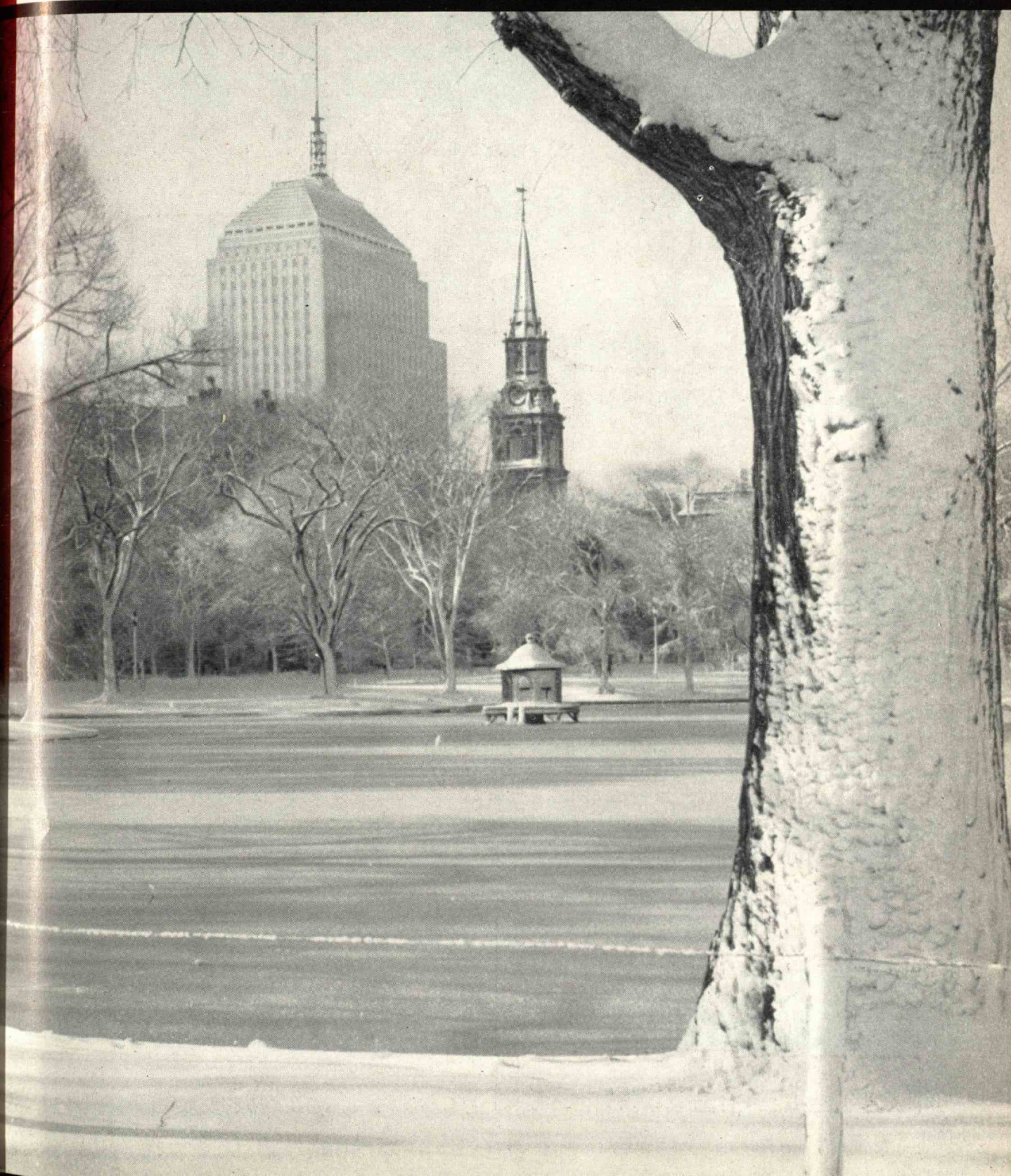
