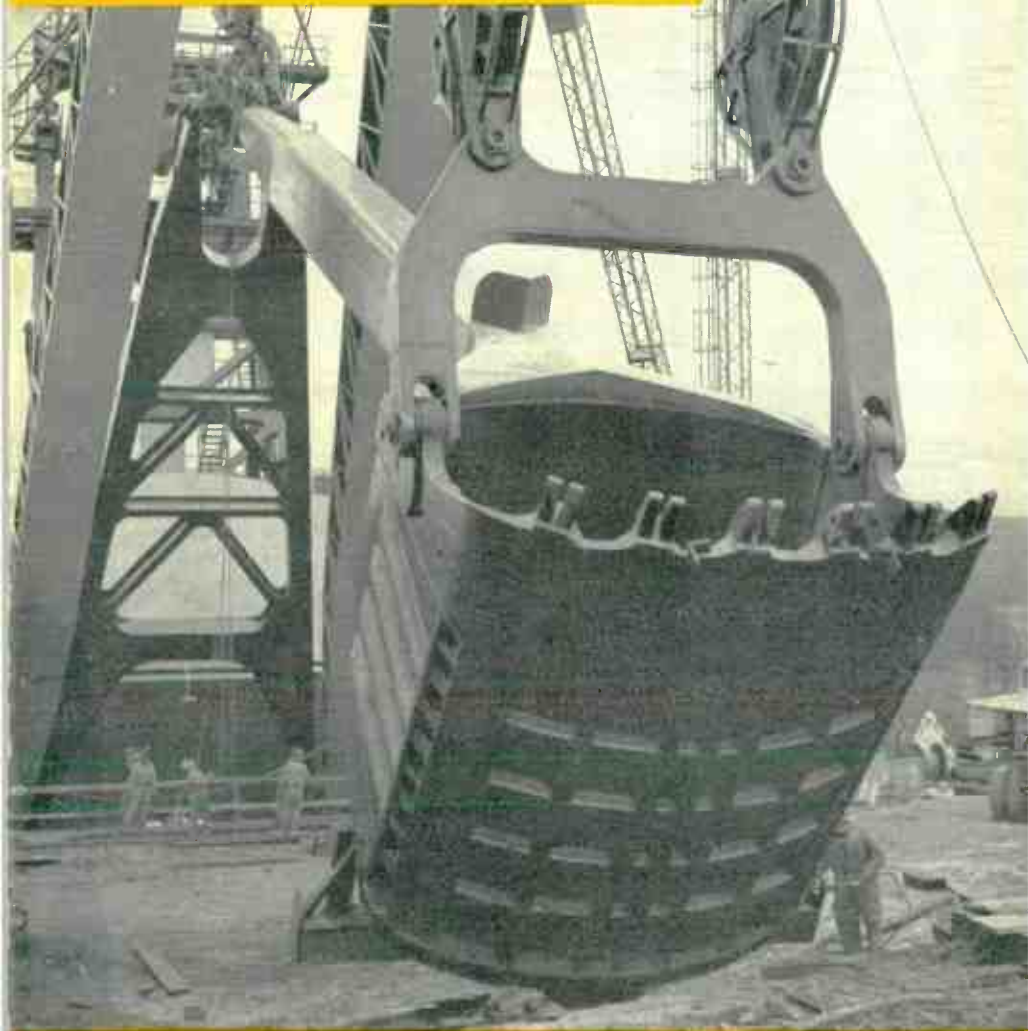


THE MONOGRAM FEB. 1956



ELECTRIC MUSCLES FOR A GIANT . . . p. 2



New Product Line: Computers by G.E. . . p. 5

LETTERS

Aid to Understanding

Editor:

On behalf of myself and all of our employees at Abilities, thank you for your very fine article about our company. [January *Monogram*, p. 6.]

It is certainly a tribute to the progress of your great company that we should be favorably considered as subcontractors on the basis of quality and price, rather than because all of our employees are disabled.

One day perhaps, our disabled people will no longer be considered different from the rest of the world, but will be looked on as the ordinary people we really are, each to be measured according to his ability and not his disability. Your splendid article and G.E.'s belief will bring that day closer for all of us.

HENRY VISCARDI, JR.
President—Abilities, Inc.

A New Experience

Editor:

We have received a letter from a man who had trouble with his appliance dealer and then got such excellent service from General Electric Appliances, New York, that he wrote to Mr. Cordiner as follows:

"This repairman that looked over the unit was something new in our three-year experience as homemakers. He didn't come in and crab about modern mass producing methods. He didn't claim that the manufacturer was trying to insure getting work out of his repair division by marketing a product that would need final adjustment after its purchase. He didn't subtly imply that he was doing us a personal favor by showing up and was thus entitled to some reimbursement. But the outstanding difference was that this guy was proud of the product he represented. He actually cared whether or not it ran properly. And that is an attitude that makes him rare as five-cent beers.

"If we are ever in the market for an item which General Electric manufactures

(Continued on inside back cover)

The object of the **MONOGRAM** is to keep its readers better informed on General Electric activities and policies so that they may more effectively represent the Company in its relations with the public.

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Lawrence W. O'Brien, Editor

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UTILITY CAMPAIGN

“Live Better . . . Electrically”

Simultaneous meetings in 76 cities by more than a hundred individual electric utility companies launched an industry-wide movement this month aimed at increasing the residential use of electricity.

