Trade Literature . . .

Metal-Clad Switchgear Bulletin . . .

Bulletin *GEA-5664E*, 40 pages, provides detailed information on the operation, characteristics, and application of indoor and outdoor metal-clad switchgear, rated 2.4 to 13.8 kv with interrupting capacities of 75 to 1,000 mva. **General Electric Company, Schenectady 5, N. Y.**

British Business Publications Guide . . .

More than 300 British trade and technical publications, most of them weeklies or monthlies, are described in "Business and Specialized Publications of Great Britain" which is published by members of the Periodical Proprietors Association Ltd. Journals cover such fields as textiles, engineering, shipping, television, aviation, food, finance and management, and many others. The booklet gives the American businessman a chance to learn of the British journals covering his own profession, trade, or hobby. Copies of the booklet can be obtained free from the **British Information Services, 45 Rockefeller Plaza, New York 20, N. Y.**

Aeronautical Company's Facilities Booklet . . .

A 10-page, 2-color brochure describing the capabilities, fields of activity, management, and facilities of Allied Research Associates, Inc. has been issued. The company's work in aerodynamics, applied mechanics, aircraft operations, chemistry, electronics and instrumentation, meteorology, physics research, systems engineering, propulsion, vibration, weapons effects, and weapon systems analysis are presented, along with brief descriptions of the several laboratories. **Allied Research Associates, Inc., 43 Leon St., Boston 15, Mass.**

Eccobond Adhesives Brochure . . .

A 14-page brochure consisting of a series of technical bulletins on a variety of cements, adhesives, and sealments is available. Application information, physical, and electrical property data is presented for each product. **Emerson & Cuming, Inc., 869 Washington St., Canton, Mass.**

Aircraft and Missile Accessories Brochure . . .

A 4-page brochure describes the basic types of air valves and actuators manufactured by Barber-Colman Company. Temperature control and positioning systems, specialized electrical test equipment, and a capsule view of the firm's development are also included. Bulletin *F 5910-1* may be obtained by writing to **Barber-Colman Company, 1400 Rock St., Rockford, Ill.**

Data Processing Tool Brochure . . .

A 38-page brochure describing application information for the Model *ZA-100* computer language translator is now available. **Sales Department, Electronic Engineering Company of California, 1601 E. Chestnut, Santa Ana, Calif.**

Fastener Bulletin . . .

This 4-page, 30th Anniversary products bulletin outlines the broad types of precision-engineered fasteners available with special features, and contains numerous illustrations of unique cold-forged fasteners produced for the automotive, aircraft, appliance, farm equipment, engine, and other industries. Copies of the new bulletin can be obtained from R. W. McPherson, vice-president, sales, **Chandler Products Corporation, 1493 Chardon Rd., Cleveland 17, Ohio.**

Dual Preset Counter-Controller Bulletin . . .

This 4-page bulletin describes the Series *320* instruments designed for coil winding, motor speed control, shearing to length, batching, packaging, and stacking by number, variable pulse interval generation, and process programming. **Computer Measurements Corporation, 5528 Vineland Ave., North Hollywood, Calif.**

Precision Potentiometer Bulletin . .

A bulletin including specifications reprints, and other pertinent matter, is available from **Computer Instruments Corporation, 92 Madison Ave., Hempstead, L. I., N. Y.**

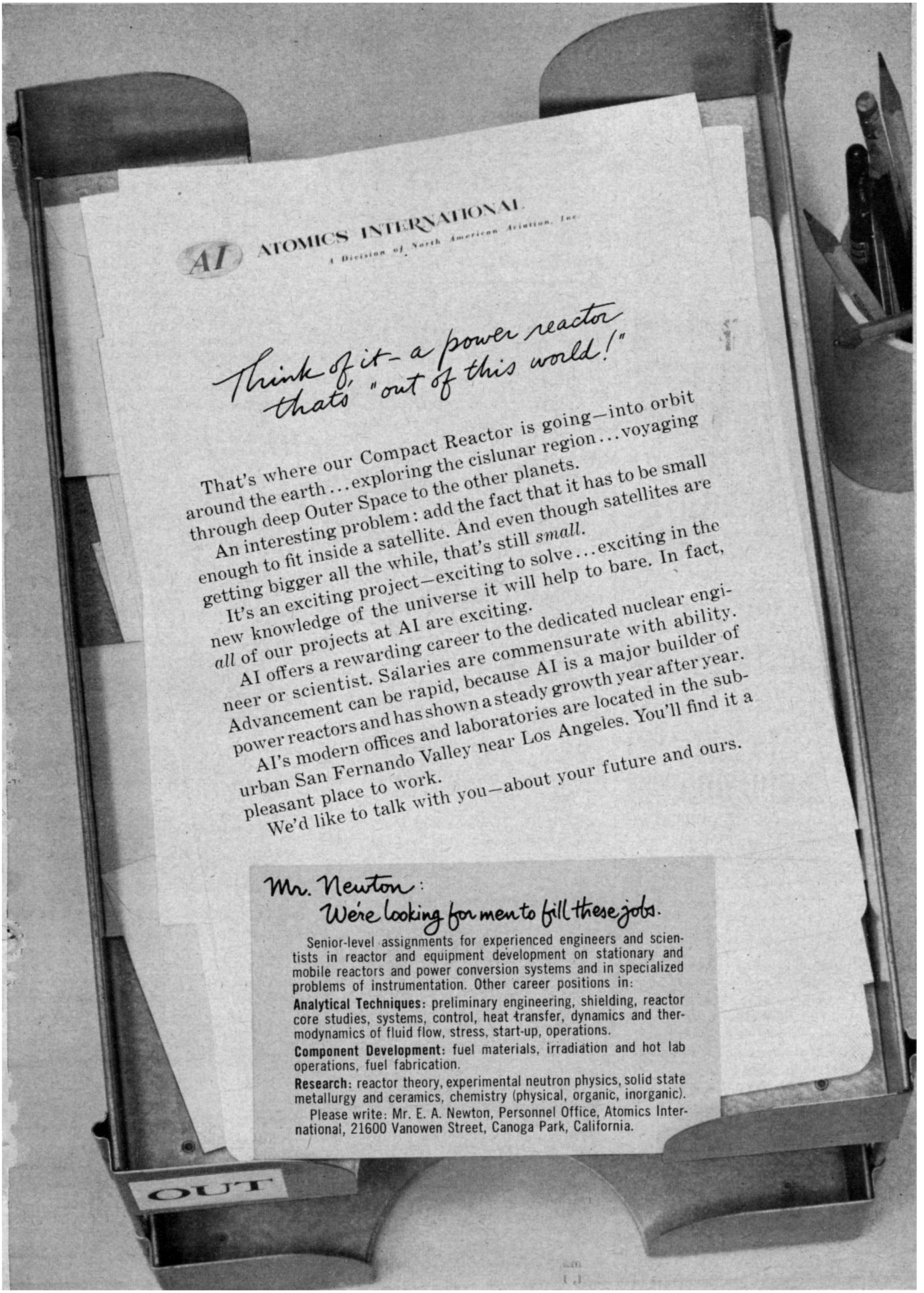
Information Processing Brochure . . .