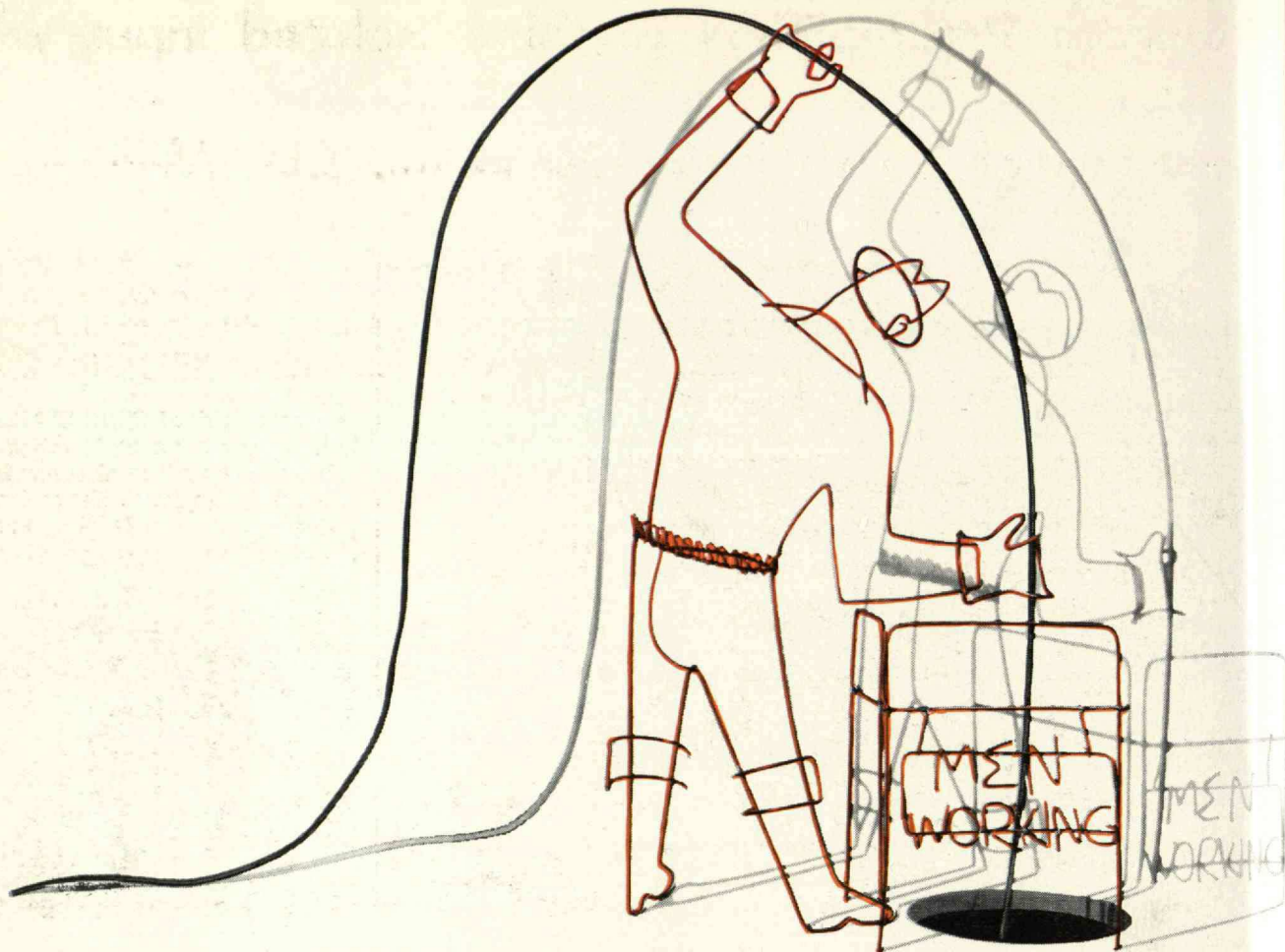