High light of the meetings was a closed circuit telecast with TV personality, John Daly, as master of ceremonies. Built around the theme “Live Better . . . Electrically,” the whole effort is designed to stimulate participation by manufacturers, home builders, contractors, architects, electrical distributors, dealers, realtors, and lending institutions in selling the benefits of increased electrification to the American home owner.

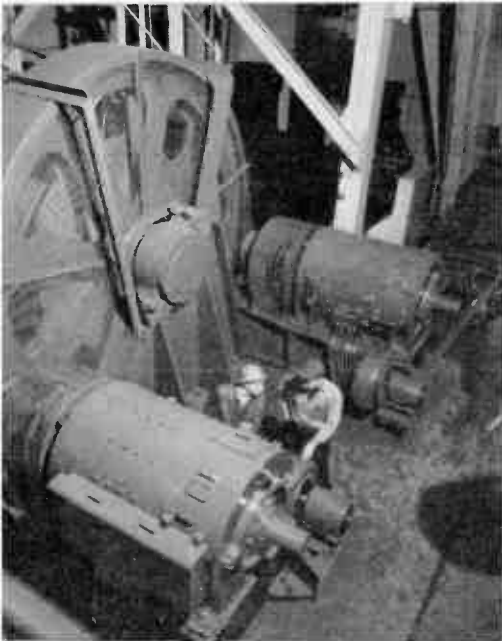
An estimated 35,000 such businessmen attended the kick-off meetings at which the special TV show served to dramatize the opportunities for accelerated marketing of electrical goods and services in residential areas, and the benefits to be derived therefrom. Following the telecast, they heard executives of the individual utilities outline their plans of action and were themselves invited to participate locally in the long-range project.

The “Live Better . . . Electrically” promotion will function at the direction of each sponsoring utility company in its own area.

According to Harlee Branch, Jr., president of Edison Electric Institute, who also appeared on the closed circuit TV show, the co-ordinated effort will involve local activities against a broad background of national promotion, including trade and consumer advertising.

ON CLOSED CIRCUIT TV, JOHN DALY INTRODUCES DRAMATIC NEW PROGRAM





INSIDE WORLD'S LARGEST POWER SHOVEL

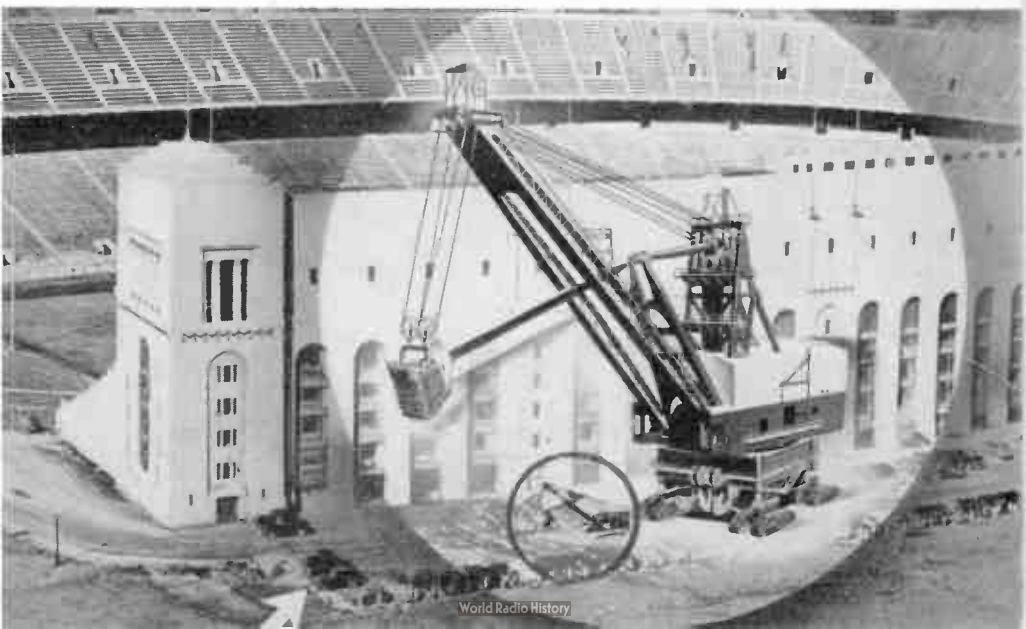
G-E MOTORS

Muscles for a Giant

Visitors (many of them G-E engineers) stood in the cold of a gray and wintry day recently at the site of the Hanna Coal Company's open-pit coal mine in Georgetown, O. What they saw staggers the imagination. (Sec cover.) A huge new 5,500,000-pound, electric-powered shovel—the largest piece of mobile machinery ever built in the U.S.—was busy chewing up the earth, uncovering the valuable seam of coal which lay beneath the overburden.

With each bite, the giant scooped up as much as 90 tons of earth and rock, enough to fill two railroad hopper cars. Its 145-ft-high boom (high as a 12-story building) then swung around to deposit the load some 145 feet (nearly a city block) away

ARTIST'S CONCEPTION OF "MOUNTAINEER" drawn to scale and superimposed on photo of Ohio State University Stadium. Arrow points to cars; small circle under scoop could enclose standard-sized shovel.



and returned for a new load—all in about 50 seconds' time with the potential use of over 9000 horsepower.

