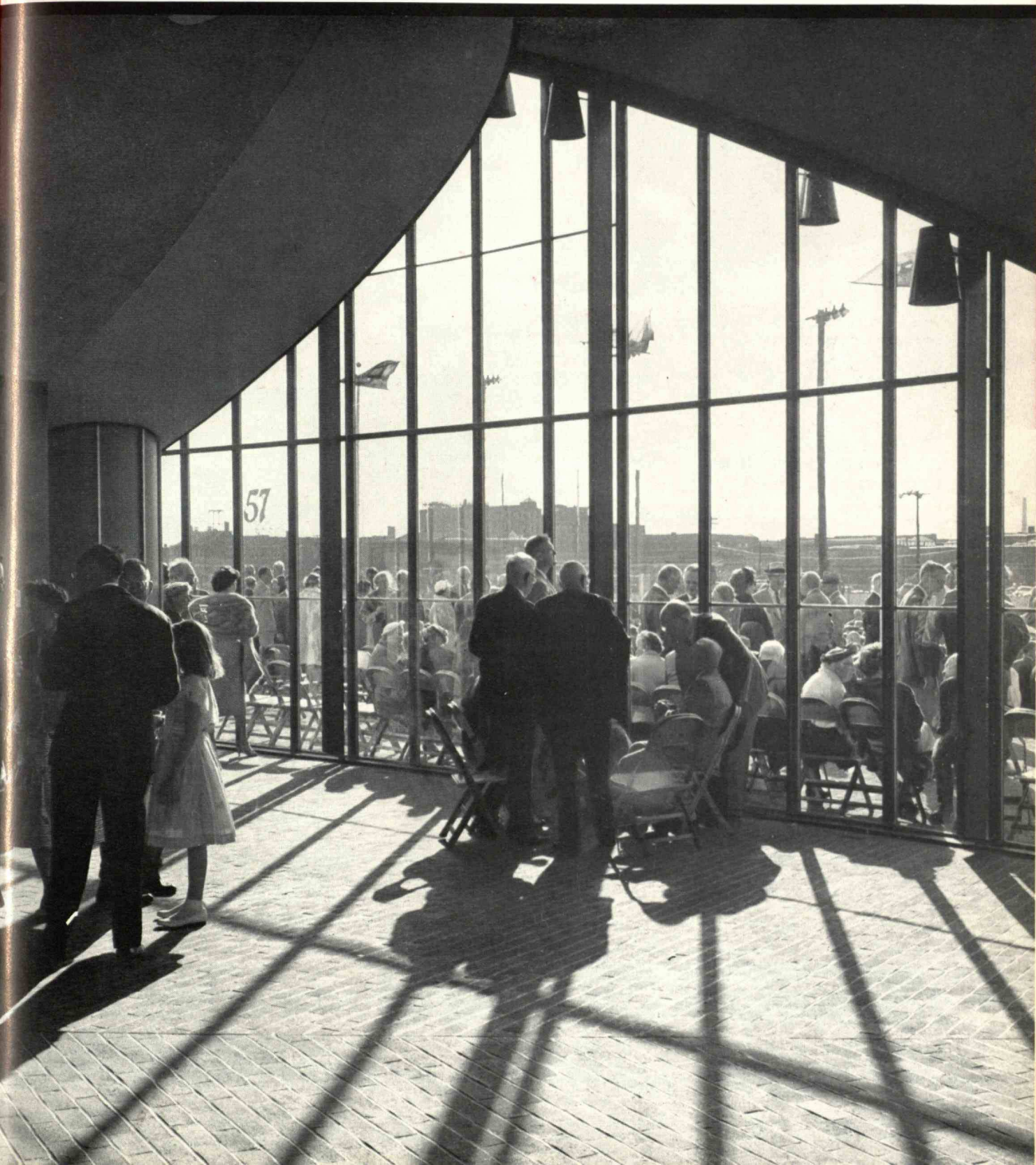


TECHNOLOGY

REVIEW

July 1958



Right off the Wire

An application of television shows a pilot the image of his plane superimposed on a map of the territory over which he is flying.

An X-ray inspection method for solid cast rocket fuels reveals any cavities or fissures that would interfere with burning.

A new machine at Simplex applies Condux Interlocked Armor over cable cores having diameters up to 4.5".