TECHNOLOGY

REVIEW

January 1957





Wire sculpture by Henry Szafarz

The Inside Story

Beneath the surface, there's a lot going on.

An underground river of power surges through innumerable cables, supplying the electrical energy that keeps the entire community rolling smoothly.

Throughout the nation, Simplex products are used extensively in such applications.

This is particularly true of ANHYDREX XX, the ideal all-purpose cable for high-voltage use. This expertly engineered cable is popularly employed in the 2001 to 35,000 volt range, and has a Conductor Temperature Rating of 90°C up to 5 KV (a rating never attained before the development of ANHYDREX XX).

For more technical data, write for Booklet 1023.

SIMPLEX WIRE & CABLE CO., 79 Sidney Street, Cambridge 39, Mass.

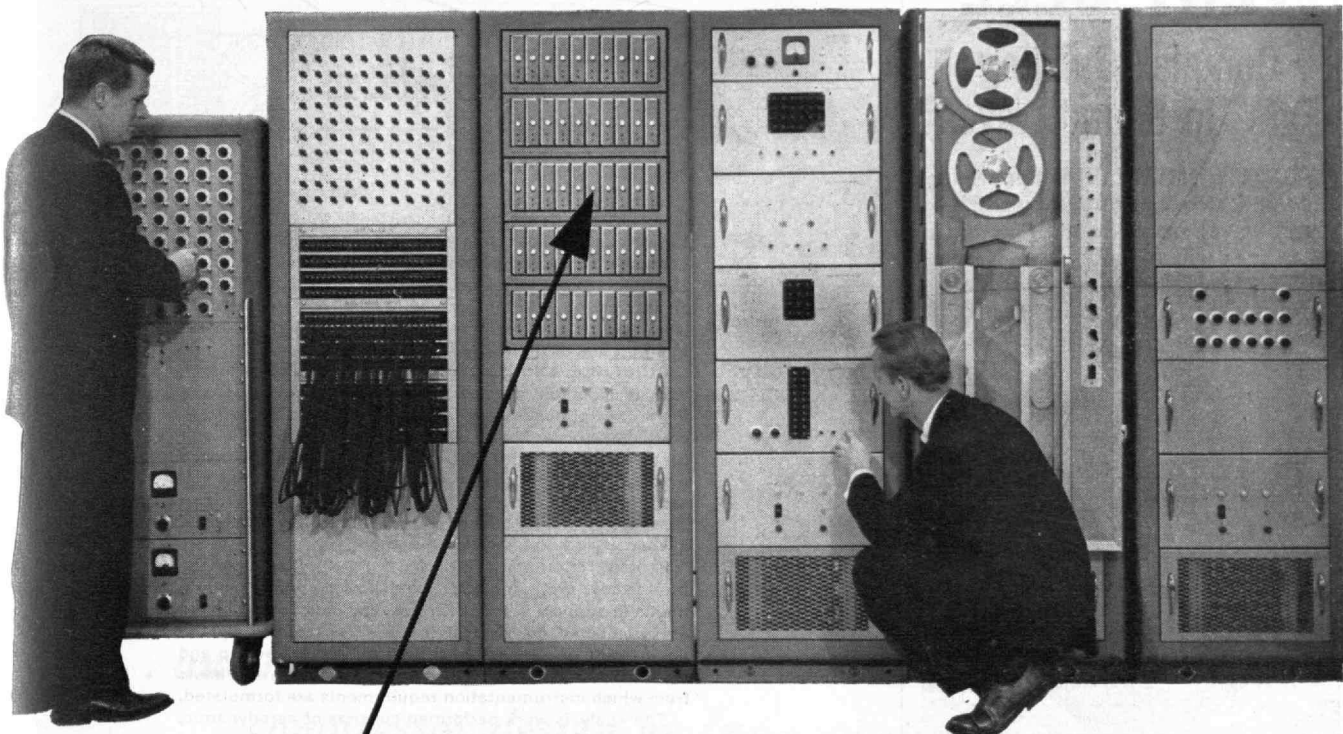


Simplex Anhydrex XX Underground Cable

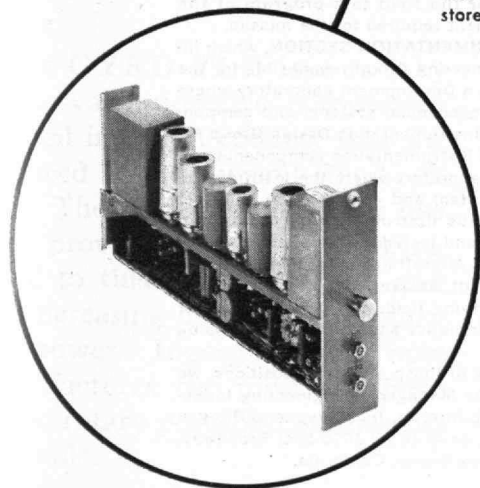
Simplex



Doelcam Preamplifiers combine isolated input with accuracy of 1 part in 2,000 in the CEC MilliSADIC



Consolidated Electrodynamic Corporation's MilliSADIC Installation for General Electric's Aircraft Nuclear Propulsion Dept., Cincinnati samples 400 jet engine temperatures per second and stores this information in digital form.



Doelcam Data Handling D-C Amplifier, Model 2HDH-2. This type is used as preamplifiers in the CEC MilliSADIC shown above.

The *isolated input* of the Doelcam Data Handling D-C Amplifiers, Model 2HDH-2 makes them ideally suited as preamplifiers to raise the input signals from thermocouples and strain gauges to the level required by the analog-to-digital conversion system of CEC's MilliSADIC installation at General Electric's Aircraft Nuclear Propulsion Dept., Cincinnati. The low noise level, high degree of linearity and zero and gain stability of these amplifiers provide the accuracy of 1 part in 2,000 required for this application. The exclusive Doelcam Second Harmonic Converter as the input element of these amplifiers provides the bonus features of ultra high common mode rejection and resistance to pick-up.

