

TECHNOLOGY

REVIEW

July 1953



pioneers in precision



G. M. Giannini and Co. Inc.,

a pioneer in remote control and indicating instrument development, is the foremost manufacturer of toroidally wound low torque potentiometers. Microtorque and Rotostepper unit combinations have been used in many unusually difficult control instrument applications.

Miniature Precision Bearings

incorporated, pioneered and developed the first miniature radial ball bearings. From a group of five original ball bearings, **MPB** has designed and developed a completely integrated line of more than 130 types and sizes many of which now form the basis for international standardization. This extensive variety of **MPB** ball bearings makes possible the application of anti-friction and freedom from attention qualities in thousands of miniaturization projects.

MPB ball bearings are fully ground, lapped, and/or honed to ultra precision finishes (ABEC 5 or better). They are torque tested, ultrasonically cleaned, supplied in specific tolerances and classified within the tolerances for prompt assembly and maximum service. **MPB** ball bearings are normally supplied in 10 design series, from 1/10" to 5/16" o.d., of selected chrome bearing steel. Most are also supplied in stainless steel, some in beryllium copper, and all are assembled with best quality balls.

More than a million **MPB** ball bearings have played a vital part in the efficient operation of aviation instruments, railway and marine indicating and recording devices, cameras, medical appliances and other equally fine mechanisms. The wealth of engineering knowledge gained through participation in an extraordinarily broad field of application is available to you.

Our facilities have been expanded so that we can now schedule prompt delivery of most sizes. Our completely new and enlarged catalog is now being distributed, and will be gladly mailed if you request Bulletin TR7.

Miniature precision Bearings

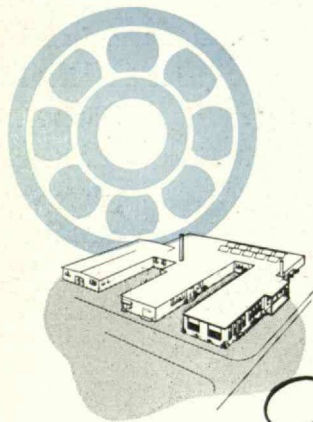
Incorporated



Keene, New Hampshire

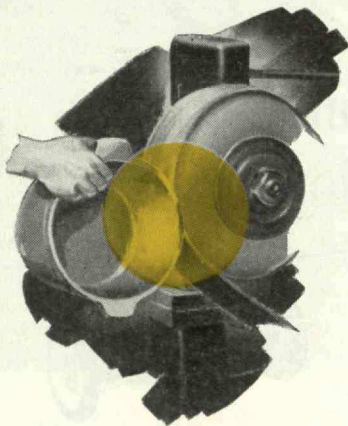
"Pioneer Precisionists to the World's foremost instrument Manufacturers"

*save
space
weight
friction*



WITH ABRASIVES THAT FIT THE JOB -

You get the "TOUCH of GOLD"



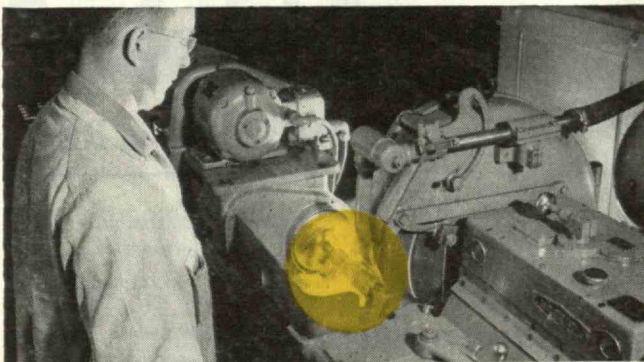
You *can* have it! Modern grinding and finishing become a source of higher profit when you have the "Touch of Gold."

You give men in your shop the "Touch of Gold" when you have them use Norton and Behr-Manning abrasive products. Every time one of these abrasives touches work in process, it adds to the value — in terms of usefulness to your customer, profit to yourself. Superiority is "engineered in" through years of wide experience, vast resources and long leadership in the field.