Inside the cavernous cab and atop the towering boom, 16 G-E motors—among them the largest mill-type horizontal and vertical motors ever made by the Company—were the muscles behind the hungry "Mountaineer," as the \$2,500,000 giant is called. Power to drive the motors—enough of it to supply a small community with all its electricity—came to it directly from local utility lines via a trailing cable and a 5000-kva portable substation.

Built by the Marion Shovel Co. after G-E engineers working with an analog computer proved that adequate electrical equipment could be designed to enable it to accomplish its gargantuan feats, the power shovel represents the coal industry's latest attempt to cut production costs through greater mechanization. G-E engineers are convinced that lessons learned in the manufacture and operation of this powerful lifting device will open whole new possibilities for the coal and steel industries and for other handlers and users of heavy materials.

SAFETY

Best Year in 77

A new safety record, 25 per cent better than the best previous mark, was set by General Electric Company in 1955.

The 1955 record frequency rate of 2.46 injuries per million man-hours is the lowest in the Company's 77-year history and compares with the previous record of 3.31 established in 1954.

Eight departments of the Company operated the entire year without a single disabling injury. The accident-free man-hours

accumulated by this group totaled 25,000,000. This is equivalent to one man working unharmed for 14,000 years (or Neolithic Man surviving to the present on a 40-hour week with time off for vacations and seven paid holidays every year).

Two Ohio plant operations led the Company in completing the year without a single disabling injury. For its third successive accident-free year, the Aircraft Nuclear Propulsion Department at Evendale has piled up 7,936,541 man-hours. At Coshoc-ton, the Laminated and Insulating Products Department has operated five years and accumulated 6,877,419 man-hours.

Commenting on the new safety record, C. Russell DeReamer, Safety Services consultant, said, "While our new safety record is an indication of the success of General Electric's safety program, emphasis throughout the Company will continue to be on *accident prevention* rather than on the preparation of accident statistics."

SAFETY CONSULTANT DE REAMER



NUCLEAR POWERED AIRCRAFT

First Photos of Test Site

The Atomic Energy Commission's semi-annual report announced that General Electric has begun some test work at the Company-operated test station near Idaho Falls, Idaho. Below are the first pictures of the facility, released for internal publication.

D. R. Shoultz, general manager of the Aircraft Nuclear Propulsion Department, reveals that G.E. now has 2000 persons employed at its Evendale and Idaho Falls

sites and expects to add more. Tests completed to date in the development of nuclear propulsion for aircraft are proving of significant value to the over-all system development effort, Shoultz said.

G-E components making contributions to the program are: Aircraft Gas Turbine Division, Locomotive & Car Equipment Department, General Engineering Laboratory, and Electronics Division.

The current project was initially started in 1951 under joint contracts with the Air Force and the Atomic Energy Commission.



INITIAL TEST FACILITY operated by G.E. at the National Reactor Testing Station.

ANP DEPARTMENT'S FACILITY at the Idaho Test Station include the administration area and assembly shop (foreground) and the Initial Test Facility (background).



We'll Make Computers

General Electric has actively entered the industrial computer field with the establishment of an Industrial Computer Section at Electronics Park. The new move involves a broadening of Company activities in the fields of specialized engineering and military computers, as well as the integration of its formerly widespread computer operations.

This integration will allow G.E. to promote and market a large line of computers, including analog and digital computers, simulators, and special components used with computing equipment. They may range in size from "pocketbook editions" for production-control use to giant machines filling three average-sized rooms and costing millions of dollars. The electronic "brains" will be capable of doing in a few minutes what human beings could do only in a matter of weeks, months, or even years.

In announcing the new section, William J. Morlock, general manager of the Electronics Division's Technical Products Department, stated that H. R. Oldfield, Jr., would be its general manager.

Approximately 200 G-E engineers are presently engaged throughout the Company in both the development and application of electronic computers. For many years, G.E. has developed specialized computers for many of its own complex activities. An example is the network analyzer, a huge machine used to determine the most economical operation of power systems.

For the Air Force, G.E. built "OARAC," which contained one of the largest "memories" then incorporated in any computing device. For the Department of Defense,



GENERAL MANAGER MORLOCK

G.E. developed a "robot psychologist" which is used to see that the right man gets the right Army job. Known technically as the Psychological Matrix Rotator, the two-and-one-half-ton device allows psychologists to determine particular qualifications needed for specific jobs. Recruits are then mass-tested against these standards, with test results being viewed on a cathode-ray tube similar to a 16-inch TV screen.

Super-calculating machines of this type are essential to scientists and industrialists dealing with problems of staggering complexity in fields like atomic energy, rocket trajectory, and marketing research. The machines aren't smarter than men, but, being more specialized, they can perform routine mathematical and data-processing operations faster and with less effort.

New Headquarters

San Jose, Calif., will be headquarters for the Atomic Power Equipment Department. Transfer of all key personnel and facilities from Schenectady will be completed by the end of this year. Employment by that time will exceed 500.

APED established temporary headquarters for the Commonwealth Edison Project at the Medium Induction Motor Plant in San Jose last September. That project is charged with the design and construction of the largest all-nuclear power plant—a 180,000-kw electric generating station for the Nuclear Power Group in Chicago.