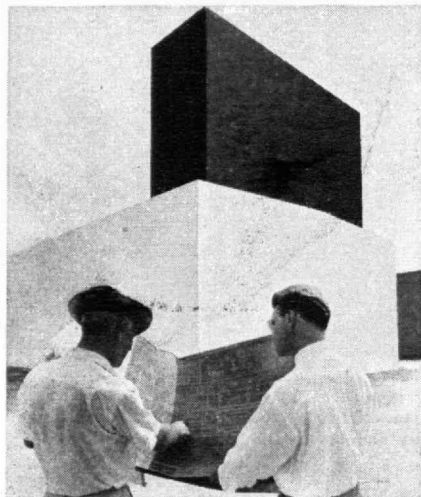
Doelcam Data Handling D-C Amplifiers, 2HDH Series, are compact plug-in, rack-mounted units specifically designed for use as preamplifiers in data processing systems. These amplifiers are available in the input range, rise time, frequency response or gain specifications required by many data processing systems. Other amplifiers in this series can accept as many as 150 separate D-C signals per second. Write for Bulletin 2HDH . . . Doelcam, Dept. 1, a Division of Minneapolis-Honeywell, 1400 Soldiers Field Road, Boston 35, Mass.

Honeywell 
DOELCAM DIVISION

NORTHROP ENGINE TEST CELL

Complex Building Eats Up Sound Waves

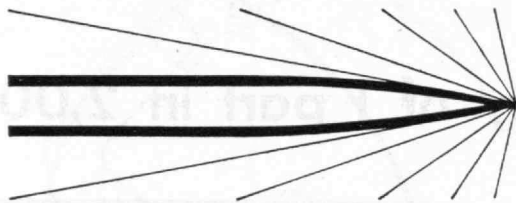
(HAWTHORNE, CALIF.) In this apparently uncomplicated structure, shown below, sound waves from the most powerful jet engines will literally destroy themselves. It is Northrop Aircraft's uniquely designed engine test cell,



which is actually two buildings — one within the other — and the inner one is divided into four separate sections. Each unit is completely insulated from the others to add to the destruction of all sound. An entire fuselage of Northrop's Snark SM-62 missile can be placed in the forward section of the cell, yet little if any sound from its powerful engine can be heard outside.

Sound from the engine under test passes into a maze of concrete chambers which produce resonances destructive to the sound itself. Northrop missile engineers will be completely isolated from any sound during the tests, which can be observed through a closed television circuit. Two sets of 18-ton doors, that hermetically seal the building during tests, can be closed in 30 seconds by small air motors. The cell also has a three-fold fire prevention system to eliminate all fire danger.

The new building is one of many advanced features incorporated in Northrop's multi-million-dollar engineering and science center. When completed, this center will offer engineers the opportunity to work with the latest equipment and installations in the most advanced facility of its kind.



MISSILE ENGINEERS

Many new positions are being created at Northrop Aircraft for missile engineers in a wide range of activity: control, guidance, servo, computers, recording, optical, reliability, electro-mechanical, telemetering and electronics. There's an interesting position for you, at your own experience level, with attractive remuneration and steady advancement, in one of the following groups:

GUIDANCE AND CONTROLS, encompassing research and development of advance automatic guidance and flight control systems for both missiles and piloted aircraft. Specific areas of development include: radio and radar systems, flight control systems, inertial guidance systems, instrument servo systems, digital computer and magnetic tape recording systems, airborne analogue computer systems, optical and mechanical systems, and systems test and analyzer equipment.

FLIGHT TEST ENGINEERING SECTION, which plans the missile test programs and establishes test data requirements in support of the programs. The data requirements are predicated on the test information required by the engineering analytical and design groups to develop and demonstrate the final missile design, and are the basis from which instrumentation requirements are formulated.

The analysis work performed consists of aerodynamic, missile systems, dynamics, flight control, propulsion and guidance evaluation. The Flight Test Engineering Section is also responsible for the field test program of the ground support equipment required for the missile.

FLIGHT TEST INSTRUMENTATION SECTION, which includes a Systems Engineering Group responsible for the system design concept; a Development Laboratory where electronic and electro-mechanical systems and components are developed; an Instrumentation Design Group for the detail design of test instrumentation components and systems; a Mechanic Laboratory where the instrumentation hardware is fabricated; and a Calibration and Test Group where the various instrumentation items and systems are calibrated and tested.

For 17 years Northrop Aircraft has pioneered in missile research and development. As a member of this forefront organization in this growing field, new opportunities for full expression of your initiative and ability will always be yours at Northrop.

If you qualify for any of these attractive positions, we invite you to contact the Manager of Engineering Industrial Relations, Northrop Aircraft, Inc., telephone OREGON 8-9111, Extension 1893, or write to: 1015 East Broadway, Department 4600-BB, Hawthorne, California.