An electronic guidance system will help river pilots to maneuver long strings of barges around the bends and under the bridges of the Mississippi.

A new facility for advanced research in thermonuclear reactions is expected to generate temperatures in the millions of degrees.

A land-mine exploder has been developed by the Army which will detonate buried explosives without damage to the exploder or the tank that carries it.

A new alkaline flashlight battery is said to last ten times as long as ordinary dry cells and to deliver more power.

A generator-powered flash-bulb holder is about the size of an electric razor. Half a turn of a wheel stores enough electricity in a capacitor to fire the bulb.

A television tube only five inches thick has been developed in England.

A process has been developed for electroplating copper on aluminum. The plating can be tinned, soldered or formed.

A new synthetic rubber is resistant to oils, fuels and solvents and retains its properties at temperatures as high as 400°F.

A new chemical compound slows the growth of any part of a tree without affecting the rest.

A new electronic instrument analyzes the sequence of chemical reactions in the burning of rocket fuels in one ten-thousandth of a second.

A single relay system across Canada from Halifax to Victoria will carry television programs and telephone conversations.

The floodlights at Niagara Falls have been redesigned to give ten times the illumination of the former twenty-five-year-old system with no increase in power consumption.

Further information on these news items and on Simplex cable is available from any Simplex office. Please be specific in your requests.

Among the United States exhibits at Brussels will be an outline of world history for the entire Christian era stored in a computer. Any item can be found in two-thirds of a second and printed in any one of ten languages.

The first digital computer fast enough to evaluate the performance of a missile in flight is said to be twenty-four times faster than preceding models.

A new X-ray technique reduces radiation exposure to a fraction of that now used for diagnosis.

A new truck transmission has twelve speeds in one gear box controlled by one lever.

A new machine can weigh and sort coins at the rate of 18,000 per hour with an accuracy of plus or minus one-fourth of one per cent.

A new desk-top machine covers one or both sides of documents with clear plastic film.

A device for practice in marksmanship shoots, instead of a bullet, a flash of light, which shows on the target.

An ultra-sensitive space speedometer measures acceleration in any direction.



A Simplex Laboratory

At the Simplex plant in Cambridge, six modern, well-equipped laboratories similar to the one shown here are devoted to the never-ending search for new, better materials and methods which result in new, better wire and cable products. Over the years, this program of concentrated, intensive research has brought about a great number of the most important technical advances and product improvements that have made Simplex the leader in the wire and cable industry.

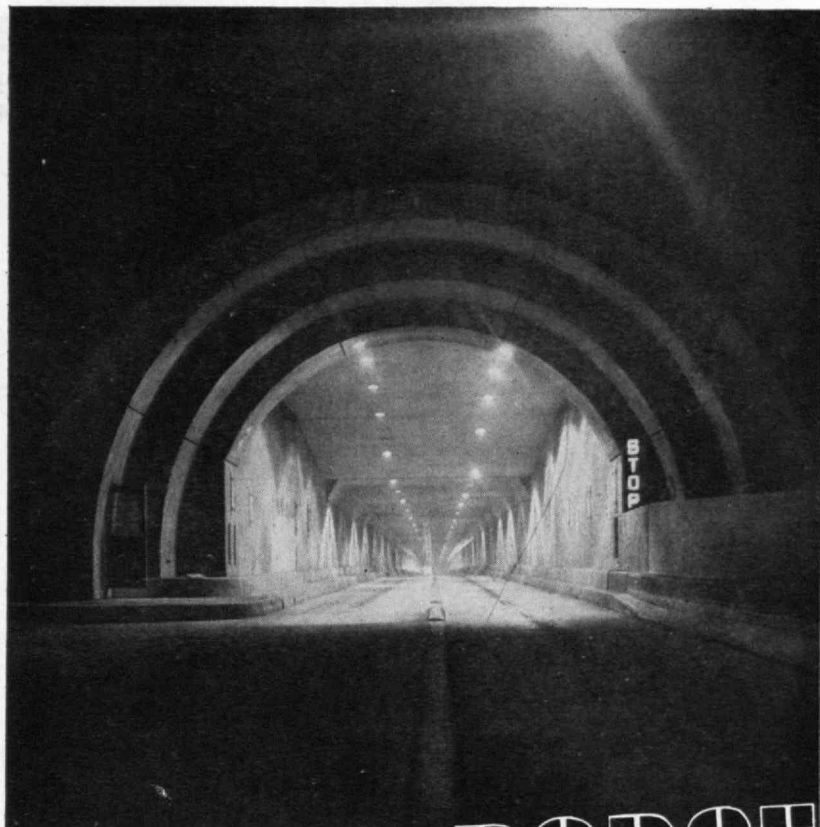
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Pennsylvania's
Turnpike...
Model for
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WIRE BY PHELPS DODGE