The department will ultimately utilize the complete motor plant as well as other facilities in the area. Present plans call for relocation of the motor operation in two years. Future location of the motor facilities is under study.

Transfer of the atomic headquarters will consolidate the activities of the department in the San Jose area. In December, APED optioned approximately 1600 acres of land for a multimillion-dollar atomic laboratory to be located about 20 miles from San Jose, in the Pleasanton-Livermore area of Alameda county. Exercising of the option and plans for construction depend on favorable action by various local and state regulatory bodies. Plans call for the laboratory to be in operation in 1957.

The Atomic Power Equipment Department was organized in 1955 for the purpose of designing, developing, manufacturing, and marketing atomic equipment for commercial, peacetime uses. Its products include power reactors, research and test reactors, fuel elements, instrumentation and control systems equipment, and reactor auxiliaries and components.

New Testing Facility

In a headline-capturing announcement at Evendale on February 9, G.E. revealed plans for building the first privately financed supersonic test facility for jet engines ever to be built in the U.S.

Costing \$20 million and set for completion in 1958, the installation near Evendale will be the most advanced of its type in the world—able to simulate conditions a large jet engine would encounter at 60,000 feet while flying at three and a half times the speed of sound.

Construction plans were announced by J. S. Parker, general manager of the Aircraft Gas Turbine Division, during a tour of AGT's present facilities by top military and aviation officials.

X-RAY

Brighter Picture

New technical developments in x ray and the formation of separate medical and industrial marketing sections mark the beginning of another period of accelerated growth for the X-Ray Department.

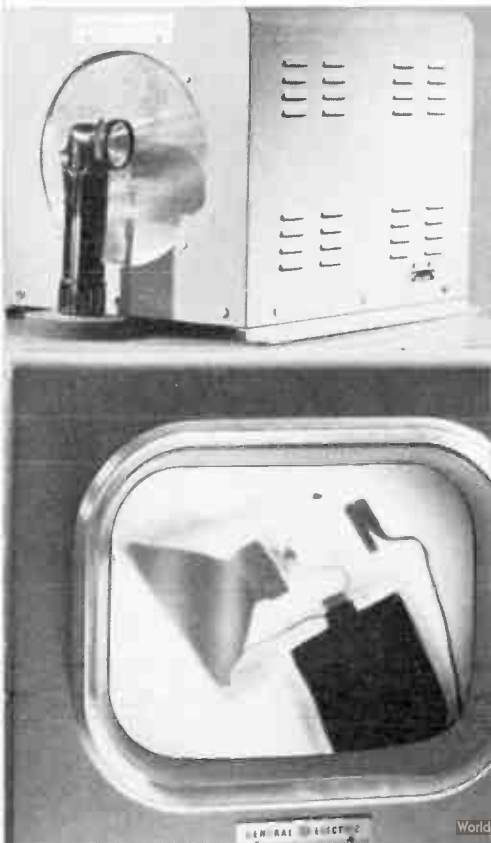
Two recently announced developments are illustrated on opposite page. Photos at top of page are from the first successful x-ray movies. By means of a new technique, the patient is exposed to x rays only when the camera shutter is open. Thus, movies can be made without overexposing the patient to harmful rays.

Large photo at right demonstrates the amazing new G-E Television X-Ray System (tentatively called TVX).



X-RAY MOVIES OF PEOPLE IN ACTION: At left, a man playing a trumpet. At right, a woman applying lipstick as she looks into a mirror. Intermittent x-ray exposures are synchronized with camera shutter.

TV X RAY gives a bright, clear, enlarged picture, even in a well-lighted room. It's 10,000 times brighter than conventional fluoroscope. Makes possible product inspection from remote location.



One of the most outstanding developments in the field of industrial x ray, it combines x ray and TV to produce an enlarged and greatly intensified image for daylight viewing. It is 10,000 times brighter than the image on the conventional fluoroscope screen.

Heart of TVX is the newly developed x-ray camera tube. While other image-brightening systems have been previously reported, the G-E system produces an image directly, by electronics, from the x-ray source—eliminating the complexities resulting from converting the x-ray image into a light image before intensifying it.

Because the image is intensified electrically, the original x-ray intensity and voltage required can be greatly reduced. Thus, far less expensive x-ray sources and protective materials are required.

A number of conventional TV "slave" receivers can be coupled to the "master" receiver and viewed at various locations at any distance from the inspection area.

Research into the possibilities for using the TVX system in medical diagnosis is currently in progress at the X-Ray Department. Dr. John E. Jacobs, manager of the Advanced Development Laboratory, X-Ray Department, and his associate, Harold Berger, developed the system.

DC MOTOR AND GENERATOR

A Healthy Comeback

One of the newest trends in industry is credited with aiding the comeback of direct-current motors, the oldest form of electric drive.

P. D. Ross, manager of marketing for General Electric's Direct Current Motor and Generator Department, attributes the sharpened demand for d-c motors to the industrial trend toward greater mechanization and more automatic production.

He said this is a reversal of an earlier trend away from direct-current drives. In the early days of the electrification of industry, he noted, all electric power was provided by direct-current machines.

However, he pointed out, the development of a-c systems, the lower cost of induction motors, and the greater efficiency of a-c distribution, often caused d-c motors to be supplanted by a-c drives.

