

TECHNOLOGY

REVIEW *November 1952*



pioneers in precision

Lear, Incorporated

Manufacturers of Precision Engineered Products,

Lear has pioneered in the miniaturization of aviation instruments since 1930.

Lear designed and produced automatic pilots have been accepted for use in jet fighter planes as well as in commercial aircraft for single engine or multi engine airplanes. The Lear Automatic Pilot and Approach Coupler permits safe landings despite extreme weather or visibility conditions.



Miniature Precision Bearings

incorporated, are the originators and pioneer manufacturers of radial ball bearings in miniature sizes. For and with Lear, **MPB** designed the first miniature flange bearings and has supplied many thousands of this and additional types.

A pioneer in other designs and dimensions now being internationally standardized, **MPB** has also originated many precision manufacturing techniques. High speed bore grinding was first explored and finally perfected in this plant. For nearly ten years, this recently publicized method has been standard practice at **MPB**. In fact, the original concept of practically every development in this field has been by **MPB**.

Regularly supplied in more than 120 types, sizes, and materials, from 1/10" to 7/16". Special designs are supplied where specifically indicated. They are fully ground, lapped, honed, and/or burnished to ABEC 5 tolerances or better.

MPB ball bearings have been installed in more than a million precision mechanisms. Design engineers are assured of full cooperation. Write, requesting Catalog 52B—shows complete range and selection data—engineering sheet TR 11

Quality improvement, continued thru an extensive expansion program has prompted a demand greater than ever. Enlarged facilities however, and newest exclusive processes will soon enable us to serve you better than ever.

Miniature precision Bearings

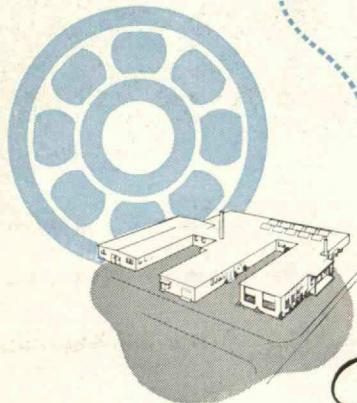
Incorporated

Keene, New Hampshire



"Pioneer Precisionists to the World's foremost instrument Manufacturers"

**save
space
weight
friction**



Catching fish with ground glass

Your ultra-modern fiber glass fishing rod, like the familiar steel and bamboo types, depends on grinding for the "feel", balance and springiness that make it a real "precision fishing instrument."