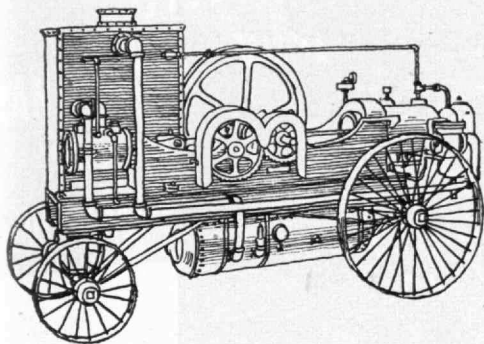
NORTHROP

NORTHROP AIRCRAFT, INC., HAWTHORNE, CALIFORNIA

Producers of Scorpion F-89 Interceptors and Snark SM-62 Intercontinental Missiles

55 YEARS AGO

this early portable compressor made air power history



THIS gasoline-powered portable air compressor, introduced by Ingersoll-Rand in 1902, may look crude and cumbersome by today's standards. But at the time it was a real innovation — one of the first practical compressors which could be easily moved about from job to job.

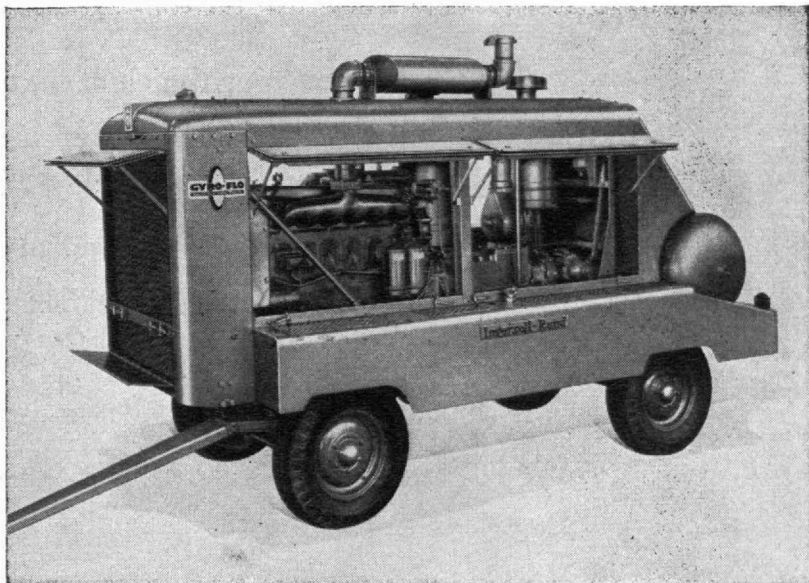
TODAY *it's the* GYRO-FLO

*... another basic advance in
compressor design by Ingersoll-Rand*

THE GYRO-FLO is a rotary sliding-vane portable compressor with oil injection cooling, first introduced by Ingersoll-Rand in 1950. The success of this unit has been proven by the ever-growing trend to this type of design, and the increasing demand for rotary air power. Ingersoll-Rand now manufactures the most complete line of rotary portable compressors available.

If you'd rather help make industrial history than read about it, why not investigate the fine job opportunities available with Ingersoll-Rand — recognized leader in the machinery field. For further information contact your Placement Office or write Ingersoll-Rand.

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AN UP-TO-EARTH VIEW OF THE FUTURE IN SERVO CONTROLS AND INSTRUMENTATION

The Martin launching vehicle of the first man-made Earth satellite will be the opening gun of a new and endless age of exploration into space.

There are many exciting new opportunities at Martin in the fields of servo controls development and instrumentation engineering.

If you are doing some down-to-earth thinking on this fabulous future you'd do well to contact J. M. Hollyday, Dept. TR-1, The Glenn L. Martin Company, Baltimore 3, Maryland.

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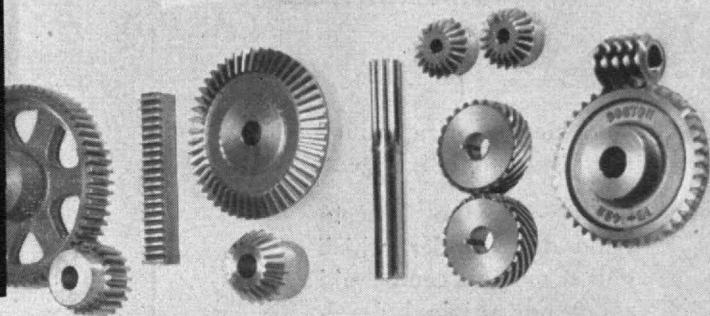
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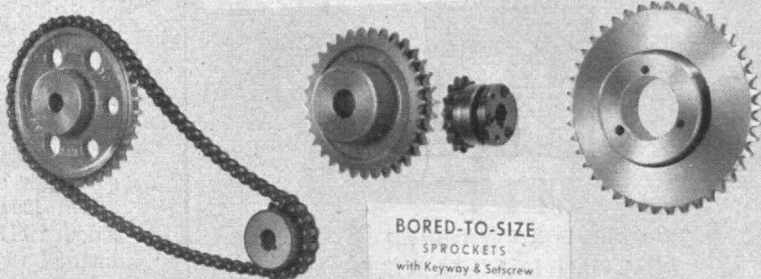
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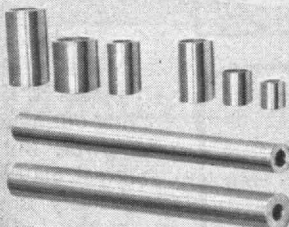