The Intercoupler, explained here, is an electromechanical sensing device which is inserted by means of cables and plugs between an input and an output device; it provides completely automatic operation of the output device with perfect reproduction of information which has been fed to the input device. Applications are accounts payable, payroll, sales distribution and accounts receivable, bill and charge, and material control and inventory control. **Systematics Inc., 60 E. 42nd St., New York 17, N. Y.**

Automatic Transfer Switch Booklet . . .

An informative 24-page booklet on the importance and uses of transfer switches has been issued. Illustrated by diagrams, tables, and photographs, the various applications are discussed. **Automatic Switch Co., Hanover Rd., Florham Park, N. J.**

(Continued on page 44A)


AI ATOMICS INTERNATIONAL
A Division of North American Aviation, Inc.
Think of it—a power reactor that's "out of this world!"
That's where our Compact Reactor is going—into orbit around the earth . . . exploring the cislunar region . . . voyaging through deep Outer Space to the other planets.
An interesting problem: add the fact that it has to be small enough to fit inside a satellite. And even though satellites are getting bigger all the while, that's still *small*.
It's an exciting project—exciting to solve . . . exciting in the new knowledge of the universe it will help to bare. In fact, *all* of our projects at AI are exciting.
AI offers a rewarding career to the dedicated nuclear engineer or scientist. Salaries are commensurate with ability. Advancement can be rapid, because AI is a major builder of power reactors and has shown a steady growth year after year.
AI's modern offices and laboratories are located in the suburban San Fernando Valley near Los Angeles. You'll find it a pleasant place to work.
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We're looking for men to fill these jobs.
Senior-level assignments for experienced engineers and scientists in reactor and equipment development on stationary and mobile reactors and power conversion systems and in specialized problems of instrumentation. Other career positions in:
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Please write: Mr. E. A. Newton, Personnel Office, Atomics International, 21600 Vanowen Street, Canoga Park, California.
OUT

IMPULSE

A DIGEST OF NEW DEVELOPMENTS IN ELECTRONICS AND AUTOMATION

PUBLISHED BY **ROME CABLE CORPORATION**, ROME, N. Y.
PIONEERS IN INSTRUMENTATION CABLE ENGINEERING

TALKING ROAD MAP—A new "accessory" to tempt automobile buyers of the future might be an electronic navigational computer system like the one now being developed for the Army to be used on tanks and other vehicles. Operator merely feeds map co-ordinates of position and destination into the system. To find the shortest way home, he keeps the vehicle-heading indicator superimposed on the destination-heading indicator.

ELECTRONIC POSTMAN—An electronic mail sorter now being developed and tested for the Post Office Department represents significant advancements in computer equipment for commercial marketing. Presently, it's mostly a military market for electronic computers. But by 1960, industry expects problems like optical character sensing to be solved. Rome Cable Corporation can help you solve your wire and cable problems. Send for our free bulletin—Bulletin RCD-400—which covers telemetering, data recording, circuit control testing, and electronic computer cable, or get in touch with the Rome Cable representative nearest you and ask him for a copy.

ELECTRIC-POWERED SPACEFLIGHT—Basic research on an electric space engine is 75% complete, according to AVCO Manufacturing. AVCO has been working for five years in the growing scientific field of MHD—magnetohydrodynamics. MHD is based on the fact that gases, when heated to a certain point, become electrically charged and may be controlled by magnetic fields. Still five to ten years away, the new engine could produce thousands of pounds of thrust per pound of fuel.

ELECTRONIC REFRIGERATORS—Word comes from at least two manufacturers about work being done in development of electronic refrigerators that cool without moving parts. Units operate on Peltier effect—known to cause a junction of two metals (antimony and bismuth) to cool when current is reversed. Problem to now has been the small cooling capacity due to heat dissipation by conductors. Knowledge of new semiconductors available, however, is furthering development.

CABLEMAN'S CORNER—Your source of special wire and cable must be more than just "satisfactory." Being able to deliver the material on time is, of course, the duty and obligation of *every* manufacturer. But, when you're on a spot, you need a cable supplier that you can depend on.

At Rome Cable Corporation, we strive to establish normal delivery promises and *to meet them*. Even so, today's rather hectic conditions sometimes require that a special emphasis be placed on getting a cable order through as soon as possible. This we have done!

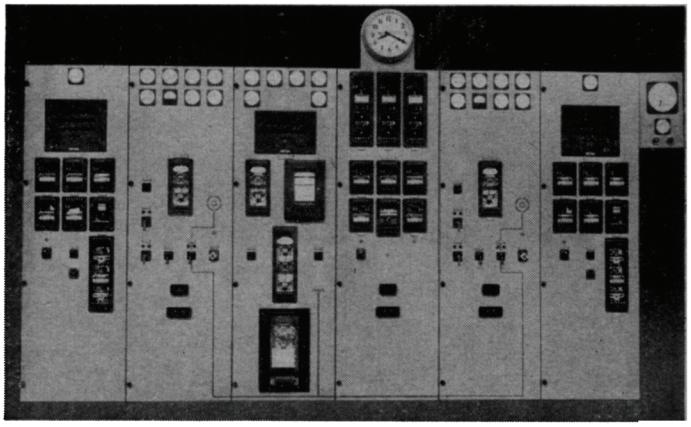
Recently, a customer required "the best possible" shipment on a vital instrumentation cable. Rome's employees worked round-the-clock to produce, inspect, and deliver this cable by the customer's request date. And, even with this special emphasis, *every* rigid test requirement was met. Naturally, this was an unusual case. It isn't necessary to do this on every order. But it points up the fact that Rome Cable not only stands for quality—it stands for dependability.