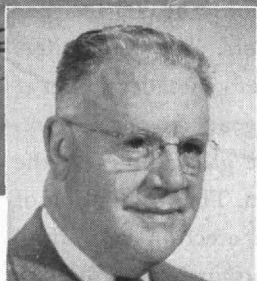
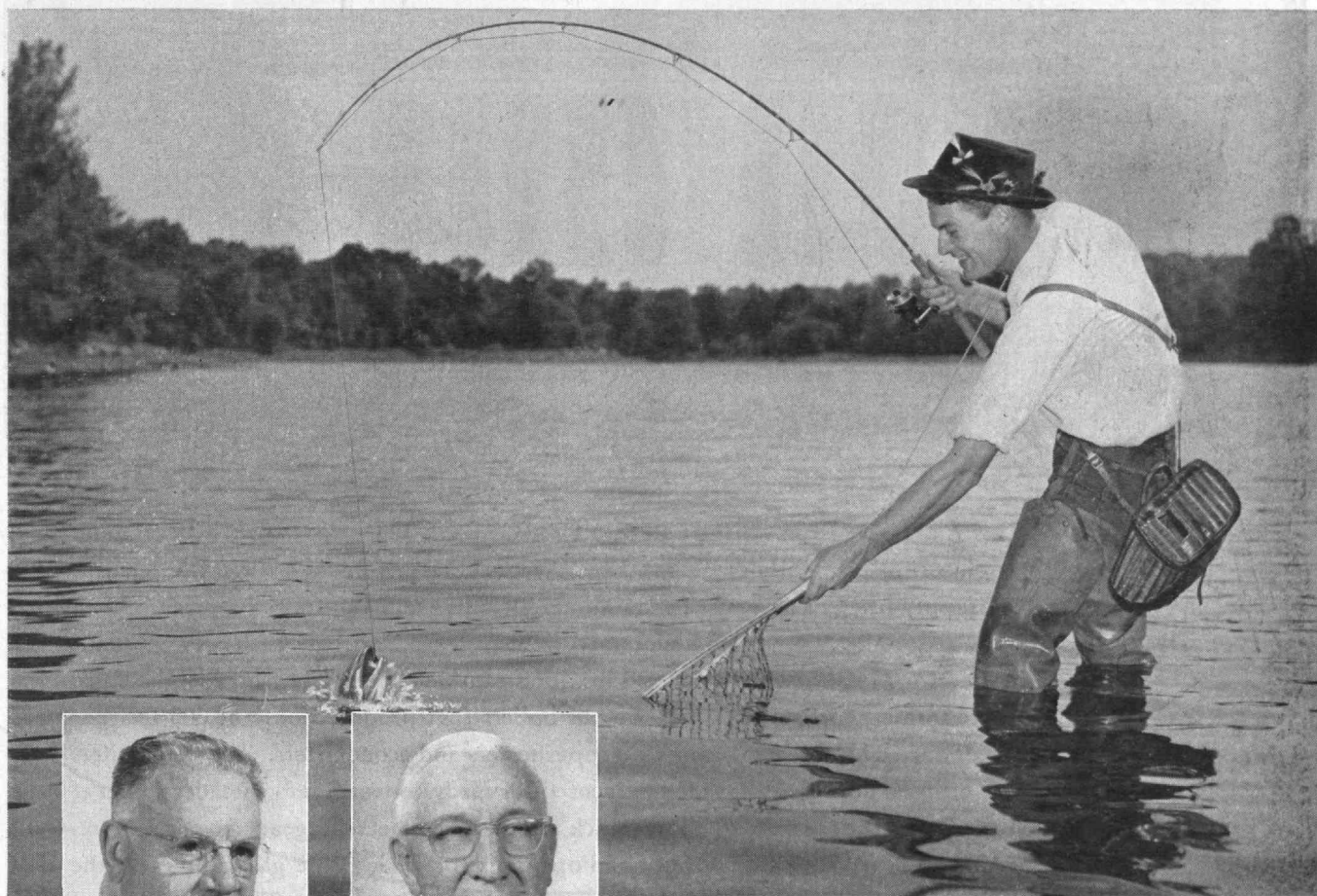
One type of glass rod contains over 850,000 microscopic glass strands, bound together by heat. It is ground to a pre-determined taper—accurate to .001 inch—with a Norton CRYSTOLON grinding wheel in a centerless grinder. Another type is precision-finished with Behr-Manning coated abrasives.

As with fishing rods, grinding is essential to the manufacture or maintenance of every man-made product. And as the world's largest manufacturers of abrasives and abrasive products for every grinding and polishing operation, Norton and Behr-Manning serve all industry by the product-development that helps improve other products.

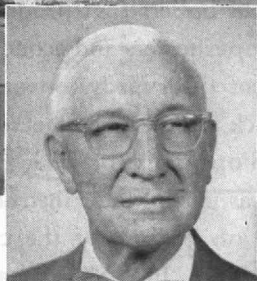
NORTON makes abrasives, grinding wheels, pulpstones, refractories, grinding and lapping machines, non-slip floors, Norbide grain and molded products. Norton Company, Worcester 6, Mass.

BEHR-MANNING makes abrasive paper and cloth, oilstones, abrasive specialties, Behr-Cat brand pressure-sensitive tapes. Behr-Manning Corporation, Division of Norton Company, Troy, New York.

Plants, Distributors and Dealers the world over



COLIN A. ROSS, packaging development engineer at Behr-Manning for 23 years, has made many valuable contributions to modern "Service Packaging" and labelling of coated abrasives.



CHARLES J. HUDSON is chiefly responsible for the outstanding excellence of Norton's quality control. Now in his 34th year at Norton, he is a recognized authority in his field.



Making better products to make other products better

NORTON • BEHR-MANNING

THE TECHNOLOGY REVIEW, November, 1952, Vol. LV, No. 1. Published monthly from November to July inclusive at Emmett Street, Bristol, Conn. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription \$3.50; Canadian and Foreign subscription, \$4.00. Entered as second-class matter December 23, 1949, at the Post Office at Bristol, Conn., under the Act of March 3, 1879.