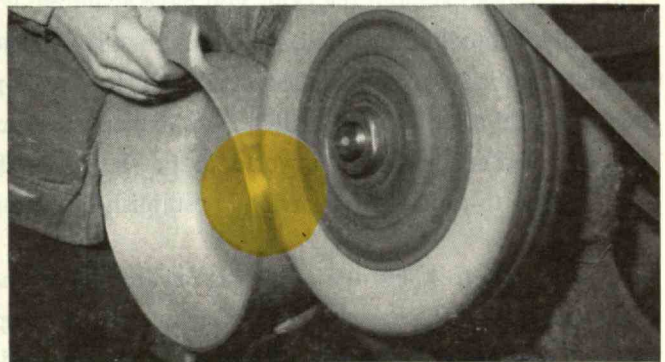
Norton Company, Worcester 6, Mass.

Behr-Manning Corporation, Division of Norton, Troy, N. Y.

Plants, distributors and dealers the world over.



A "Touch of Gold." When a man uses this Norton 6" cylindrical grinding machine equipped with a Norton wheel, high production and precision work result . . . he has the "Touch of Gold."



A "Touch of Gold." He's boosting the profit-margin when he polishes aluminum utensils with Behr-Manning's LIGHTNING METALITE cloth belt. It's fast, efficient and long-lived.

Making better products to make other products better

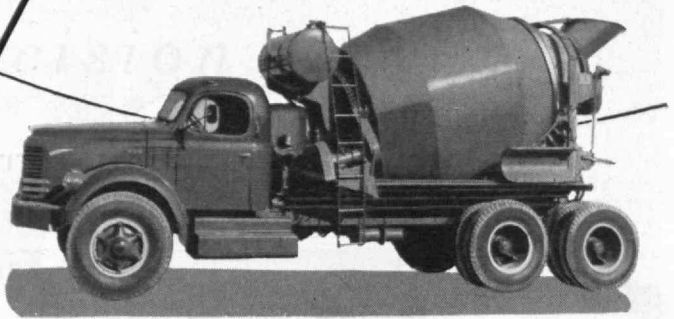


NORTON

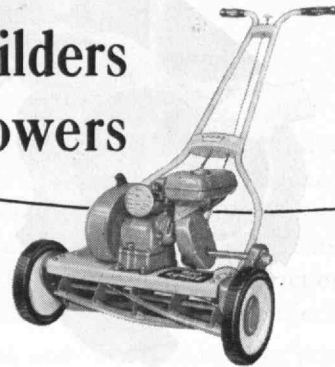


BEHR-MANNING

America's Toughest Trucks



World's Largest Builders of Power Lawn Mowers



It's a Good Feeling!

Good to Know that the technical ability you have developed and the skills you have acquired are really wanted, and needed. And to know that nowhere in American industry is a higher premium placed on top engineering and technical ability than at REO. M.I.T. men are among the finest trained engineers in the world, and at REO they find full opportunity to prove their worth and establish their future.

It's Also Good to Know that ability is rewarded, and that at REO you are not just another cog in the machine, but an important part of an important operation. Your climb up the ladder of success is largely dependent on you, but at REO you get every help and assist that anyone could ask for.