Mr. Ross said the d-c comeback is reflected in increased demand throughout industry for adjustable-speed drives.

Pointing to the strides made by the industry in recent years, he cited U.S.

Department of Commerce figures which show that purchases of direct-current motors in the one to 200-horsepower range are up 85 per cent since the end of World War II. This compares with a 20 per cent increase in the same period in purchases of all motors within that power range.

"If industry is to meet increasing demands for goods and services while keeping production costs at a minimum," Mr. Ross declared, "further mechanization and more continuous processing will be necessary. The demand for direct-current equipment is keeping step with present continuous processing trends and will continue the upward climb."

Commenting on the merits of d-c drives for automatic processing, he explained that the adjustable speed provided through use of d-c equipment makes it possible to vary operating speeds at various stages of production. "There is no device yet discovered," he said, "that is a better, more universal source of precisely controlled adjustable speed."

Mr. Ross pointed to General Electric's \$20 million expansion and modernization program at Erie as evidence of the Company's confidence in the future of direct-current equipment.

New Kinamatic[®] Line Designed to Aid Automation

To meet modern industrial needs for faster, more continuous, and more automatic production, the Direct Current Motor and Generator Department has just announced an entirely new line of direct-current motors and generators.

The new Kinamatic line (motors in the one to 150-hp range; generators in the three-quarter to 100-kw range) has been designed specifically for automation. It is believed to be the largest design-change program ever undertaken by a manufacturer of electric motors.

The Kinamatic line is the first complete line of industrial d-c motors and generators built to the latest NEMA standards. They represent a very substantial advance in both performance and design over the previous d-c motor and generator lines manufactured by General Electric Company.



AT A SOVIET FACTORY



Photos courtesy McCall's
AT APPLIANCE PARK

WORKERS' CONTRAST

An \$8 Lunch

They're eating "Korn Fleks" in Russia these days, but you'd have to pay as much as \$10 a quart for strawberries to put on your cereal. This is but one of the surprising facts recounted in the February issue of *McCall's* magazine by American correspondent Eddy Gilmore who spent 12 years in the Soviet Union.

Even more revealing is the difference in cost and variety of food eaten by Russian workers and that enjoyed by American workers. To illustrate his story, Gilmore compared lunch at the *stalova* (dining hall) of a Soviet factory near Moscow and that at a typical G-E cafeteria. In part, his account runs as follows:

"... Contrast the Soviet *stalova* luncheon of cabbage soup, black bread, potatoes and tea with the equivalent lunch in an American factory. I'm going to use the General Electric plant at Louisville, Kentucky, which is impressive, typical and

offers a fair comparison, I think, with the Stalin Automobile Factory.

"The menu at G.E. is almost unlimited in variety, and it's available to anyone in the plant from the president on down. . . . There are four separate lunches, ranging in price from 75 cents to \$1.45. They include an entrée, choice of two vegetables out of four, one of two green salads, hot bread, coffee, tea, milk and hot chocolate.

"If the worker wants to order à la carte there are six appetizers, three salads, eight sandwiches and seven desserts. The prices scale from 15 cents for New England clam chowder to 45 cents for Gulf shrimp cocktail. The highest-priced lunch in the cafeteria is a broiled sirloin steak, mushroom sauce, two vegetables, hot bread and a beverage. This complete luncheon costs \$1.45.

"Even if such a meal could be purchased in a Russian *stalova*, which it could not, the cost would run to about 32 rubles. At four rubles to one dollar (the official rate today—it was 12 to a dollar back in my days in Russia), the meal would cost the Soviet citizen \$8."

MAJOR APPLIANCES

Ideas in Color and Design

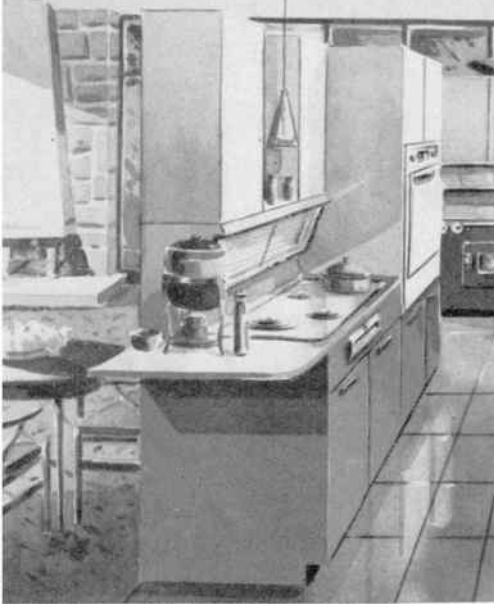
Appliance Park continues to pace the industry with new ideas and new products aimed at giving America better designed, more attractive kitchens.

More than 10,000 persons in the Louisville area have visited Monogram Hall to see the Contemporary Collection, an exhibit of eight kitchen settings with color as the keynote. (See photos opposite page.) Some 75 distributors and manufacturers of wall and floor coverings, furniture, accessories, etc., co-operated in preparing the models to show how well their products harmonize with the Mix-or-Match colors of G-E major and small appliances. In addition, G-E Textolite® in Mix-or-Match colors is being used by several manufacturers for the tops of dinette tables.