SPROCKETS AND CHAIN

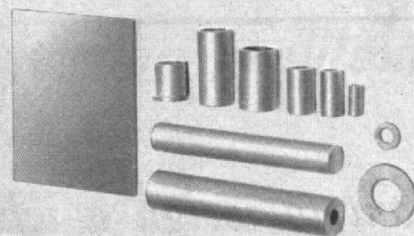


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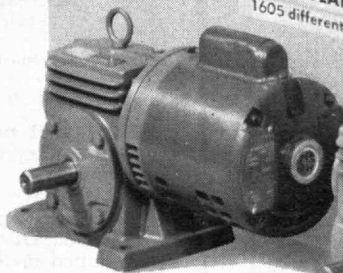
Oil-impregnated BOST-BRONZ BEARINGS



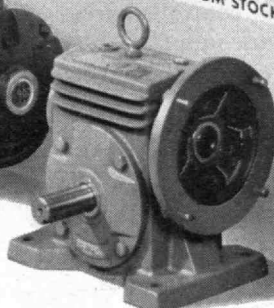
• FLANGED CARTRIDGES • PILLOW BLOCKS • COUPLINGS • UNIVERSAL JOINTS • BALL BEARINGS



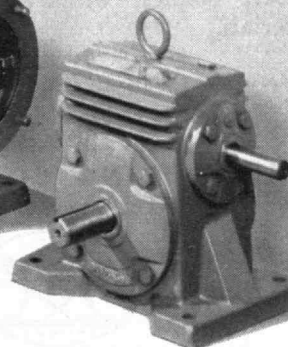
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THE TABULAR VIEW

Uncommon Man.— So much of Twentieth Century thinking extols the virtues of the masses that we tend to become oblivious to the consequences of leveling processes that inevitably ensue by catering to the common man. For this reason, "Education of the Uncommon Man" (page 149) by EDWIN S. BURDELL, '20, comes as a breath of much needed fresh air. Dr. Burdell holds that society should be as much concerned with the advancement of the uncommon man of brains and integrity, as it has been with enlightenment of the masses. Dr. Burdell's message in *The Review* is abstracted from his annual report as President of the Cooper Union for the Advancement of Science and Art.

President Burdell studied at M.I.T. and Harvard as a member of the Classes of 1920 and 1921, respectively. In addition, he received the A.M. and Ph.D. degrees from Ohio State University in 1929 and 1934, respectively. He was a faculty member at Ohio State University from 1928 to 1934; member of the Ohio Commission on Unemployment Insurance, 1932; state administrator for Emergency Education in Ohio, 1933-1934; professor of sociology and director of summer school, M.I.T., 1934-1938; Dean of Humanities, 1937-1938 at M.I.T.; and, since 1951, has been president of Cooper Union. He headed a Committee on General Education of the American Society for Engineering Education, and his chief interests include city planning and social interpretation of the impact of technology on modern society.

Technical Man Power.— In an address before the M.I.T. Club of New York on November 14, PRESIDENT JAMES R. KILLIAN JR., '26, spoke on the need for increasing our available supply of scientific and engineering man power. But Dr. Killian also recognized that, however great may be the need for technical man power, our top priority is to develop the nation's intellectual potential to the fullest. "Scientific and Engineering Man Power" (page 152) is a report and condensation of this outstanding address. President Killian has to his credit a distinguished list of achievements as educator, administrator, author, and public servant.

(Concluded on page 134)



Canada Dry Ginger Ale, Inc., Rochester plant

Automation

To adopt modern production methods may require alterations or extensions to your present facilities.