Trucks • Engines • Bus Chassis • Lawn Mowers • Wheel Goods

REO MOTORS, INC., LANSING 20, MICHIGAN

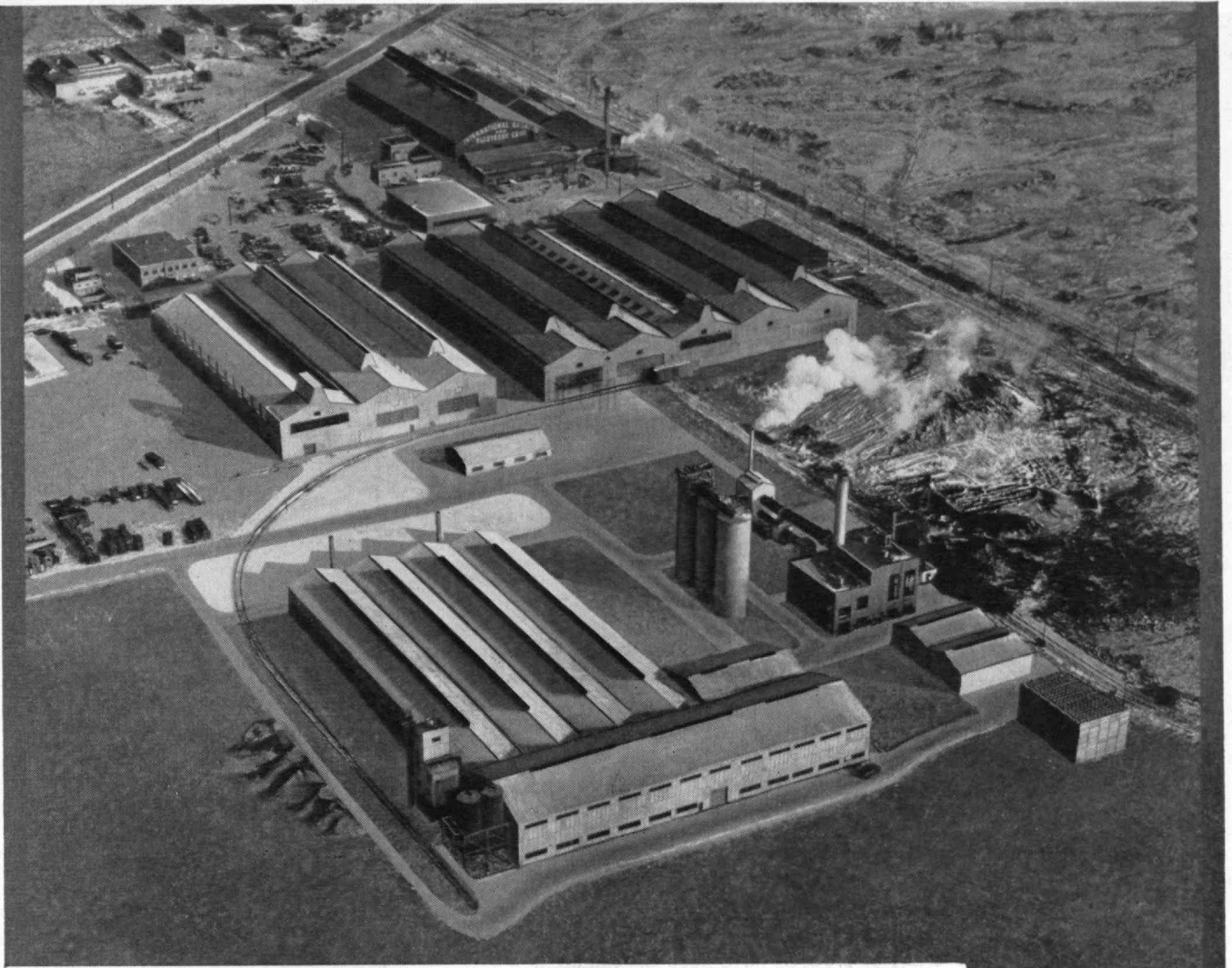
REO

M.I.T. Men at REO

Joseph S. Sherer, Jr.
Class of 1923
President and General Manager

William Walworth
Class of 1926
Vice President, Engineering

Paul H. Rosenberg
Class of 1937
Chief Engineer
Lawn Mower Division



A Report was Essential

When International Graphite & Electrode Corporation foresaw the need of increased facilities for the manufacture of graphite electrodes, Stone & Webster Engineering Corporation was asked to make a report and recommendations.

The report included a process study, a geographical analysis of product distribution, and a plant site survey which considered both economical distribution and the availability of power and skilled labor.

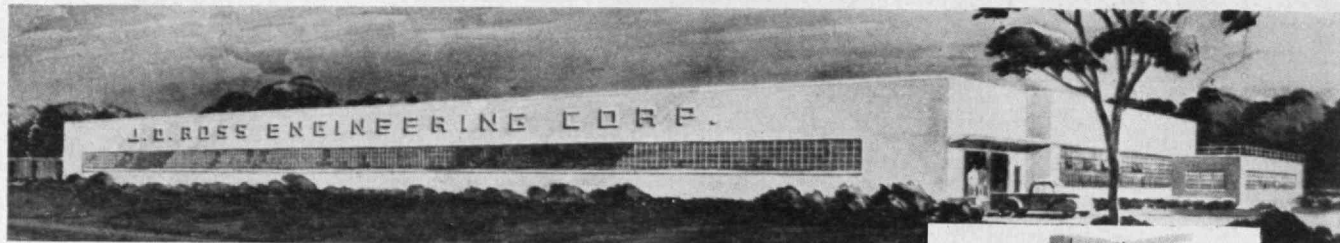
When, in accordance with the recommendations, International Graphite decided to add extensive new facilities to its Niagara Falls plant, Stone & Webster Engineering Corporation was employed to design and build them.