When the Pennsylvania Turnpike opened in 1940, it was the first modern highway of its kind in the East. Since then, it has earned a reputation as a model super-highway whose design combines a free flow of traffic with a low accident rate.

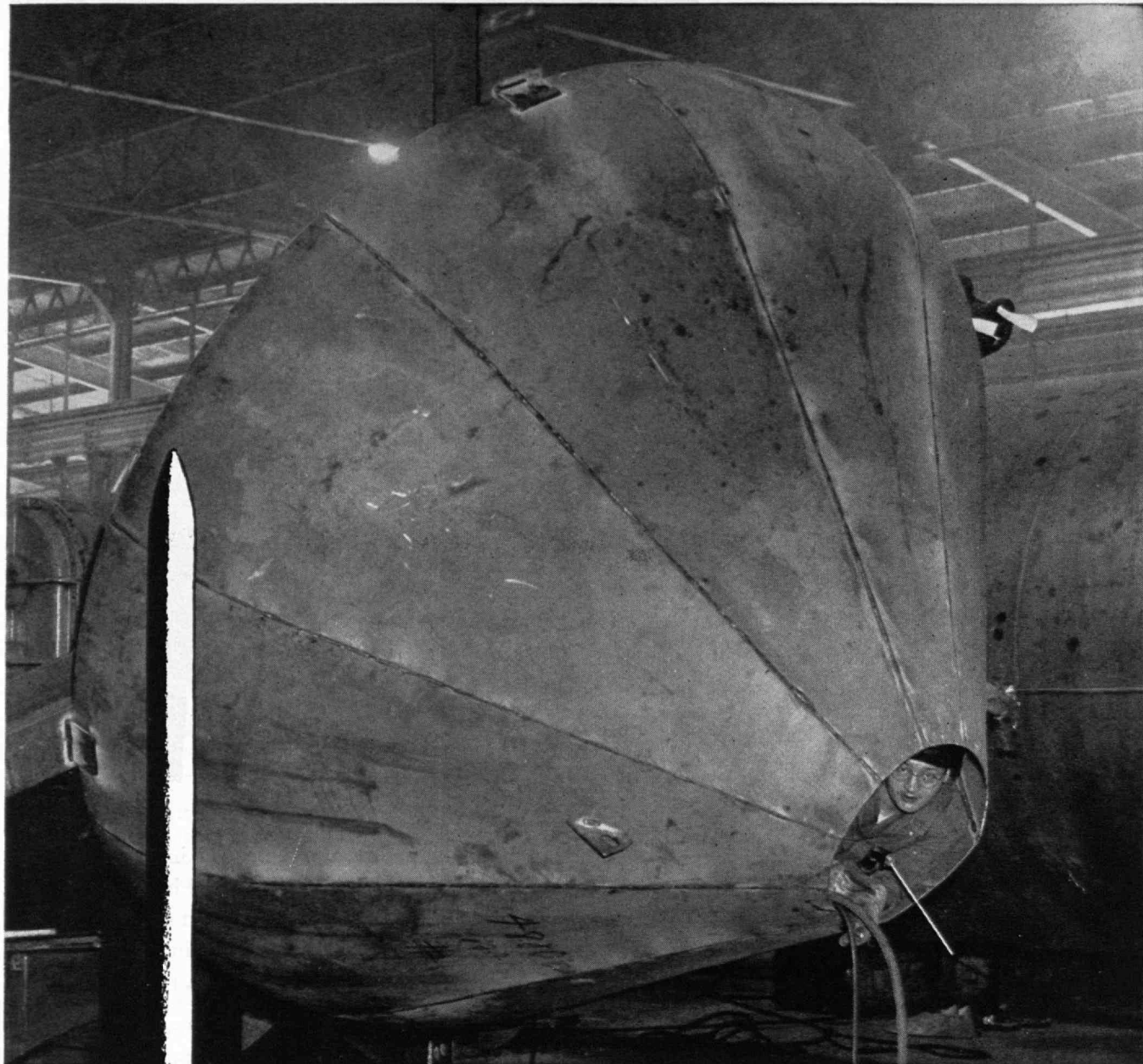
One of the requirements for the Turnpike tunnels, interchanges, approaches and portal buildings was an electrical system of the highest quality. That's why Phelps Dodge building wire and rubber insulated, neoprene-jacketed cable was installed. For 17 years, this wire and cable has been giving the Turnpike dependable, trouble-free service.