In Chicago, visitors to the National Home Builders' Show in January saw G.E.'s latest ideas in the "stack-on" principle of kitchen design. Base cabinets and under-counter appliances have counter-tops which support "cabinetettes" which in turn support upper cabinets. These combinations can cover kitchen walls or can be used as free-standing partitions (photo above left), allowing maximum variety in kitchen design.

Contributing to the versatile trend is G.E.'s new 5-cubic-foot roll-out food freezer (shown left) which can be installed under the counter or free-standing. The new freezer takes up no more space than a standard kitchen base cabinet, yet holds 173 pounds of frozen food. Its single drawer rolls out, affording access to two porcelain storage compartments.

Commented one visitor to the Chicago show, "All these developments make tomorrow's kitchen possible today."



FREE-STANDING STACK-ON UNITS

NEW VERSATILE FOOD FREEZER





CONTEMPORARY COLLECTION: FUNCTIONAL WHIMSEY AND PARTY LIVING,



TERRACE AND GOURMET (ABOVE), RUE ROYALE AND CHUCK HOUSE (BELOW)





As nation's business

G.E. expects

PRESIDENT CORDINER'S optimistic view of 1956 business is well reflected in the outlook and plans of general managers in the many G-E components. In response to a *Monogram* query about 1956 prospects, one component after another told of increased sales momentum, new products, planned expansion. Last month's *Monogram* carried some optimistic division reports. This month, several enthusiastic department general managers tell us how the year looks for their operations.

Public confidence in G-E ranges and water heaters credited with 49 per cent increase in 1955 business over 1954. Goal for 1956 is 35 per cent increase over last year. Industry foresees all other cooking stoves taking back seat to electric cooking. Even gas stove manufacturers are entering electric-range field. About 30 per cent of U.S. homes now cook electrically; predict 50 per cent doing so in five years, involving sale of some ten million ranges. G-E water heaters "lead the industry."—*J. R. Poteat.*

G.E.'s Mobile Maid dishwashers being purchased as fast as they can be manufactured. Disposall® sales up 60 per cent over 1954. Product acceptance has grown, product performance has gone up,

dealer confidence has climbed, consumer purchasing power has zoomed, and product price has been greatly reduced. Combine all these factors and you have a potentially fine year for G-E dishwashers and Disposalls.—*H. T. Hulett.*

Expansion and retooling of Appliance Motor Department at DeKalb, Ill., expected to assure G-E leadership in this motor field, as industry sales of electric sinks and home laundries achieve anticipated growth of 35 per cent by 1960. Over seven million units may be sold in this industry in 1956 alone. Sales pacer will be new G-E motor which is 24 per cent lighter, more compact, believed to be first ever designed specifically for home-laundry and electric-sink applications.—*C. W. Moeller.*

Sales momentum noted in the delivery of more than four million Form G motors since 1952 will continue in the General Purpose Component Motor Department. Addition of new accounts, planned industrial expansion, and rapidly growing markets like air conditioning will help set new sales records in 1956 for this department—*L. D. Hodell.*

This will be biggest year in Weathertron's history. During 1956, heat pump manufacturers will produce and sell as many heat pumps as have been installed since the industry began. Weathertron

increases 4 to 6%. **cts 10 to 15% sales increase . . .**

hopes to maintain top position. Indications are that several major manufacturers of air conditioning and heating systems will put heat pumps on market during year, meaning that the industry will jump on bandwagon in recognition of G.E.'s successful pioneering, and will promote heat pump as ultimate in heating and cooling.—*H. M. Brundage.*

Sales budget for 1956 in Appliance Control Department is 16 per cent greater than 1955 actual, even though only 10 per cent increase in unit sales is expected by appliance manufacturers. Entire staff of key personnel has been divided into progress teams with clear-cut objectives for each. New products for 1956 include sequence timer for automatic cycling on washers and dishwashers; first switchette designed primarily for washers, dryers, vending machines, etc.; a new low-cost motor-starting device for appliance motors; outdoor thermostat; and a combination oven-minute timer.—*F. H. Holt.*

In product development, concentration at Trumbull Components Department will continue to be on circuit breakers and service entrance equipment. Last year saw redesign of 88 per cent of fusible service entrance devices. Remainder scheduled for redesign in 1956. Circuit-breaker line increased last year by 50 per cent, giving department full competitive coverage for first time. Manufacturing equipment

and methods lab will be in full operation early this year. In 1956, department plans to augment additional 60,000 square feet of floor space obtained last year. Predict 20 per cent increase in sales this year.—*L. E. Walkley.*

Markets for new products are expected to continue the growth of the Plastics Department, which saw a 25 per cent increase in 1955 sales over 1954. Fabrication of silicone rubber products for aircraft and home-appliance industries has expanded greatly. Among new plastic products are molded plastic drawers for furniture and high-impact styrene wheels for use on G-E Roll-Easy vacuum cleaners.—*J. L. McMurphy.*

Carbide business for 1956 should at least equal and may better 1955 Carboloy Department business by as much as 10 to 15 per cent. The steel industry alone plans biggest peacetime expansion, meaning demand for new machines and equipment with components that are machined prior to assembly. Commercial sales of vacuum-melted specialty alloys, begun in 1955, should triple by end of 1956. Magnet sales in 1955 boosted to highest level in G-E history, with Company now being one of prime magnet suppliers in the country.—*K. R. Beardslee.*