*International Graphite &
Electrode Division, Spear
Carbon Company, Niagara
Falls, N. Y.*



STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY of STONE & WEBSTER, INC.



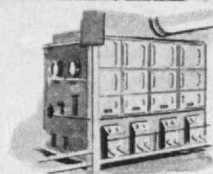
*No other type of equipment
is used by a larger number or
greater variety of industries than*

ROSS INDUSTRIAL FROM DESIGN TO INSTALLATION AIR SYSTEMS

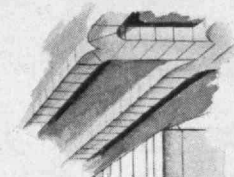
Back in the 1920's, ROSS pioneered in the use of scientifically controlled air to increase production at lower cost in the nation's major industries. During the 32 years since then, many new types of products have been developed, new major industries established and today more than 2,000 leading manufacturers in practically all industries, including the newest—Television—have installed ROSS Industrial Air Systems for maximum production efficiency.

ROSS' recognized leadership in this field is based upon long experience and engineering ability, modern extensive testing and manufacturing plants and facilities, a national and international service organization and a 32 year record of successful performance.

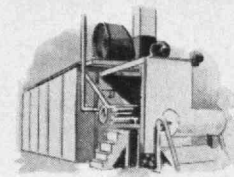
You can rely upon recommendations by ROSS. Write us for information concerning specific processing problems.



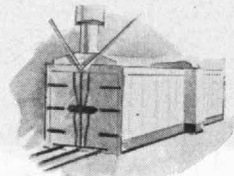
HEATING



VENTILATING



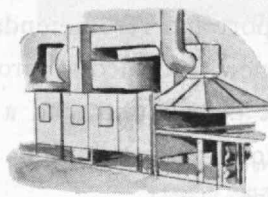
DRYING



BAKING



CURING



TREATING

J. O. ROSS ENGINEERING CORPORATION

Saxton W. Fletcher '18 — President

Main Office—444 Madison Avenue, New York 22, N. Y.

BOSTON

DETROIT

CHICAGO

SEATTLE

LOS ANGELES

ROSS ENGINEERING OF CANADA, LIMITED, MONTREAL, CANADA

CARRIER-ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND

Enroute

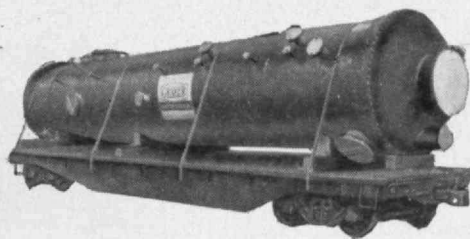
GRAVER

PRECISION FABRICATIONS

**meeting Industry's
most exacting standards**

Where precision craftsmanship is required in tough-to-handle metals, you may rely on Graver. Nearly a century of experience in building tanks, combined with resourceful creative engineering, helps to explain the continuous flow of Graver vessels to the process and petroleum industries.

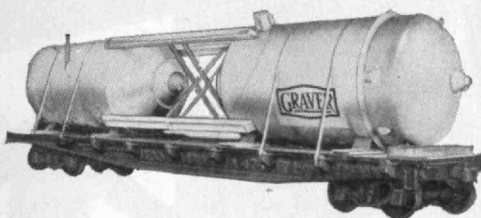
This is especially true in the fabrication of



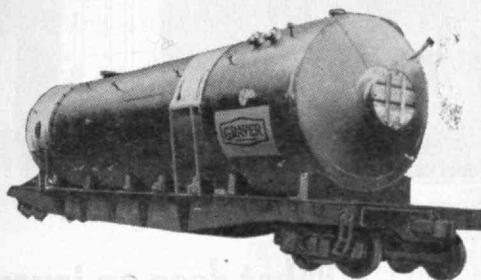
STAINLESS CLAD TOWER



CARBON STEEL TOWER



SOLID STAINLESS TOWER



ALUMINUM TOWER

towers and vessels of alloys and aluminum. Here Graver's rigid quality control, sound welding research, and ability to work to close tolerances result in highest quality products. For really difficult jobs, look to Graver!