M.I.T.,

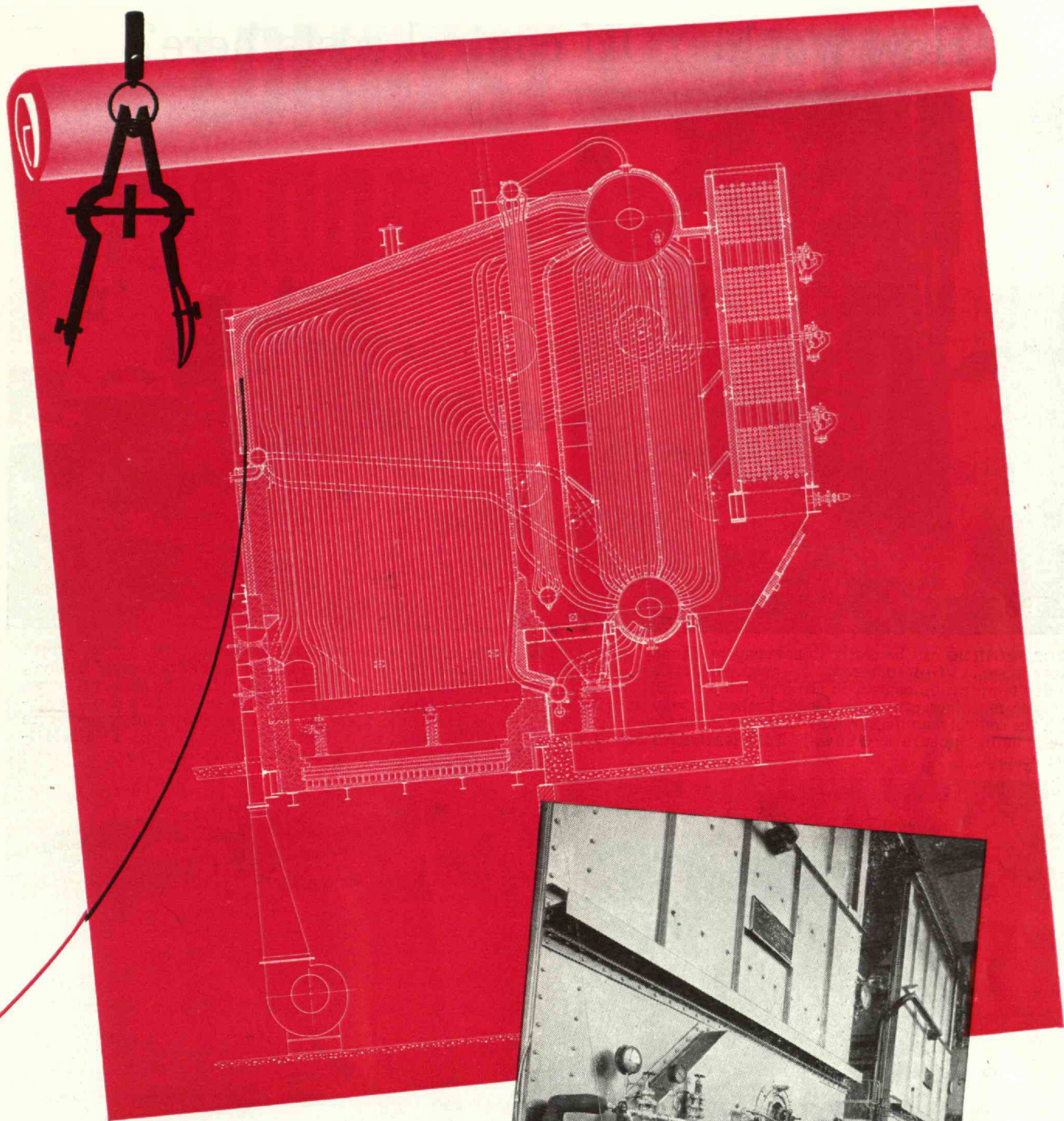


AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, where sound engineering principles are taught, two Wickes Steam Generators were selected to supply heat for several new buildings including the Hayden Library and Sloan Metals Research Laboratory. The Wickes Boilers, which were custom-engineered for M.I.T., produce 160,000 lbs. of steam per hour. They occupy the same space formerly occupied by the two old boilers that produced only 40,000 lbs. per hour. They are equipped with superheaters and economizers. The new boilers are oil-fired at present but are engineered for ready conversion to spreader stoker if desired. They are designed for quick steaming to meet emergency power requirements and are fitted with thermowells and openings for taking flue gas samples so the students at M.I.T. can run boiler tests as part of their instruction. The installation of these boilers, an extremely difficult job because of the close erection tolerances, was handled by Flagg, Brackett & Durgin, Inc., Wickes' agents in Boston. ✓ ✓ ✓