On every wiring job where top-quality performance, expert workmanship and experienced "know-how" are called for, *it pays to rely on Phelps Dodge and your Phelps Dodge distributor!*



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STAINLESS...for Moon Travel Tests?

The results of this welder's work may well be headed for the moon someday. For here his skills are being applied to a stainless steel component of ground propulsion test equipment as part of the missiles program. There can be no question about test equipment standing up. Hot formed from Type 347 stainless, this unit, one of a number, was welded and X-ray tested with Graver's modern techniques. When exacting design for missile testing is linked with Graver's skilled alloy fabrication, there's assurance of the quality demanded—in the same manner that Graver has served industry for over a century.

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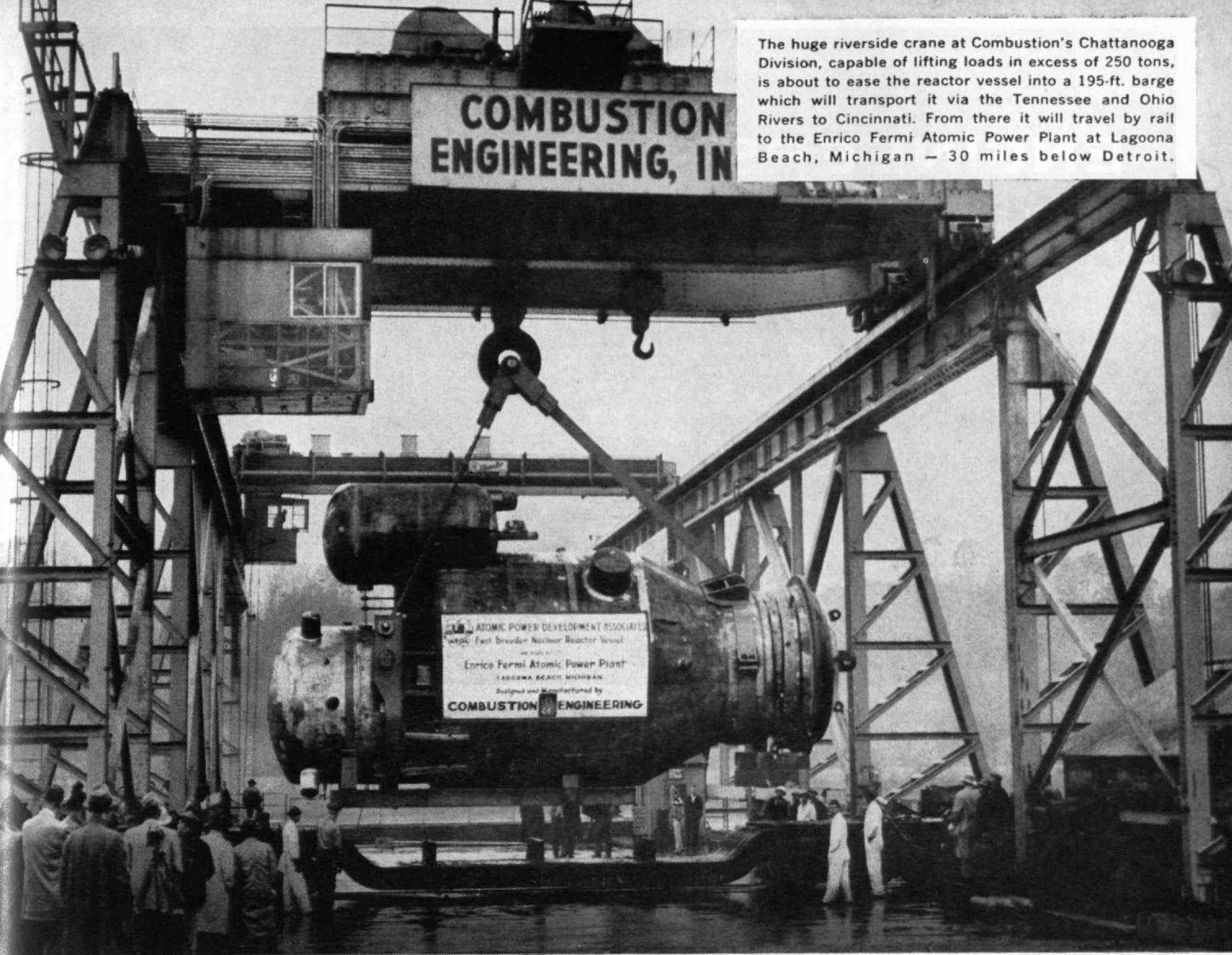
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The huge riverside crane at Combustion's Chattanooga Division, capable of lifting loads in excess of 250 tons, is about to ease the reactor vessel into a 195-ft. barge which will transport it via the Tennessee and Ohio Rivers to Cincinnati. From there it will travel by rail to the Enrico Fermi Atomic Power Plant at Lagoona Beach, Michigan — 30 miles below Detroit.