GRAVER

PROCESS VESSELS

GRAVER TANK & MFG. CO., INC.

EAST CHICAGO, INDIANA

NEW YORK • CHICAGO • PHILADELPHIA • ATLANTA
DETROIT • CLEVELAND • PITTSBURGH • HOUSTON
CATASAUQUA, PA. • SAND SPRINGS, OKLA. • CASPER, WYO.



What does an inventor look like?

In 1850, Samuel Kier built a one-barrel "teakettle" refinery in Pittsburgh. There, through his own genius, he first distilled petroleum and became America's pioneer oil refiner. But how times have changed.

Today, a new product is rarely *one* man's creation. The better products get, the harder it is to improve them. Now, many men of many skills must work together in research centers on projects planned long ahead.

For example: two years ago we saw the need for a new kind of motor oil that would fully meet the demands of precision-built, high-compression automobile

engines. Among other things, this special oil must flow with full pressure at zero temperature—yet give full protection at 400 degree heat.

One man would never have the skills, time, devices or money to cope with such a complex problem. But at our Brea research center a team of Union Oil engineers solved it. And Union was the first to give the West this better lubricant.

Naturally we're proud to add new Royal Triton 5-20 motor oil to our many firsts. We think this new Union Oil product is one more proof that the best *progress* comes from an economic system that

gives the best *incentives*. American *free, competitive enterprise* provides these incentives as no other system ever has.

UNION OIL COMPANY OF CALIFORNIA

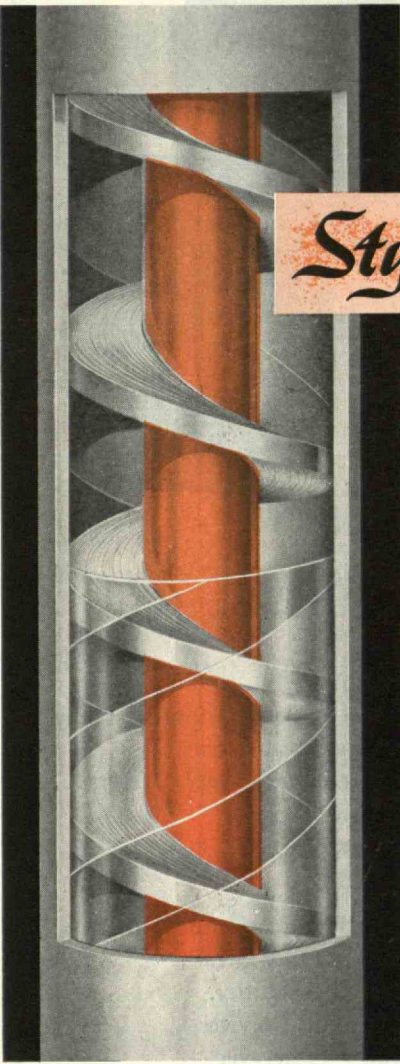
INCORPORATED IN CALIFORNIA, OCTOBER 17, 1890

This series, sponsored by the people of Union Oil Company, is dedicated to a discussion of how and why American business functions. We hope you'll feel free to send in any suggestions or criticisms you have to offer. Write: The President, Union Oil Company, Union Oil Building, Los Angeles 17, California.

TWO REVOLUTIONARY NEW CABLE DESIGNS

Available to American Cable Users—Illustrate International Scope of Phelps Dodge Research and Technical "Know-How"!

Under arrangements concluded with leading European cable designers, Phelps Dodge Copper Products Corporation offers U. S. cable users:



Styroflex COAXIAL CABLE

developed by Felten & Guillaume, Cologne, Germany. The strong, semi-flexible aluminum sheathing on this cable opens possibilities for many new and interesting uses.