Wickes can fill your requirements for steam generators up to 250,000 lbs. per hour and 1000 psi.—all types of multiple drum boilers adaptable to any standard method of firing; oil, gas, underfeed or spreader stoker. Write today for descriptive literature or consult your nearest Wickes representative.

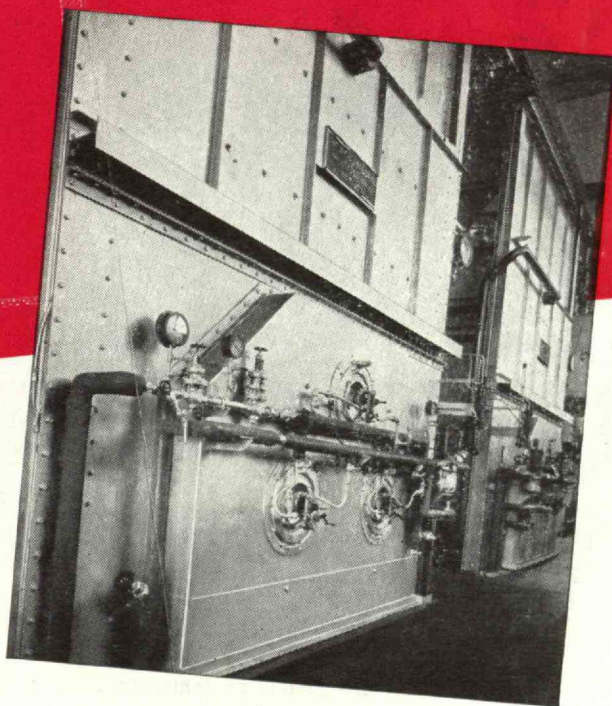
RECOGNIZED QUALITY SINCE 1854

THE TECHNOLOGY REVIEW



ABOVE: Blueprint diagram of one of the Wicks Steam Generators at M.I.T.

RIGHT: View showing the two Wicks Boilers installed in the power plant at M.I.T.



WICKES

THE WICKES BOILER CO.

DIVISION OF THE WICKES CORPORATION • SAGINAW, MICHIGAN

SALES OFFICES: Atlanta • Boston • Buffalo • Chicago • Cincinnati • Cleveland • Denver • Detroit • Greensboro, N.C. • Houston • Indianapolis • Los Angeles • Memphis • Milwaukee • New York City • Pittsburgh • Portland, Ore. • Saginaw • Springfield, Ill. • Tampa, Fla. • Tulsa • Washington, D.C.

How would YOU control costs here?

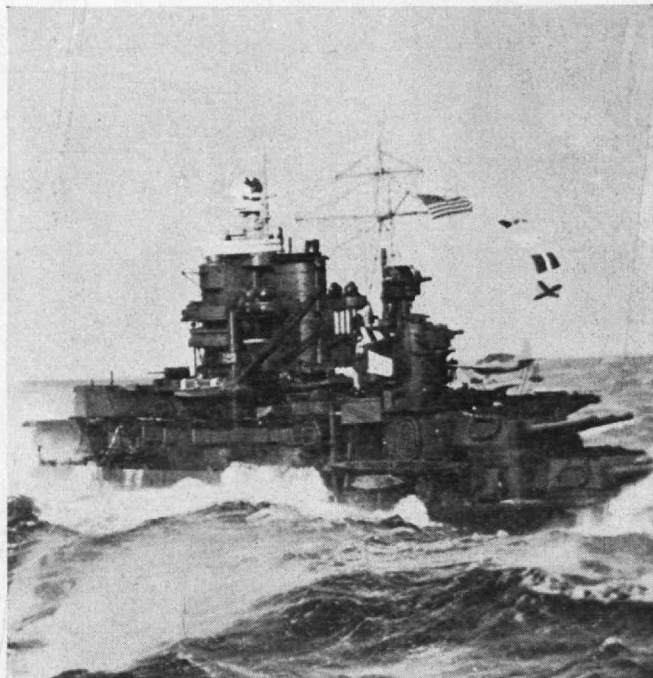


POOR PRINTING can be costly to newspapers. It may cause paper waste . . . free ad repeats . . . even circulation losses. Faulty temperature control in the lead alloy metal pots of linotype machines can cause fuzzy, broken type. But not with the control manufactured by Linotype Parts Company, Inc., using accurate Fenwal THERMOSWITCH® thermostats.