AMERICA'S LARGEST NUCLEAR COMPONENT

The nuclear reactor vessel shown here is the most remarkable stainless steel pressure vessel ever built. This 36-foot, 92-ton giant is the container for the nuclear furnace that will power the world's first full-scale, fast-breeder reactor power plant — the Enrico Fermi Atomic Power Plant. Designed by Atomic Power Development Associates, Inc., the nuclear section of this plant will be owned by Power Reactor Development Co., and the turbine-generator section by Detroit Edison Co.

Because of its vast size and complexity, the reactor vessel presented unique problems of design and fabrication. In reality, it comprises four separate cylindrical vessels welded together to form a single unit assembly, plus a large amount of internal shielding the fabrication of which involved the use of 65,000 square feet of stainless steel — all constructed and assembled with a precision never before attempted in

work of this size and character. Additional parts of the vessel, scheduled for later shipment, will bring its total weight to about 200 tons.

No more than two or three plants in the world presently have the skills and facilities even to undertake the production of work of this kind. Combustion not only has the men and machines, but also the experience to produce such reactor vessels. Moreover, it is equipped and qualified to design and manufacture all other major components of complete nuclear power systems.

The Enrico Fermi Plant exemplifies the continuing, urgent drive by electric utility companies to generate electricity at the lowest possible cost, utilizing all developments modern science and technology can produce. Combustion is proud to have shared in this major step of the power industry to prepare itself for the age of the atom.

COMBUSTION ENGINEERING

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

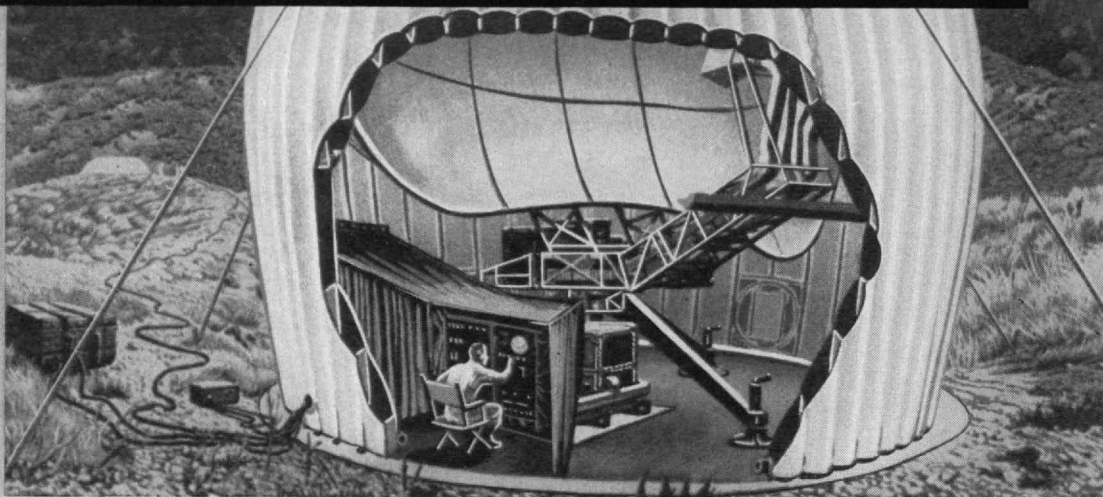


C-158

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As fast on the move as a fighting Marine is the new "TEW" (tactical early warning) radar system being developed by Sperry for the Marine Corps. Only one-fourth the size and weight of conventional radars, TEW is easily carried to battle areas by helicopter, cargo plane, truck or amphibious vehicle. Within two hours, an 18-man crew can erect the TEW system and place it in operation.