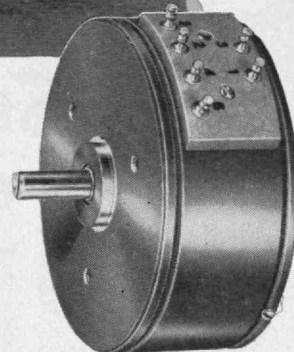
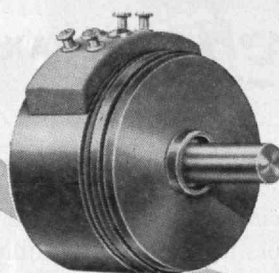
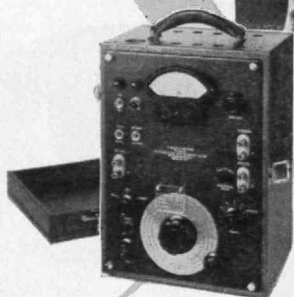
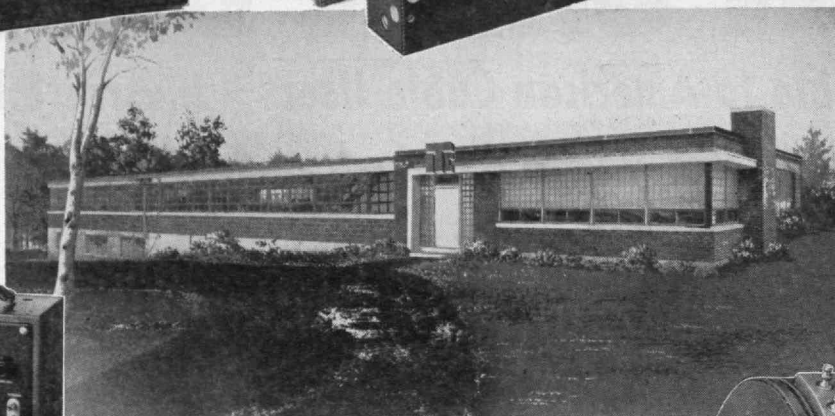
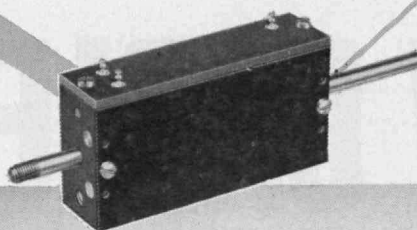
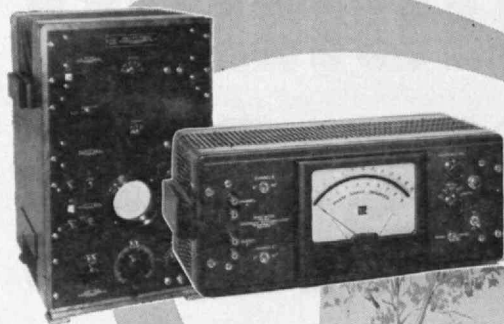
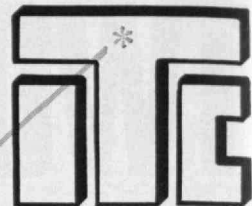
400 KV OIL-FILLED POWER CABLE

designed by Les Cables de Lyon, France. This cable is presently in service in Sweden.

These new cables exemplify Phelps Dodge's policy of supplementing its own broad research with the latest foreign developments in cable research and manufacture. This international "know-how" is one of the reasons why Phelps Dodge enjoys a wide reputation among engineers for the finest in modern power and communication cables.

***PHELPS DODGE* *COPPER* *PRODUCTS*
CORPORATION**

40 WALL STREET, NEW YORK 5, N. Y.



* TECHNOLOGY *is very much at home here*

Laboratory Instruments

Staffed by many MIT graduates, Technology Instrument Corporation is actively engaged in manufacturing a unique line of superb measuring instruments for both the laboratory and industry . . . Impedance Measurement Z-Angle Meters . . . Phase Meters . . . Primary and Secondary Phase Standards . . . High Gain Wide Band Decade Amplifiers . . . R-F Oscillator.

Precision Potentiometers

The Technology Instrument Corporation is also a leader and pioneer in the newly developed industry manufacturing *precision linear and non-linear potentiometers* and is setting the pace for both accuracy and versatility. These potentiometers are designed for application in computing devices, instrumentation, electronic control and servo mechanisms — wherever extreme electrical and mechanical precision is an essential requirement.

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THE TECHNOLOGY REVIEW