Don't take a chance on just anyone to meet *your* quality, reliability, and service needs. Call on a Cable specialist. Our address is Dept. 430-D, 421 Ridge Street, Rome, New York, Phone: Rome 3000.

in metal-clad switchgear...

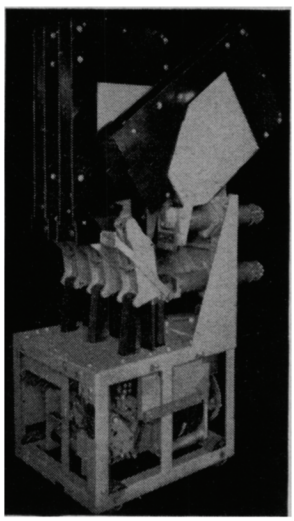
Reliability

is born of many men's efforts



Indoor metal-clad power plant switchgear rated 4160 volts, 3 phase, 60 cycles supplied to a partially attended generating station.

It started with a directive—"Make it the best!" A creative team set out to implement this decision. Engineers, designers, production men, and marketing personnel—all took up the challenge. What was *then* good gave direction. They added their talents, their skill, their experience—up-to-date application requirements—designing, testing, redesigning until drawing board plans were translated to market place reality. Out came metal-clad switchgear preeminent in strength, simplicity, and performance. They *had* made it the best!



Type DST air circuit breaker—5 kv, 250 mva, 1200 amps.

From simple feeder circuits to complex generating station protection—when you specify Federal Pacific metal-clad switchgear, you specify reliability. Proof is yours for the asking. Write Federal Pacific Electric Company, Newark, New Jersey for Catalog 3-440—sixty-four pages of the latest in metal-clad switchgear information.

FEDERAL FPE PACIFIC

The Best in Electrical Distribution and Control Equipment

Industrial Notes

(Continued from page 36A)

Allis-Chalmers Manufacturing Co. Milwaukee, Wis. . .

A steam surface condenser in which tubes are welded, instead of rolled into the tube sheets, recently went into operation at the Frank M. Tait Station of The Dayton Power and Light Company. This unit, manufactured by Allis-Chalmers, Milwaukee 1, Wis., is a 90,000-square foot, 2-pass condenser that is installed with the Power and Light Company's 130-megawatt steam turbine Unit No. 4.

Motorola Inc. Chicago, Ill. . .

The Pan American World Airway's jet fleet, consisting initially of Boeing *707's* and Douglas *DC-8's,* will be equipped with Motorola Selcal selective signaling equipment. The Selcal decoders will be a recently developed type, featuring fully transistorized circuitry and modular construction. Ground-to-air Selcal systems provide for the in-flight alerting of an aircraft crew to an ensuing radio message. Eliminated are the wearing of earphones and the monitoring of the circuit in the cockpit, thereby significantly reducing pilot fatigue and distraction. Motorola Inc., Communications and Electronics Division, 4501 W. Augusta Blvd., Chicago 51, Ill.

Dalic Metachemical Ltd. Toronto, Ont., Canada . . .

A production technique, developed by Dalic Metachemical Ltd., 121 Judge Rd., Toronto 18, Ont., Canada, allows aneroid elements of barometers, altimeters, depth gauges, and other pressure-sensitive devices to be soldered without flux. By thus

eliminating the chance of leaving corrosive material inside the diaphragm, selective plating reduces rejects, increases service life, and improves the seal and reliability of the product.

Positive Protection Against Phase Failure and Phase Reversal ?

Here is your answer!

The Allen-Bradley Bulletin 812 Type F, Type R, and Type RF relays provide positive protection against the hazards to men, motors, and driven machinery, resulting from phase failure and/or phase reversals.

The Bulletin 812 Style F phase failure relay employs a unique static sensing network that responds to all open phase conditions on a motor branch circuit and immediately removes the motor from the line . . . irrespective of the load on the motor (including no load), or the circuit arrangement. This relay even responds to hard-to-detect primary failures on a wye-delta transformer with ungrounded neutral. Furthermore, the five-cycle response prevents nuisance "drop-outs" from transient fluctuations.

The Bulletin 812 Style R phase reversal relay disconnects the motor from the line—whether it is running or not—when a phase reversal occurs anywhere in the system on the line side of the relay. Thus, it can be employed for a single motor, a group of motors, or an entire power system. In addition, the phase reversal relay prevents the motor from starting should phase failure occur while at a standstill—a vital feature for elevator applications.

The Bulletin 812 Style RF relay combines the elements of Style R and Style F relays for protection against both phase failure and phase reversal. All Bulletin 812 relays are inherently "fail safe." Send for complete information.

Allen-Bradley Co., 1301 S. First St.
Milwaukee 4, Wis.
In Canada: Allen-Bradley Canada Ltd.
Galt, Ont.

A-B QUALITY

ALLEN-BRADLEY

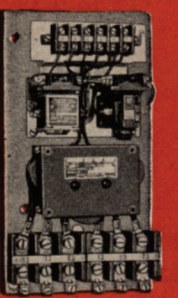
QUALITY

MOTOR CONTROL

Bulletin 812, Style RF for Phase Failure *and* Phase Reversal

INDIVIDUAL RELAY UNITS AVAILABLE

For Phase Failure



Style F covers full load currents from 1.5 to 300 amp in 4 sizes. Coils for up to 600 v, 60 cycles.

For Phase Reversal

Style R made with coils for 110, 208/220, 440, 550 v for either 50 or 60 cycle operation.

Trade Literature

(Continued from page 38A)

Rating Systems Application Note . . .

This Application Note reviews the significant differences between the three rating systems currently in use by the electron tube industry: the absolute-maximum, design-center, and design-maximum systems. The design-maximum system, which is the newest and latest, is discussed in detail. Request Application Note *AN-174* from **Commercial Engineering, RCA, Harrison, N. J.**

Silicone Rubber Heater Literature . . .

Detailed are construction features of the new heaters, which the manufacturer believes are the answer to a long-felt need for greater application flexibility in the design of electric heating units. They are described as flexible, waterproof, very thin, available in any plane shape, and adaptable to almost any area where heat up to 400 F is needed. Ask for Bulletin *C-102*. **Watlow Electric Manufacturing Company, 1376 Ferguson Ave., St. Louis 14, Mo.**

Electrical Tape Data Booklet . . .