With its very long range and portable construction, TEW provides the Marines with the means to extend the nation's defense perimeter and insure added protection for key installations and outposts.

***If you're interested,
not in an engineering job,
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Sperry Gyroscope also stands for steady growth. Not just for the company—but for its engineers. Sperry engineers are career engineers, working on projects—like TEW—that are creative, interesting, important. They stay, and grow, with us. That's why over 2,600 Sperry employees are 15-year men. And—today we're expanding, diversifying more than ever. If engineering is your life's work—check Sperry.

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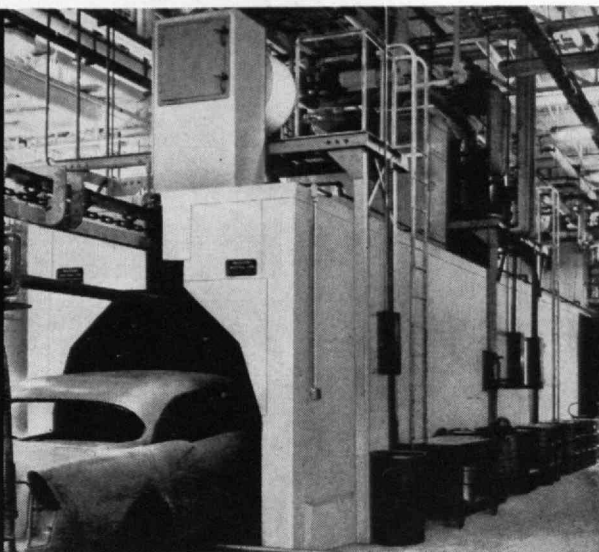
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Late in 1957, two strong, well organized engineering and manufacturing companies merged. Midland Steel Products Co. and J.O. Ross Engineering Corporation became Midland-Ross Corporation. The service of Midland Steel Products carried them deeply into the automobile manufacturing and parts distribution field in connection with automobile and truck frames and automobile accessories. This service is continuing with added strength.

Early in 1958, Midland-Ross acquired another important company to broaden its service... Hartig Extruders, Mountainside, New Jersey, a company specializing in the design and manufacture of plastic extruders.

For thirty-five years, the work of J.O. Ross Engineering has been in the specialized field of Engineered Atmospheres, serving such industries as pulp, paper, automotive, rubber, glass, metal, textiles, drugs, chemicals, food, foundries, tobacco, plastics, wood... industries where drying, curing, baking, spraying, heat-treating, humidifying and similar processing steps are key operations, often accompanied by comfort air-conditioning.

The term 'Engineered Atmospheres' covers the design, creating and installation of complete systems that provide the right kind of an 'atmosphere' in which to carry on these operations and the word 'atmosphere' is used both literally and figuratively. This involves a special kind of engineering—engineering experienced in the many phases of air-movements, heat generation and distribution, zone-control, impact, penetration, chemical reactions, solvent removal and recovery, heat-recovery, cycling, mechanical handling, electrical controls and drives.

In the above group of industries, Ross has served most of the major companies of the country.



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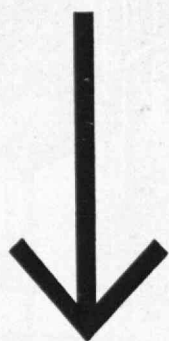
J. O. ROSS ENGINEERING DIVISION

Midland-Ross Corporation

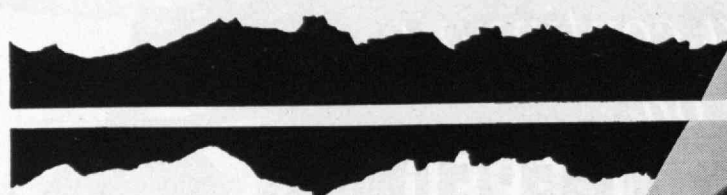
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