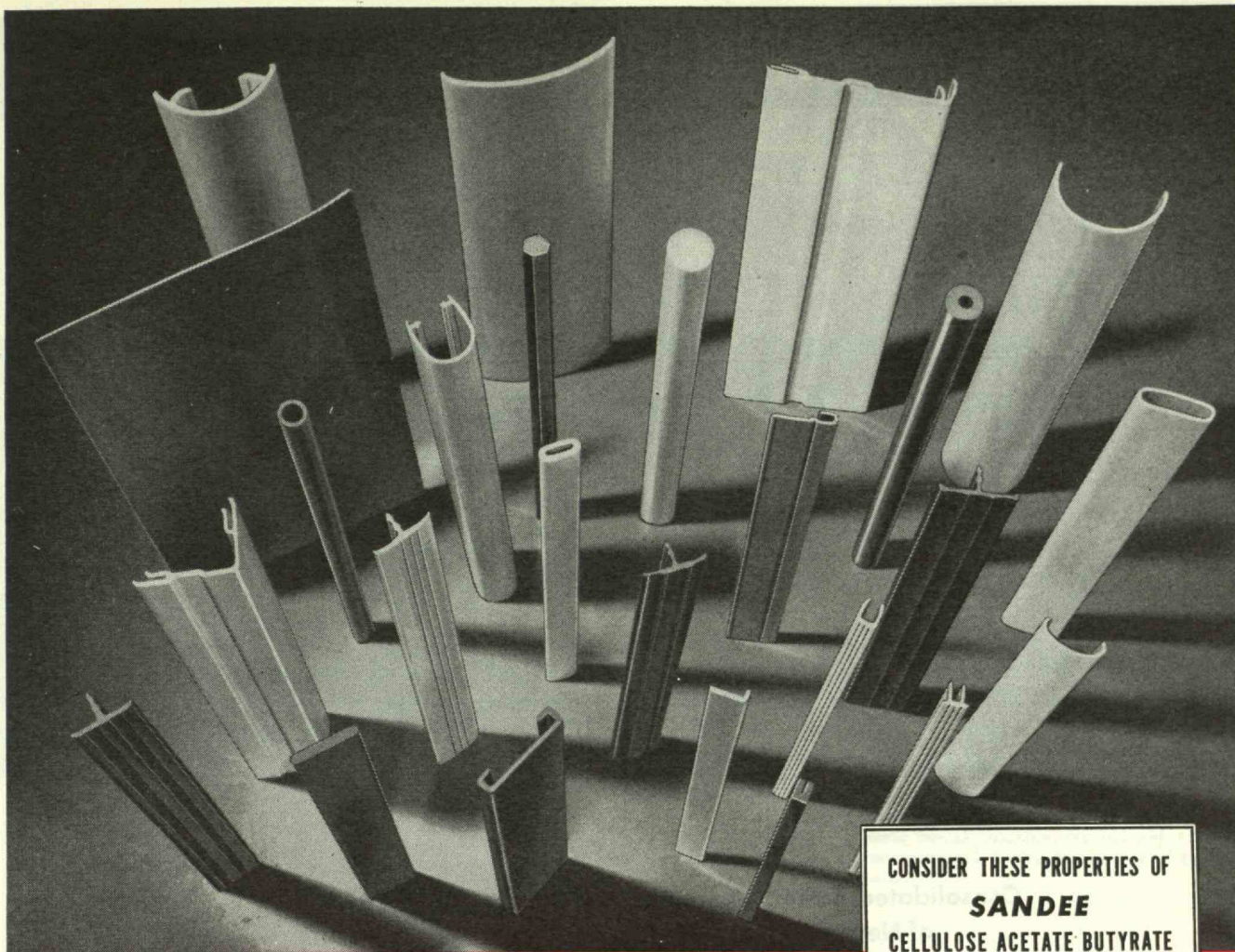
MECHANICAL DESIGN

SHOP FABRICATION

FIELD ERECTION

INITIAL OPERATION





Sandee CELLULOSE ACETATE BUTYRATE *Extrusions*

7 HIS general purpose material, under the trade name TENITE II, has attained an excellent reputation for appearance and serviceability in widely diversified fields. This is not only true in injection molded and fabricated items but is equally true in Extruded Rods, Tubes, and simple and complicated shapes. Colorful, tough, easily machined and easily formed to fit specific contours, it is serving to complete satisfaction in fields ranging from rods and tubes for toys to furniture and refrigerator trim.

Study the properties of this excellent general purpose material, then check with *Sandee* for confirmation of suitability to your requirements. *Sandee's* practical know-how in extrusion often helps in altering designs for improvements in functional utility, appearance, and cost.