Technical and comparative cost information on the Hesgon line of Fiberglas electrical tapes is now available. This publication points out how Fiberglas tapes offer the manufacturers of electrical equipment a strong, highly flexible, inorganic, high-temperature, moisture and chemical resistant insulating material. Copies of "The Inside Story of the New Hesgon Line of Fiberglas Electrical Tapes" are available through **Horace Linton Division, Hess, Goldsmith & Co., Inc., 1400 Broadway, New York 18, N. Y.**

Epoxy Compound Table . . .

A table of 20 epoxy compounds showing pot life, curing cycles, weight losses and gains, shrinkage, thermal shock, and other special properties and applications has been released as a complement to the company's 6-page folder on insulating and sealing compounds, by the **Biwax Corporation, 3445 Howard St., Skokie, Ill.**

Synchronous Motors and Controls Booklet . . .

A 27-page booklet, "Synchronous Motors and Controls," contains motor selector charts, application data, and formulas for calculating power factor. The booklet presents a quick summary of types and features of motors and controls. The material includes a discussion of power factor correction, factors to consider in selecting the motor, and special application problems. For a copy of Booklet *B-7292*, write **Westinghouse Electric Corporation, Box 2099, Pittsburgh 30, Pa.**

BIBLIOGRAPHY ON WATTHOUR METERS

November 1957

Publication S-100 is a bibliography of approximately 1,000 references of standards, text books, and periodicals. The 63-page compilation was assembled by members of the AIEE Subcommittee on Watthour Meters of the AIEE Indicating and Integrating Instruments Committee, assisted by G. A. Palmer representing EII and AEIC. The price is $3.00. Request from the Order Department.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS,
33 West 39th Street,
New York 18, N. Y.

PERFORMANCE AND PROTECTION OF AERIAL CABLES

February 1958

This informative 44-page publication consists of six transactions and conference papers with discussions and clotures on cable insulations, various practices in the installation of these cables, and the results of actual field tests to determine some of the phenomena which have taken place.

The papers were presented at the 1957 Summer General Meeting of the American Institute of Electrical Engineers, Montreal, Que., Canada, June 24-28, 1957.

Publication S-102 is available for $2.50 from the Order Department.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
33 West 39th Street
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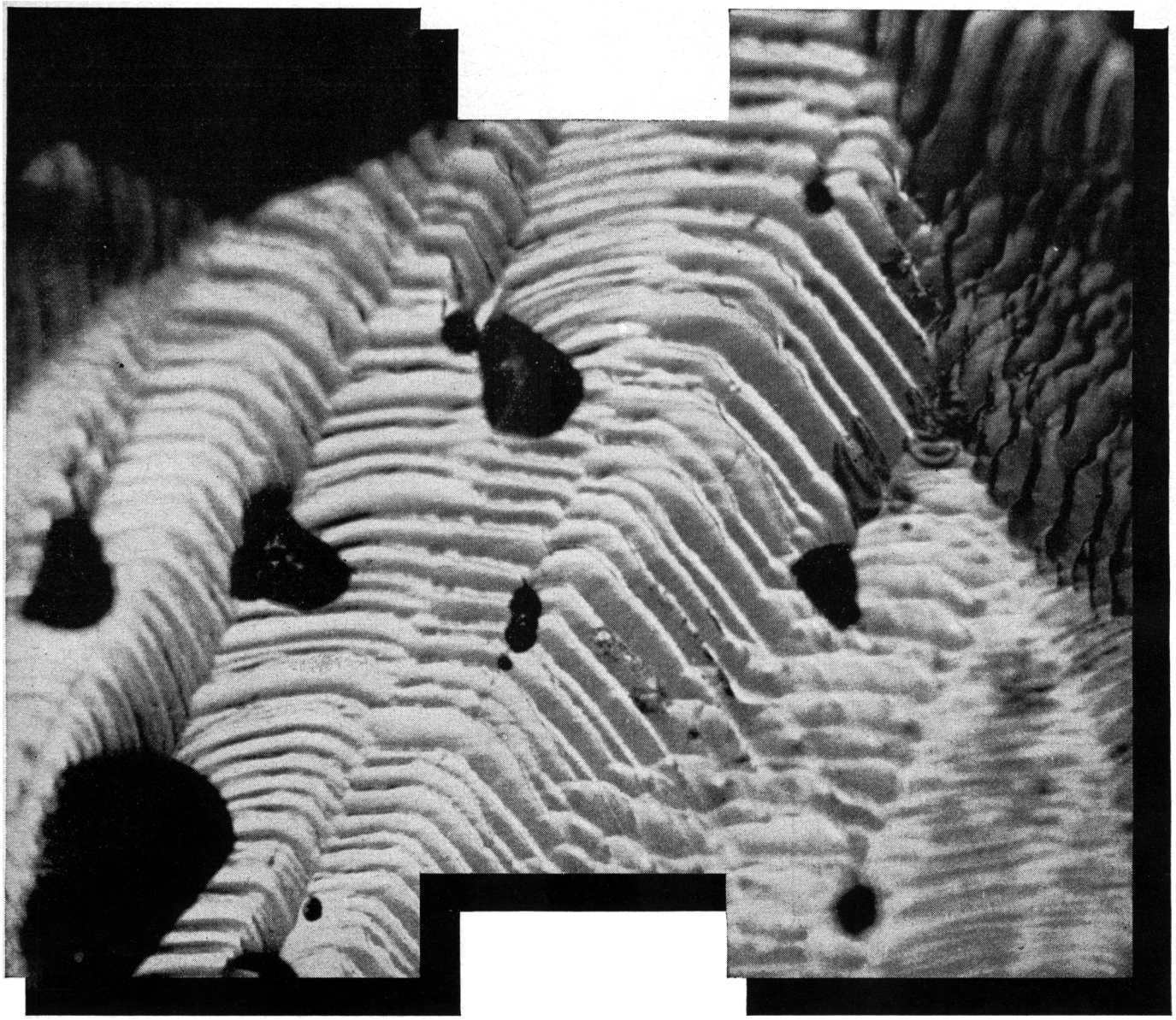
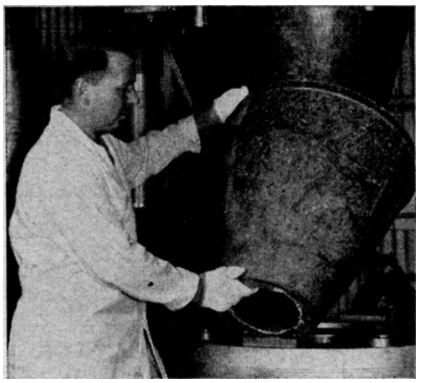
The industry that



impurity built



***Exit cones** capable of withstanding temperatures of 6000° F, represent one example of advanced engineering being performed by the Hughes Plastics Laboratory.*

This photomicrograph (at left) of an etched silicon crystal is used in the study of semiconductor materials. Impurities introduced into crystals such as this form junctions for semiconductor devices.