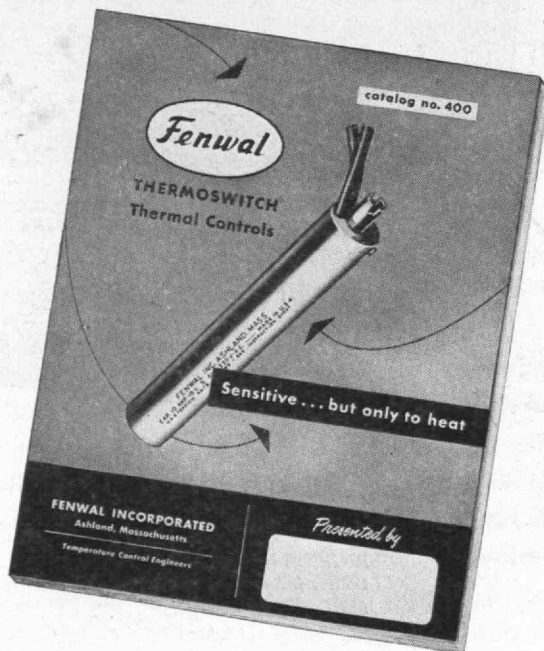


A FENWAL THERMOSWITCH CONTROL* may cut your costs, too. Its external, single-metal shell expands or contracts *instantly* with temperature changes, making or breaking enclosed electrical contacts. Compact, highly resistant to shock and vibration, Fenwal THERMOSWITCH units have solved hundreds of otherwise costly problems.

*Junction Box Type Illustrated.



HIGH CORROSION SPECIFICATIONS must be met by Armed Forces products. A salt-fog and humidity testing cabinet, made by Industrial Filter & Pump Mfg. Co., Chicago, makes sure corrosion resistance specs are met before costly deliveries are made. Tests involve close control of temperature . . . achieved by a Fenwal Junction-Box THERMOSWITCH thermostat, in each cabinet.



SEND FOR THIS NEW CATALOG for complete explanation of the unique THERMOSWITCH unit. Also ask for more detailed, illustrated discussions of the problems above. Fenwal engineers will be glad to help you solve your temperature control problems involving heat, humidity, radiant heat, pressure and other variables. Write Fenwal, Incorporated, 911 Pleasant Street, Ashland, Massachusetts.



THERMOSWITCH®

Electric Temperature Control and Detection Devices

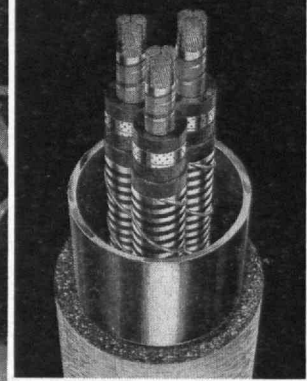
SENSITIVE . . . but only to heat

LONGEST LENGTH 138,000 VOLT CABLE!

*6800-ft. Compression Cables without Splices built
by Phelps Dodge for service under N.Y. Harbor*



Cross section points up
heavy-duty construction



- Part of manufacturing process shows king-size spool needed to impregnate this long length. Each reel was specially made to hold entire 6800-ft. length.

**Consolidated Edison's unusual
underwater installation uses
record-length conductors for two
pipe-type feeders, each consisting
of three 1,500,000-cm
compression cables, between
Brooklyn and Staten Island**

As a result of years of pioneering research and experience in handling the "tough" jobs, Phelps Dodge was in a position to manufacture the special underwater cables needed to integrate Con Edison's new Staten Island affiliate with its main system.

For both economy and ease of its installation, Con Edison wanted each cable made in a continuous 6800-ft. length—longest ever specified. At present the cables will operate at 27 kv, but are designed for ultimate operation at 138 kv.