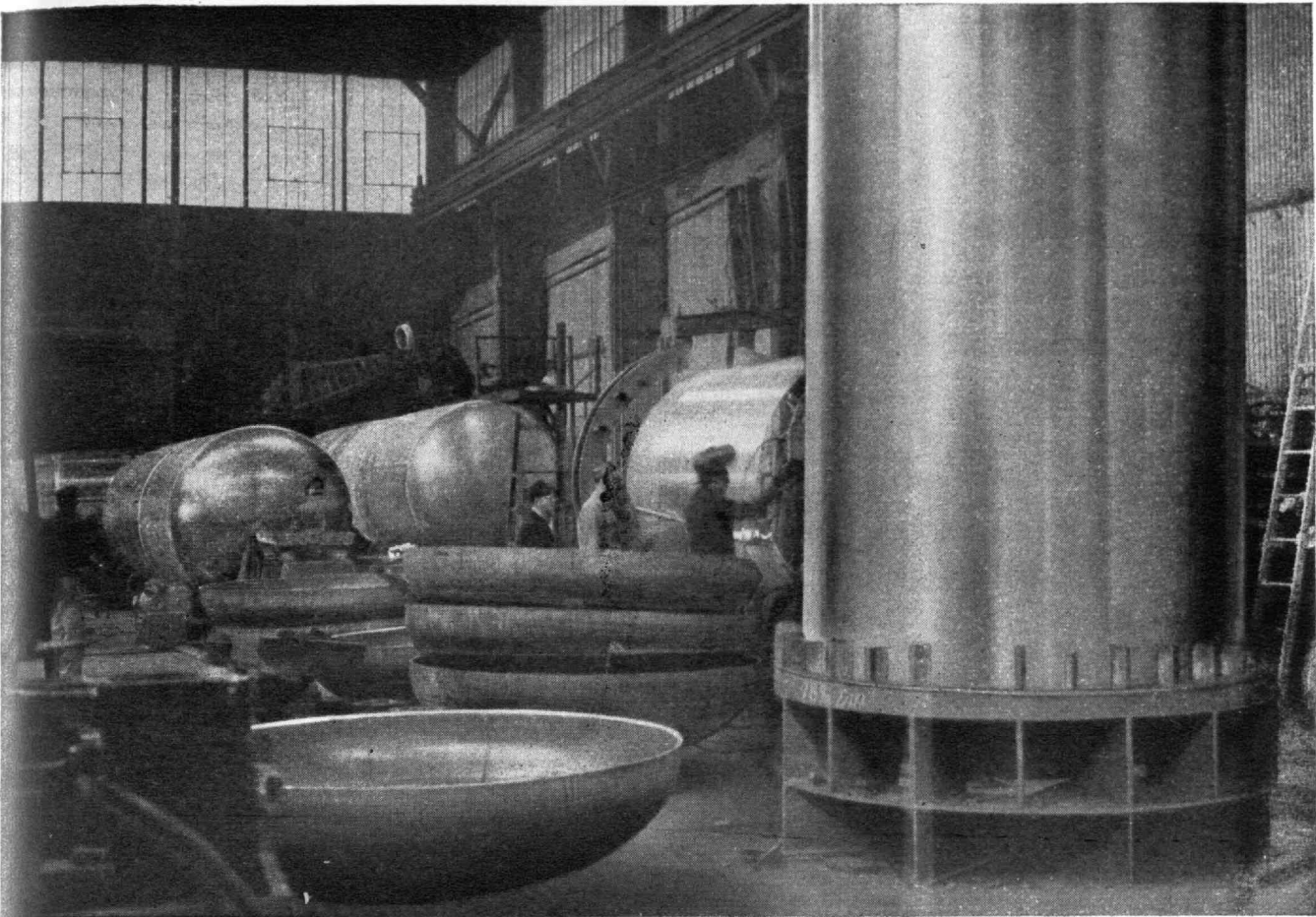
We have modernized many plants in the past 39 years for such companies as Chas. Pfizer, Canada Dry, Air Reduction, etc., and have developed methods for doing such work at reasonable cost and with a minimum of interruption to plant operations.

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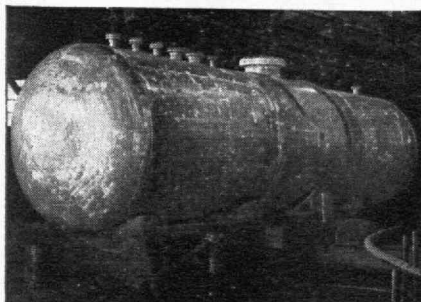
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INDUSTRIAL CONSTRUCTION
101 Park Avenue, New York