In the fast-growing semiconductor industry, Hughes Products, the commercial activity of Hughes, is leading the field. Its programs include basic research on semiconductor surfaces; alloying and diffusion techniques; and materials characterization studies to determine the electrical effects of imperfections and impurities.

In addition, Hughes Products is developing new semiconductor devices such as parametric amplifiers, high frequency performance diodes, and improved types of silicon transistors. New techniques are being devised for casting silicon into various configurations. Also underway is the development of new intermetallic compounds for use in semiconductor devices.

Other activities of Hughes provide similarly stimulating outlets for creative engineering. The Hughes Research & Development Laboratories are conducting studies in Advanced Airborne Electronics Systems, Space Vehicles, Plastics, Nuclear Electronics, Global and Spatial Communications Systems, Ballistic Missiles... and many more. Hughes in Fullerton is developing radar antennas which position beams in space by electronic rather than mechanical means.

The diversity and advanced nature of Hughes projects provides an ideal environment for the engineer or physicist interested in advancing his professional status.

Newly instituted programs at Hughes have created immediate openings for engineers experienced in the following areas:

Semiconductors	Communications
Microwave & Storage Tubes	Circuit Design
Field Engineering	Systems Analysis
Microwaves	Reliability Engineering
Digital Computer Engr.	Radar

Write in confidence, to Mr. Phil N. Scheid, Hughes General Offices, Bldg. 6-B1, Culver City, California.

The West's leader in advanced ELECTRONICS

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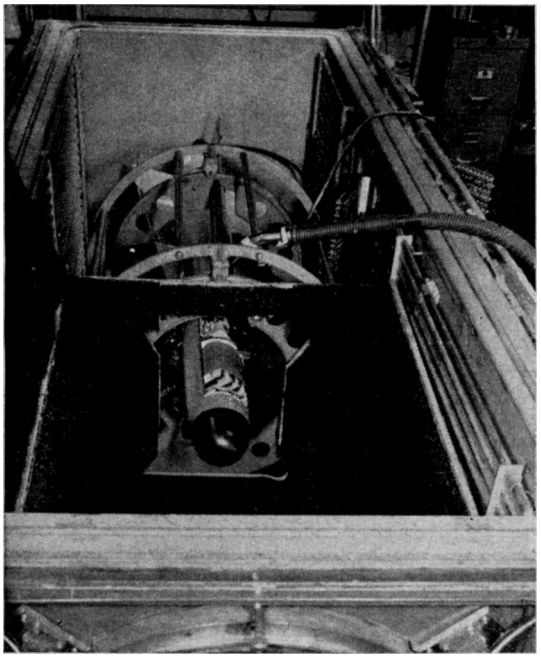
HUGHES AIRCRAFT COMPANY
Culver City, El Segundo,
Fullerton and Los Angeles, California
Tucson, Arizona



***Falcon air-to-air guided missiles,** shown in an environmental strato chamber are being developed and manufactured by Hughes engineers in Tucson, Arizona.*

ENGINEERING SOCIETIES PERSONNEL SERVICE, INC.

(Agency)

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These items are listings of the Engineering Societies Personnel Service, Inc. This Service, which cooperates with the national societies of Civil, Electrical, Mechanical, Mining, Metallurgical and Petroleum Engineers, is available to all engineers, members and non-members, and is operated on a nonprofit basis. If you are interested in any of these listings, and are not registered, you may apply by letter or resume and mail to the office nearest your place of residence, with the understanding that should you secure a position as a result of these listings you will pay the regular employment fee of 5% of the first year's salary if a non-member, or 4% if a member. Also, that you will agree to sign our placement fee agreement which will be mailed to you immediately, by our office, after receiving your application. In sending applications be sure to list the key and job number.

When making application for a position include eight cents in stamps for forwarding application to the employer and for returning when possible.

A weekly bulletin of engineering positions open is available at a subscription rate of $3.50 per quarter or $12 per annum for members, $4.50 per quarter or $14 per annum for non-members, payable in advance.

Men Available

Elec Engr, B.S., age 31; seven yrs exper with consulting firm in des and supervn of constr of hydroelec projects, substations and transm lines. Desires overseas pos. E-116.

Mgr of Engrg or Foreign Representative, B.S.E.E., age 56; establishment of res and dev programs and policy, organization and admin of engrg staff, evaluation of engrg designs and programs, budget preparation, cost analysis, des and dev of HV and LV Switchear; 20 yrs with large electrical mfgrs, 14 yrs. with military, atomic energy and electronics res programs, including extensive overseas representation and military procurement. Efficient planner. Location desired, U.S. or Europe. E-117.

Proj Supervisor or Chief Engr, B. of E.E.; age 36; desires plant engrg. or large engrg projects. Specialist in facilities elec design and constr. Wealth of exper in general and constr problems. Location optional. E-118-914-Chicago.

Pub Util Management Engr, B.S.E.E.; age 58; 25 yrs exper in electric, water and gas util management and engrg, including considerable work with regulatory commission on rate matters. Location desired, California or West Coast. E-298-San Francisco.

Elec Engr, B.S.E.E.; retired; with 30 yrs exper in design of power, lighting and interior communication systems and equipment for marine applications. Available for part-time or full-time as consultant, administrator, or for expert testimony. Location desired, San Francisco or vicinity. E-279-San Francisco.

Prof in elec engrg, E.E. and M.S.; age 34; academic research exper and nine yrs prof elec engrg work in the power and illumination fields with manufacturing, utility and consulting firms. Location desired, West Coast. E-242-San Francisco.