Waterproof polyethylene sheath was used to give the insulation extra protection from moisture and damage during shipment and installation. This was important because it was expected that the cables might be exposed for a considerable time during the long pull into the pipes buried in the Narrows at the entrance to New York Harbor. The sheath also provides for additional safety if, at any time after installation, the pipes were to be damaged and water find its way into the pipes.

PHELPS DODGE COPPER PRODUCTS **CORPORATION**



17 Years of Prize-Winning Performance

To paraphrase a well-known quotation,
 "Old HRO's never die!" Nor, may we hasten to add, do they "fade away."

In 1934, the year he got his amateur license, Gerard de Buren, HB9AW (Geneva), FP8AW (St. Pierre and Miquelon), purchased an HRO. He's still using it with prize-winning results. In 17 years, his HRO has helped him win one amateur award after another. Just this year, on St. Pierre and Miquelon Islands, he worked 1285 stations in 53 countries in 35 days!

Enduring performance like this is built into every National product.



Aureomycin

and efficient

SOLVENT RECOVERY

by Vulcan



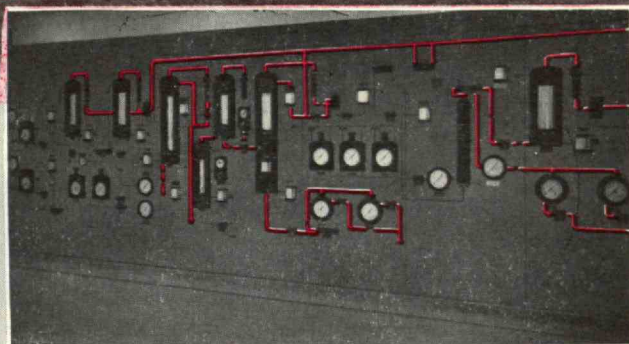
Lederle

In the big new aureomycin plant of Lederle Laboratories Division of the American Cyanamid Company at Pearl River, N. Y., solvent recovery is vital. Solvents must be recovered for reuse in better than 99% purity if the process is to be economically feasible.

Vulcan in cooperation with Lederle designed a complete unit for recovery of the many solvents used. Vulcan also supplied all equipment and materials and supervised construction.

Five separate feed streams are handled in four distillation trains consisting of seven towers. Operating control of the unit is entirely automatic and is regulated from a graphic panel in the control house. Complete flexibility accommodates wide variations in flow rates and compositions of the various feed streams. Process alterations are thus possible without major changes in the solvent recovery unit.

The result? Less cost, less time lost in turning out the product.



VULCAN | CINCINNATI

The VULCAN COPPER & SUPPLY CO.,

General Offices and Plant, CINCINNATI 2, OHIO

NEW YORK BOSTON PHILADELPHIA SAN FRANCISCO
VICKERS VULCAN PROCESS ENGINEERING CO., LTD., MONTREAL, CANADA

DIVISIONS OF THE VULCAN COPPER & SUPPLY CO.:

VULCAN ENGINEERING DIVISION

VULCAN MANUFACTURING DIVISION

VULCAN CONSTRUCTION DIVISION

VULCAN INDUSTRIAL SUPPLY DIVISION





You will always win by using TIREX portable cords and cables. When you "write in" TIREX on your requisitions for portable cords and cables you vote for top-quality, long-life, and trouble-free service.

Those who buy and use TIREX tell us they like the tough TIREX neoprene armor. It provides the kind of wearability and snagproof service their operations demand. They are more than satisfied too with the smooth, dense jacket that is a product of the **cured-in-lead process** used on all TIREX cords and cables.

Since TIREX is oil, acid, alkali and flame resistant, it will help to curtail your maintenance costs and will postpone the day of your portable cord or cable replacement. Whenever you purchase a portable cord or cable be sure to specify and get Simplex-TIREX for economy, quality, and satisfaction. They are always marked for your protection.

TIREX is made in a wide range of sizes and types from a single-conductor #18 cord for 300 V.W.P. all the way up to 3-conductor Type SH-D cable for voltages in excess of 10,000 V.W.P.

SIMPLEX-TIREX

NEOPRENE ARMOR

SIMPLEX TIREX

SIMPLEX WIRE & CABLE CO., 79 SIDNEY ST., CAMBRIDGE 39, MASS.