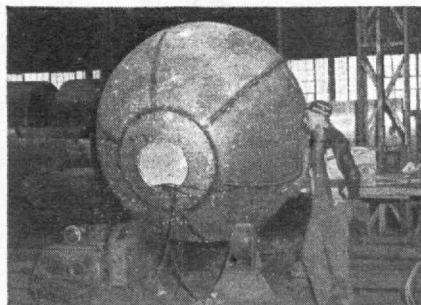
Alfred T. Glassett, '20, President



Your answer to corrosion problems



Aluminum tank for rocket fuel

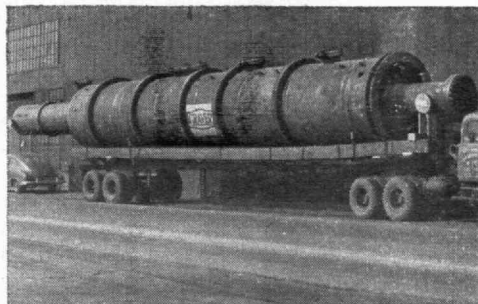


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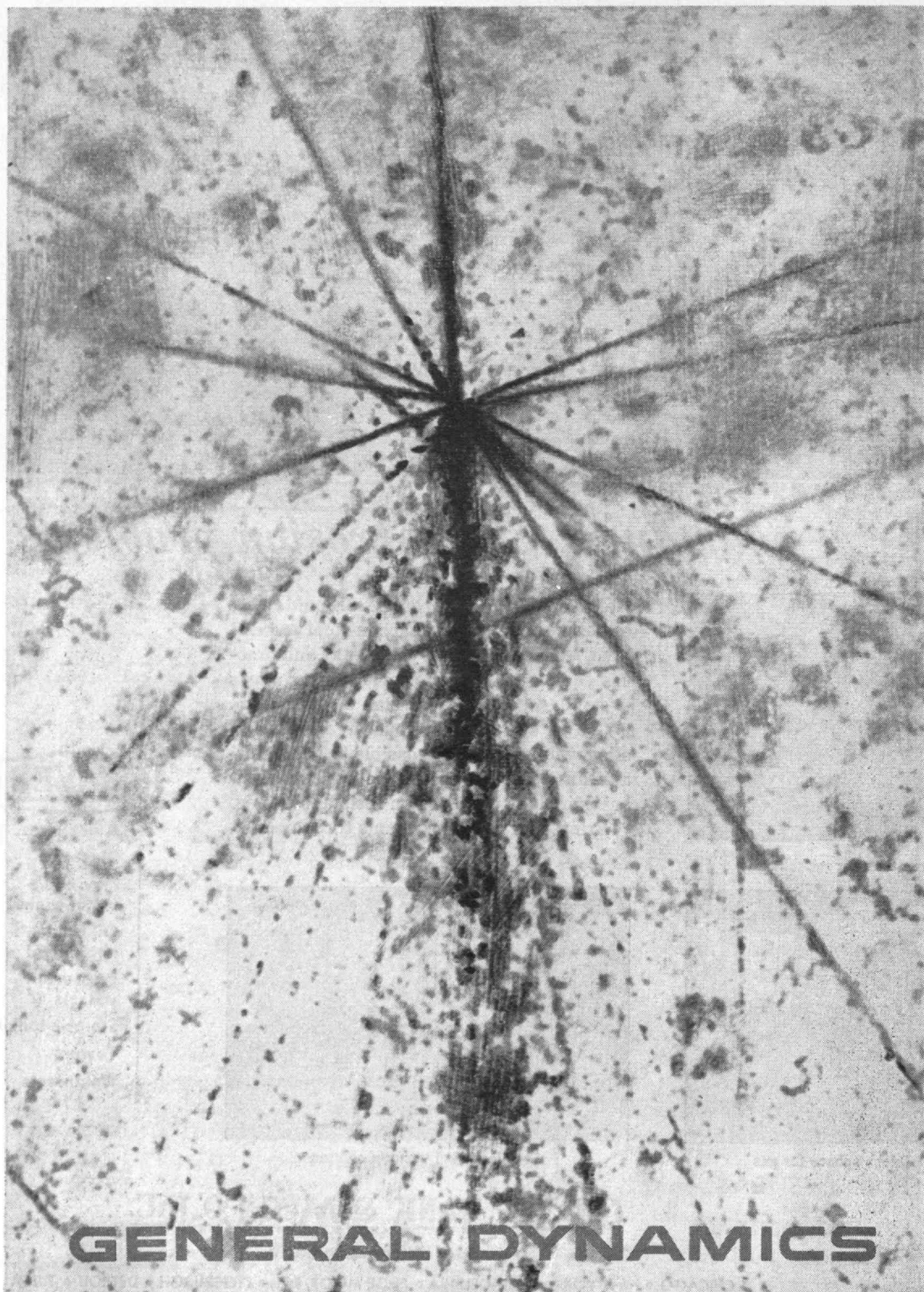
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Exploring the Universe: Sub-Atomic Worlds. . . To Greeks, the atom was literally "a-tomos," not to be cut. Now its very nucleus is split and scientists are tracking *sub-atomic* particles, seeking to discover the nature—order and meaning—of a vast, dynamic universe in which domestic notions of space and time and energy do not apply. *Ethical corollary:* The "finds" of nuclear exploration must be employed *not* in the service of a scientific, or economic, or political provincialism but *wherever* they are needful to the physical, mental and moral rehabilitation of men and of societies.



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