Expected sales increases of about 7 per cent in 1955 were more than met by

... to gain record volume in '56

the Chemical Materials Department. Anticipate 1956 will show further increase of about 10 per cent over 1955. At this point, facilities in Pittsfield and Schenectady will be operating close to capacity. Additional facilities being planned to take care of future increases in volume.—*S. L. Brous.*

Accelerated growth in use of silicone rubber in household, industrial, and defense applications is seen by Silicone Products Department. Development by G-E chemists of what is believed to be first true lubricating silicone fluid will open large new markets in applications where resistance to extremes of heat or cold are required. Use of silicones as durable finishes for textiles continues rapid growth; wash-and-wear cottons are one example. Silicone insulating varnishes now being used on what is perhaps first completely silicone-insulated d-c armored motor line.—*C. E. Reed.*

Best period of steady orders ever enjoyed by Distribution Transformer Department is expected to continue at same high level all during 1956. Difficulty is expected in meeting customers' requirements even with overtime work.—*R. W. Smith.*

High order rate in Medium Voltage Switchgear Department has resulted in substantial backlog to be produced. The nation's industrial expansion and continuous metropolitan growth planned in 1956 point to continuation of present good business. Billing this year should be some 25 per cent over 1955. Department expects to ship this year the first 750,000-kva in-

terrupting capacity metal-clad equipment, offering a 50 per cent increase in interrupting capacity with only 6 per cent increase in floor-area requirements. This will be an important contribution in the utility and industrial load-growth picture.—*H. F. Hentschel.*

Anticipated high lights in the Foundry Department for 1956 include: establishment of \$750,000 Applied Research and Development Laboratory; expansion of Precision and Specialty Castings Foundries in Schenectady; installation of induction stirrers on carbon arc melting furnaces—first ever used in a steel foundry. Production in 1956 expected to be up 20 per cent over 1955, up 100 per cent by 1965.—*E. R. Oeschger.*

A fine year for Small Turbine and Supercharger Department is predicted, with sales billed expected to be up 25 per cent over 1955 and orders received up 35 per cent over last year. Biggest markets seen in high-speed compressor drive turbines for petroleum and chemical industries, high horsepower boiler feed pump turbines for central stations, marine turbine-generator sets, and turbine-gear sets for paper machine drives.—*F. S. Kohl.*

Recent developments in the Wire and Cable Department—Alkanex magnet wire, silicone-rubber-insulated wires and cables, and aluminum-sheathed cables—have opened new avenues of business which are being vigorously pursued. Development of new items, combined with the never-ending search for ways to improve existing wires and cables, will offer real promise for the department in 1956.—*B. F. Ilsey.*



SAFE LANDINGS AT IDLEWILD AIRPORT ASSURED BY 13 RADARSCOPES IN G-E SEARCH SYSTEM

RADAR

New Airway Safety

A radar system which increases the range for controlling aircraft in all weather conditions to over 100 miles from the control center has been installed at N.Y.'s Idlewild International Airport. Known as the FPS-8, the system was manufactured by G.E.'s Heavy Military Electronic Equipment Department and is an integral part of the Civil Aeronautics Administration's new Air Route Traffic Control Center.

Because it has a range far greater than that of any other radar in use today at commercial airports, the new system will appreciably assist the Center in its primary objective "to promote the safe, orderly, and expeditious movement of air traffic in both good and bad weather."

Thirteen radar screens give air route traffic controllers a picture of all aircraft within a radius of over 100 miles. (Previous

search radar could cover a radius of 30 miles, with some experimental models reaching out 50 miles.) Each aircraft entering the New York metropolitan area can actually be seen and identified on the screens. Progress of each plane is marked by plastic tabs. Such close surveillance is expected to lead to a virtual elimination of "holding" or "stacking" aircraft, and more expeditious arrivals and departures should result at all six airports in the metropolitan New York area.

Even though the Heavy Military Electronic Equipment Department is completely dedicated to systems development and engineering of electronic equipment for the military, these same electronic systems can serve many civilian needs where there is close co-operation between military and civilian departments of the government. The application of FPS-8 military radar to civilian use demonstrates such close co-operation between the Civil Aeronautics Administration and the U.S. Air Force.



THE VILLAGE BLACKSMITH—1956 MODEL

Longfellow's toil-ridden blacksmith and G.E.'s prosperous, civic-minded drop forger, Charlie Harding, bear little resemblance, according to a January 15 story in the *Boston Sunday Advertiser* (circulation 547,691). And much of the credit goes to G-E employee benefits, says reporter Anthony Merrill, part of whose article is reprinted below—Ed.

"Longfellow's Village Blacksmith swung a 20-pound hammer for 14 hours daily under the spreading chestnut tree, beating out farm implements and horseshoes for his fellow villagers, and probably retired to

the village poorhouse when his aging muscles could no longer cope with the anvil.

"His successor of today controls the mighty force of a thousand-pound drop forge with the pressure of a toe, works with refractory metals and temperatures that his worthy predecessor never dreamed of. . . .

"Such a workman is Charles E. Harding, Jr., 35-year-old operator of a drop forge. He plays an essential part in the making of the jet engines which power American fighting aircraft. For nearly half his years, he has worked for General Electric in the

River Works forge shops. His labors have supported himself, his wife, and his two children in comfort. As an employee he has been given the opportunity to save and to acquire stock in his Company. He is one of the 341,728 stockholders who own General Electric. . . .