Positions Available

Electrical Engineers, graduates, to work under chief electrical engineer in large pulp and paper mill. One to five years' experience in A.C. and D.C. rotating machines and control, sectional paper machine drives, mercury arc rectifiers and electronics control. Salary open. Location, North Carolina. W-6673.

Regional Sales Manager, graduate electrical, who has had demonstrated sales administrative ability and experience in the lighting industry. Should be willing to locate in the St. Louis area. Territory would cover Wisconsin, Michigan, Indiana and Ohio along with portions of Illinois, Kentucky and West Virginia. Salary, $12,000-$15,000 a year plus bonus. W-6680.

Product Engineer, mechanical or electrical graduate, with 20 years' experience designing small electro-mechanical devices as end products. Should have proven background in application of engineering principles to product development. Company manufactures automotive accessories and household appliances. Salary, $12,000-$15,000 a year. Location, Connecticut. W-6694.

Electrical Engineers (a) Senior Engineer, B.S.E.E., with five to ten years' experience on circuit design; three years' minimum on electronic communications equipment or allied fields such as computer. Salary, $12,000-$14,000 a year. (b) Junior Test Engineer, graduate electrical, with two years' minimum experience testing military electronic equipment. Write test procedures, supervise test department. Salary, $6000-$8000 a year. Location, lower Connecticut. W-6704.

Sales and Service Engineer experienced in electronic sales for company manufacturing digital instrumentation, i.e. charting and coders. Salary, $8000-$8500 a year plus commission. Territory: northern New Jersey area including Westchester County and Rockland County, plus the states of Maryland, West Virginia and the District of Columbia. W-6715.

Development and Production Engineer, graduate electrical, for small manufacturer of printed circuits. Must have background in electronics, plastics, electroplating, etc. Salary, $9000-$12,000 a year. Location, Michigan. W-6728.

Electrical Engineer, graduate, with a minimum of five years' experience in industry; experience in rotating machinery design, especially 400 cycle, commercial and military application. Some control system experience desired. Product is aircraft A.C. small motors, all phases and frequencies. Salary, $7000-$8000 a year. Location, Ohio. W-6732.

Supervisory Engineer, graduate electrical or mechanical, with experience in development and production engineering, experience in electronic and electro-mechanical avionic devices; also some experience in transition to production from development models including test and debugging. Familiarity with electronic assemblies including printed circuitry and solid state devices important. Will be responsible for supervision of small engineering department. Salary, approximately $11,000 a year. Location, New York, N.Y. W-6737.

Electrical Engineer, graduate, with five to eight years' experience: experience in heavy industry, preferably cement and lime operations. Should be capable of laying out and supervising installations and maintenance of electrical equipment; experience with sub-station equipment and power contract. Salary, $7000-$8500 a year. Location, Midwest. W-6738.

Director of experimental physics section, Ph.D. in physics, training in atomic physics, solid state, quantum electro-dynamics. Microwave and/or infrared experience desirable. Duties will include technical direction of experimental physics group now engaged in government and industrial sponsored programs in basic and applied research in microwave and infrared solid state devices. Salary, $14,000-$18,000 a year; profit sharing plan. Company will pay placement fee. Must be cleared for secret or have no known impediment to clearance. Location, Midwest. W-6740-C.

Assistant Sales Manager for an electrical insulation division; graduate electrical or equivalent experience relating to electrical insulation. Experience in the following capacities with motor, transformer, coil of electronic components manufacturer: Sales engineer, field technical service, general equipment design or material and process development. Duties will involve field technical sales working through a national manufacturers' agents organization. Salary, $6500-$10,000 a year, plus profit sharing bonus. Traveling. Headquarters, western New York State. W-6756.

Development Engineer, electrical graduate, for design and development of FHP motors and electronic control equipment. Salary, $6500-$7500 a year. Location, eastern Pennsylvania. W-6758.

Electrical Engineer, graduate, thoroughly familiar with designing and supervising building of dry as well as oil sealed power distribution transformers. Excellent opportunity for advancement. Apply by letter giving complete qualifications, references, salary, etc. Location, Newark, N.J. W-6764.

Technical Publicity Man for an industrial advertising agency; graduate electrical, with proven skill in preparing feature articles on complex technical subjects. Salary good, profit sharing, fringe benefits, excellent future. Location, eastern Pennsylvania. W-6765.

Senior Service Engineer, B.S. in E.E., heavy electives in physics and mechanics. Minimum of five years' experience in design, test or service of complex electro-mechanical instrumentation. Experience with electron microscopes desirable; knowledge of electronic optical equipment essential. Salary, to $8500 a year: Company will negotiate placement fee. Location, Westchester County, N.Y. W-6773(a).

Engineers. (a) Senior Development Physicist, Ph.D. in physics, plus five years' experience in development and design of high resolution electron microscopes, electron optical probing devices, etc. Will do original development work on electron optic equipment and supervise instrumentation design. Salary, to $15,000 a year. (b) Technical Writer to prepare technical manuals, instruction books, etc. for the service and repair of precision electro-mechanical instrumentation. College training desirable plus a minimum of two years' technical writing experience. Salary, to $6800 a year. Company will negotiate placement fees. Location, Westchester County, N.Y. W-6774.