CONSIDER THESE PROPERTIES OF **SANDEE** CELLULOSE ACETATE BUTYRATE

1. Specific Gravity —1.22
2. Tensile Strength —3000 to 5000 p.s.i.
3. Impact Resistance —Excellent at normal temperatures
4. Heat distortion—170° to 185°F.
5. Rigidity —Good to very good
6. Dimensional Stability —Good to very good
7. Water Absorption —1 to 2%
8. Burning Rate —Slow
9. Odor —Nil to faint
10. Color —Unlimited
11. Finish —Excellent
12. Machinability —Excellent

SALES REPRESENTATIVES IN 19 PRINCIPAL CITIES

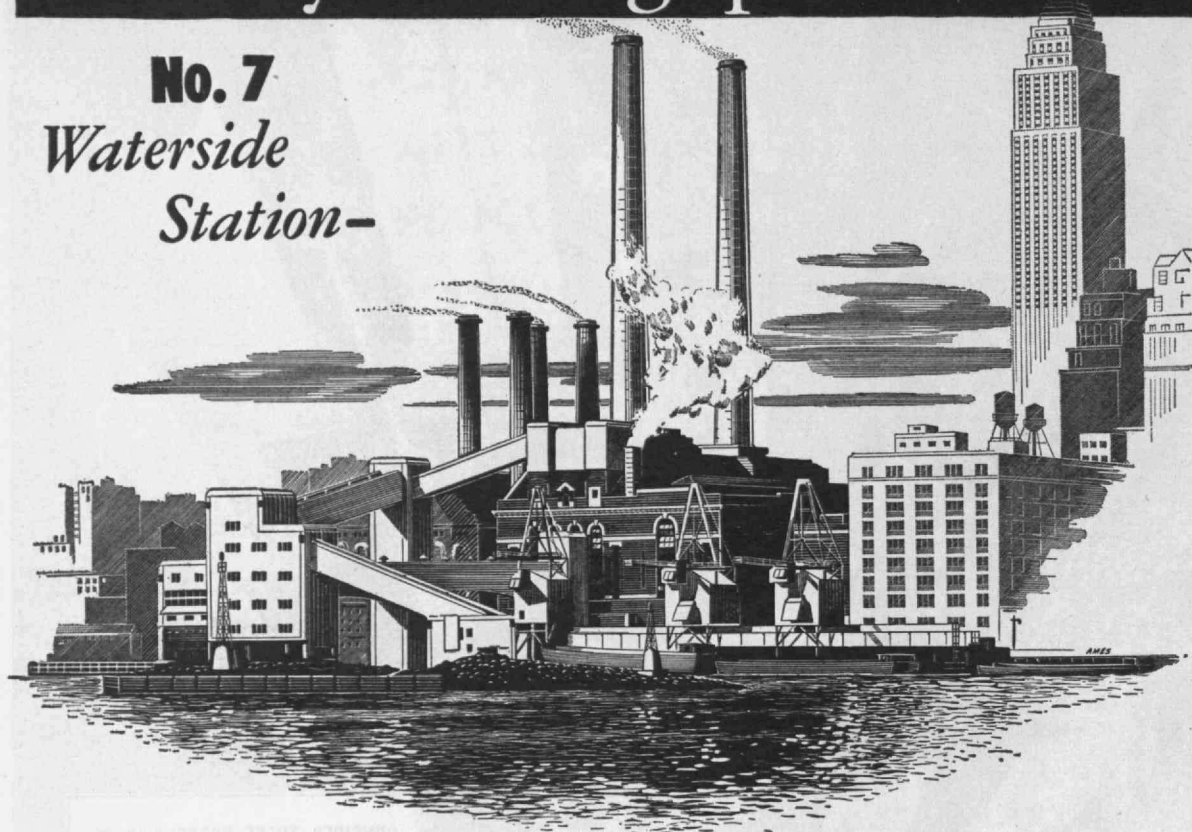
Sandee Manufacturing Company

5050 FOSTER AVENUE • CHICAGO 30, ILLINOIS

EXTRUDED PLASTICS AND SPECIAL TOOLS

History-making power stations

No. 7 Waterside Station—



Consolidated Edison Company of New York, Inc.

PERHAPS no public utility station in America so perfectly parallels this century's progress in power generation as the Waterside Station of the Consolidated Edison Company of New York. Existing from about the turn of the century, this station has spanned virtually the whole development of power practice from small, hand-fired boilers and engine-driven generators to the giant, high-pressure boilers and turbines of the present day.

Although expanded and improved through the years, the real modernization program of the two plants comprising Waterside began in 1936, when work was started on the installation of *eight* huge boilers to replace the *ninety-two* old boilers in Plant 2. Modernization of Plant 1 is now well under way and the *two* boilers being installed will replace *fifty-three*. Extensive improvements with respect to turbines and other equipment have accompanied the boiler replacement program.

This is, without question, the greatest modernization project in the entire utility field . . . one of the world's largest power stations completely rebuilt . . .

its capacity *nearly doubled* within the same building space . . . its economy vastly improved.

This policy of continuing modernization, characteristic of the electric utilities generally, is one of the big reasons why this industry is in the unique position of being able to sell its product today at a lower price than before the war. Electricity, long recognized as America's most valuable servant, continues to be America's *best buy*.

Combustion Engineering is proud of its major part in the Waterside modernization program. Eight of the ten high-pressure boilers replacing 145 old boilers are of C-E design and manufacture. Four of these units have capacities of 500,000 pounds of steam per hour, two of 615,000 pounds and two of 1,000,000 pounds.

**COMBUSTION
ENGINEERING**

200 MADISON AVENUE • NEW YORK 16, N. Y.

The association of C-E with Waterside and many other power stations that have made history speaks for itself. The experience, special skills and advanced engineering that have brought about these associations are available to you, whether your steam requirements be large or small.

These three factors are the unwritten plus-values in every C-E contract —

Knowledge — to solve today's, and tomorrow's, steam generating problems.

Experience — to interpret, from a world-wide background in every important industry, the specific needs of each installation.

Facilities — to manufacture complete steam generating units for every capacity from 1000 pounds of steam per hour up to the largest

B-16