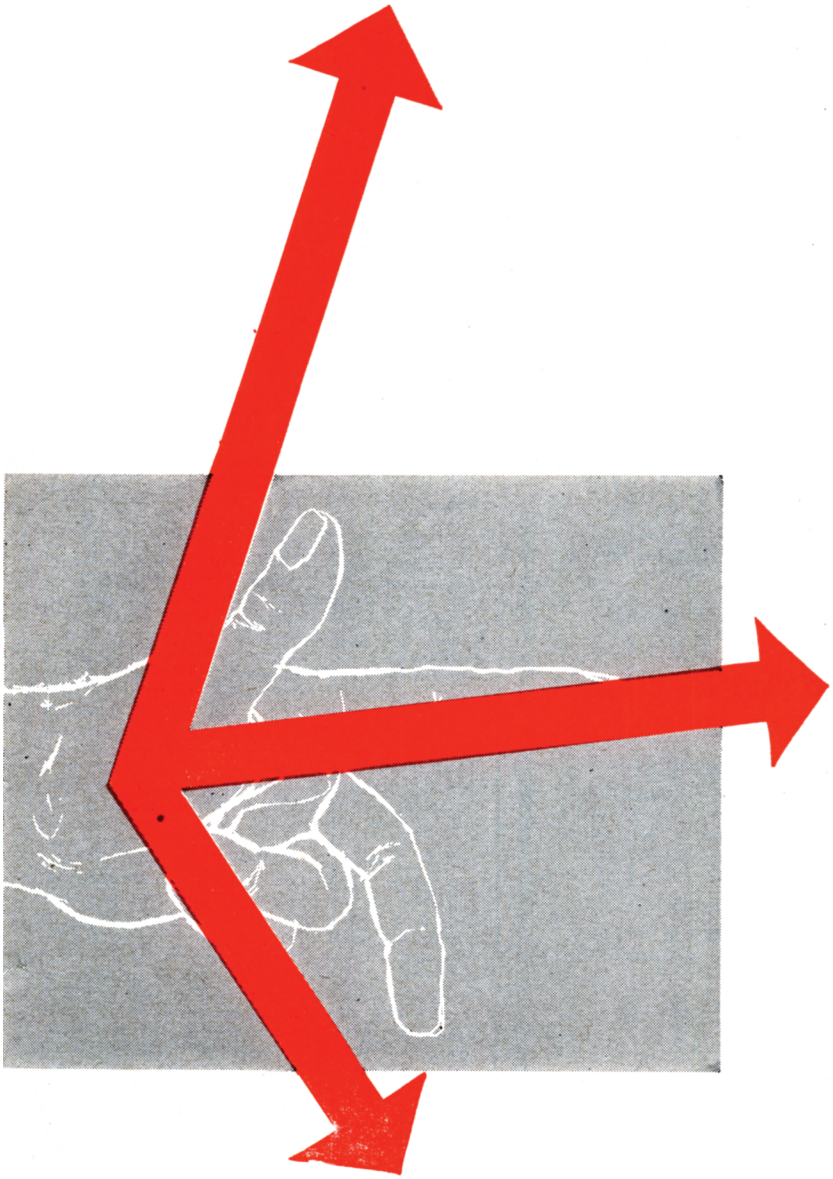
Research and Development Engineers, graduates in electrical engineering, with communications or electronics major, or physics. Experience in applied research and/or development of electronically actuated instruments; several years of research or development with some forms of electro-mechanical device is necessary. Salaries open. Location, Connecticut. W-6775.

Senior Production Engineer, B.S.E.E., with a minimum of three years at a senior level-design manufacture of military electronic telecommunications equipment, using digital, pulse and MV circuitry including transistorized versions. Knowledge of MIL components, equipment packaging including printed circuit techniques. Salary, $10,000-$13,000 a year. Location, lower Connecticut. W-6785.

(Continued on page 50A)

IBM®

offers a free hand to creative engineers and scientists in IBM's new Special Engineering Products Division



If you'd like to exercise a free hand in solving problems never encountered before . . . if you want to work on small teams, where individual merit can be quickly recognized . . . if you're looking for ground-floor opportunities plus the job stability accruing from employment with a well-established firm . . . then you should consider the career opportunities now available at IBM's new Special Engineering Products Division.

S.E.P.D. was created to apply IBM's wealth of systems knowledge to the development of special-purpose precision equipment related to, but outside of, IBM's regular line of products. Immediately required are creative engineers and scientists — men who enjoy the challenge of working independently on a wide variety of unique assignments.

OPPORTUNITIES NOW AVAILABLE INCLUDE . . .

Advanced component design
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Instrumentation
Optical systems and optical mechanisms
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(Continued from page 48A)

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Research and Development Engineers, small mechanisms and missiles propellant. (b) Physicist, with three to five years' experience in electronic circuit analyses, systems and instruments. For missiles applications. Salary, $7200-$8600 a year. (c) Electronic Engineer with solid experience in developing and experimenting with circuitry, instruments, transducers, etc. Salary, $7200-$9600 a year. (d) Laboratory Technician, preferably chemical background or physics, to assist in laboratory, tests, in development of missiles propellant. Salary, to $6000 a year. Must be U.S. citizens; clearance required. Location, San Francisco East Bay. S-3954R.

Systems Engineers, Postal Machinery, Services, with experience in work measurements, methods studies, services, to develop new improved systems, new concepts and design of equipment, mail handling, sizes on postal service, analyze information. (a) Electrical Physics or mechanical graduate, good statistician or mathematician, with five to ten years' experience, strong on statistical work, analysis, evaluation, maintenance of information. (b) Electrical, mechanical or physics graduate, with five to ten years' experience, primarily in analytical work, applied mechanics, circuit experience, some computer experience desirable. Salaries, $700-$1,000 a month. Location, San Francisco Peninsula. S-3966.

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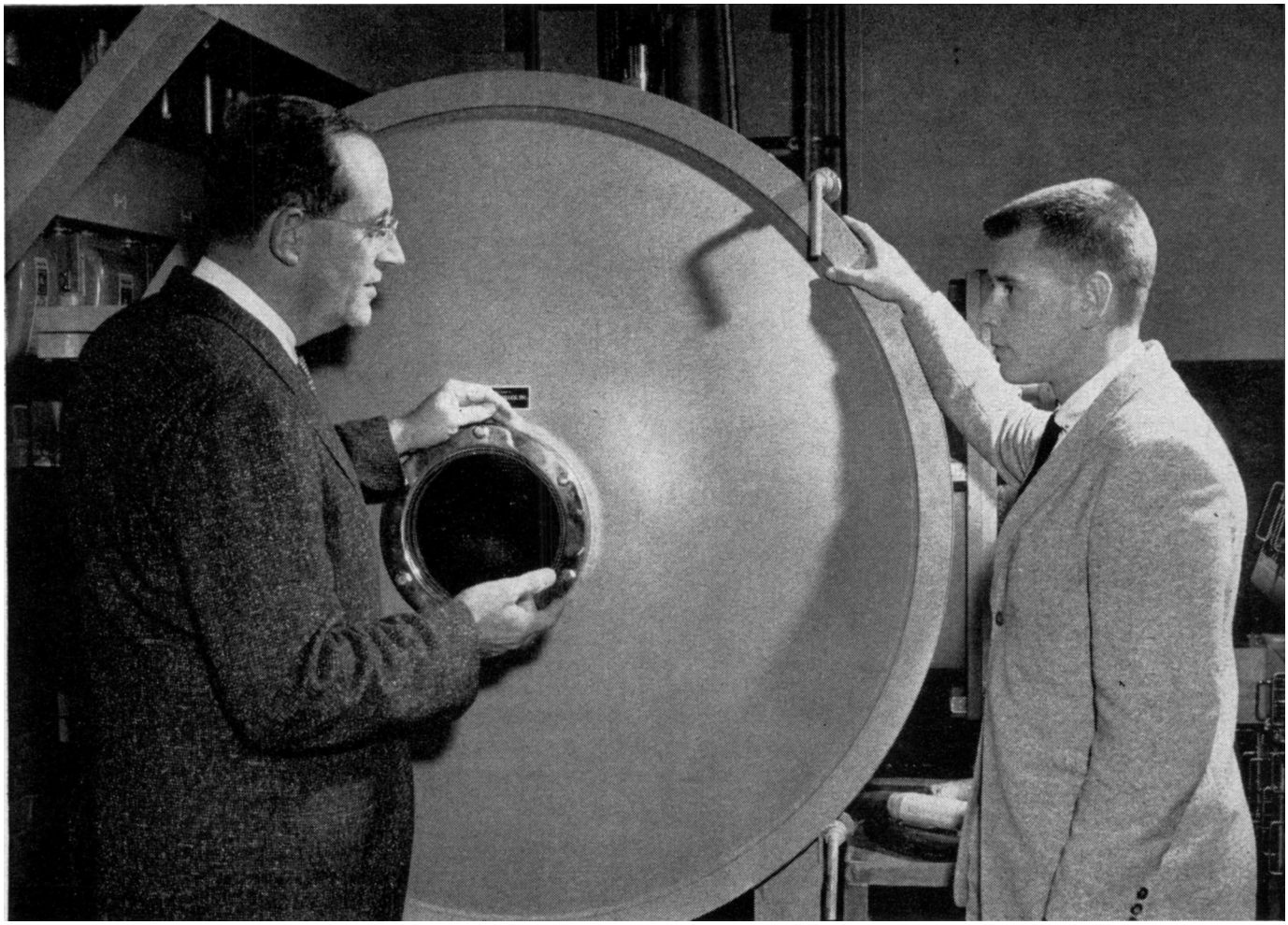

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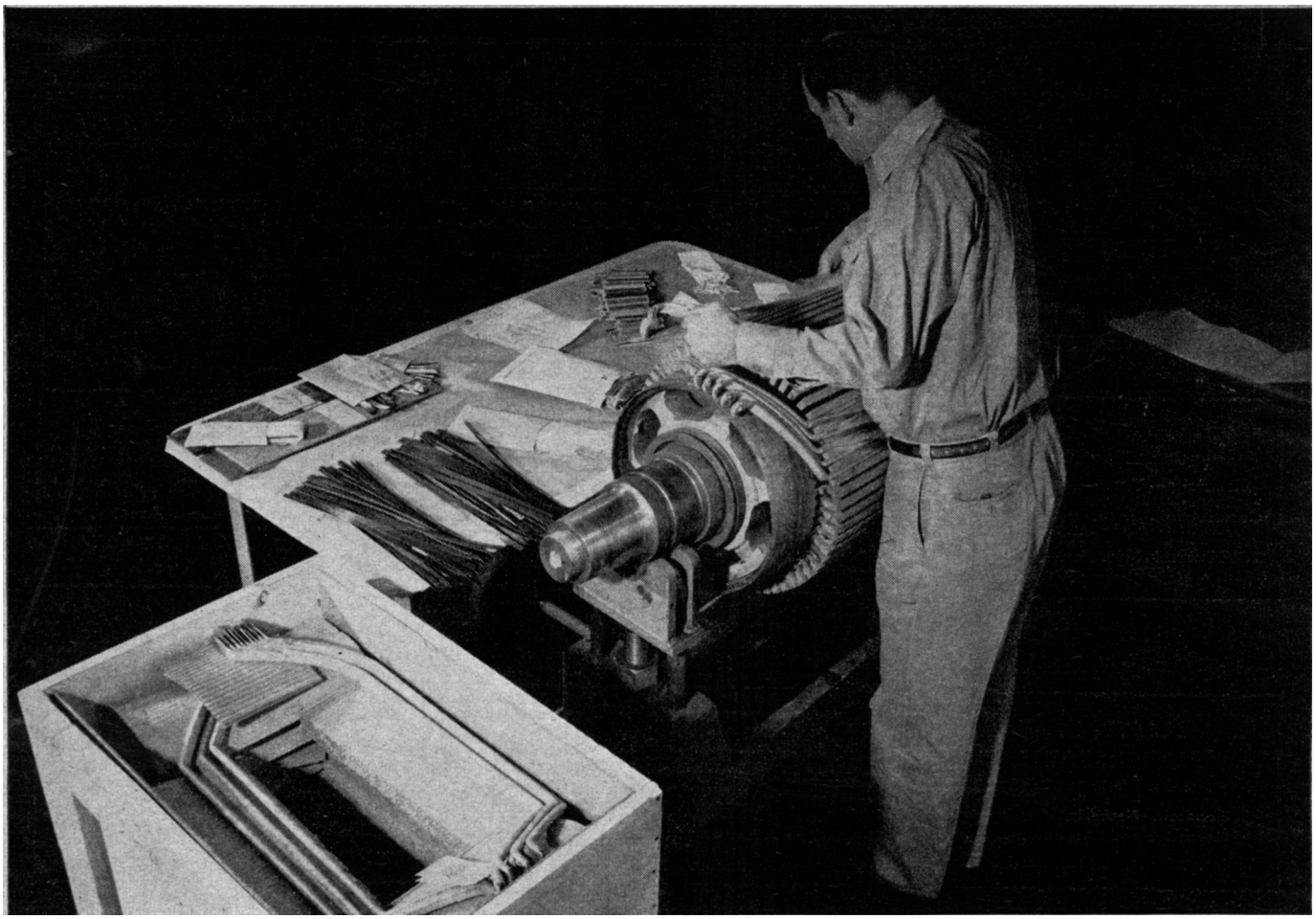

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