"His Company is important to him; and he, as an individual, is important to General Electric. He finds his job both satisfying and exciting. Satisfying in that it contributes to the material well-being of the nation; exciting in that he is a part of a progressive industry which seeks new ways of building a better tomorrow. . . .

"Harding is through work at 3 p.m., and he likes his hours because they leave him a part of the afternoon to devote to his family and to other projects in which he is interested. He has been active in the Junior Achievement movement. He was also a member of the Boy Scout committee of his church. . . .

"Harding says that General Electric is a good place to work—and he should know. One reason is the good pay for workmen in his category. . . . Then there is the Company's Savings and Stock Bonus Plan and Company pensions. Then there are educational loans, fellowships, and scholarships provided for qualified employees and their children. In addition, there are one- to three-year training programs. Men of all ages and ranks at G.E. are working constantly in classes to prepare themselves for better and more responsible jobs.

"Harding's department is especially proud of itself these days because it has worked 1,497,202 man-hours without a lost-time accident. It is just another reason why G.E. seems to attract and hold good employees. . . .

"The Village Blacksmith got lots of exercise and fresh air for his pains—and not much else. General Electric employees wouldn't want to swap places."

DO IT YOURSELF

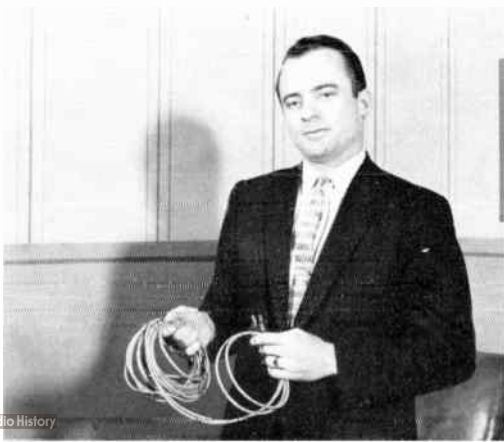
—With G-E Heating Cable—

Interested in building a hot bed to give flowers or other plants an early start?

The Wiring Device Department is now marketing a new vinyl-jacketed heating cable, displayed below by Sales Manager W. R. Becker. Most popular uses for the cable are: soil heating; roof de-icing; protecting exposed pumps, pipes, and valves from freezing; brooder and kennel heating; poultry water warming; floor heating; and miscellaneous air heating. For how-to-do-it information, write for a copy of the manual, "G-E Heating Cable Application and Installation." Send your request to Advertising Services, Wiring Device Department, 95 Hathaway St., Providence 7, R. I.

Lengths and suggested list prices are: 26 ft., \$5.75; 40 ft., \$7.50; 60 ft., \$10.00; 100 ft., \$14.50. The cable sets, plus other accessory equipment like automatic controls, are available at many garden stores, as well as at hardware, farm equipment, and electrical dealers. They can also be ordered through employee stores at the usual employee discount.

BECKER AND G-E CABLE

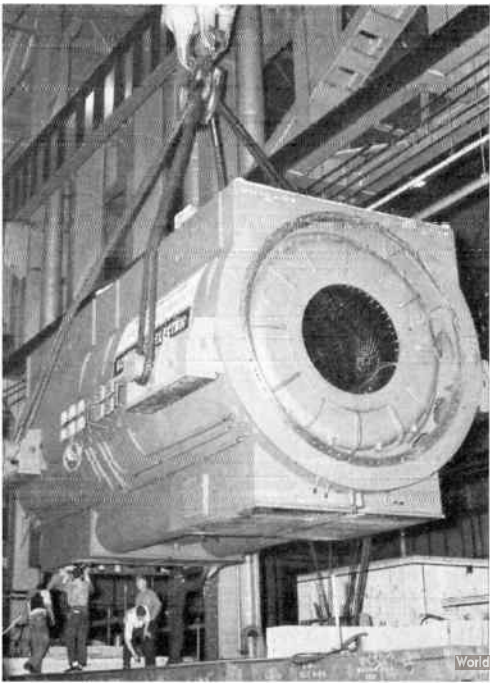


WHAT'S NEW

First in the Industry: Aloft (in photo below) and on its way to the Cleveland Electric Illuminating Co.'s Eastlake station is a historic G-E product. The electrical industry's first large steam turbine-generator with liquid-cooled stator (rather than the conventional hydrogen-cooled stator) represents a major step in developing generators with increased capacities without increased size. Rated at 208,000 kilowatts, it can supply the household electrical needs of 700,000 people.

"Communication—Our Most Pressing Problem" was the theme of an advertising and sales promotion management conference sponsored by

A SUBSTANTIAL LIFT FOR CLEVELAND



Apparatus Sales Division's Advertising & Sales Promotion Department at the Waldorf-Astoria Hotel in New York February 8 and 9. Marketing and A&SP managers from approximately 40 product departments served by Apparatus Sales Division attended. Outstanding speakers, workshop sessions, and the "Live Better . . . Electrically" closed circuit telecast (See page 1.) were among highlights on the program.

Panama Preview: Some 275 distributors and dealers from 18 countries came to Panama recently (most of them in special planes) to attend a G-E product preview that smashed many records. It was the largest IGE preview ever held, in terms of numbers of distributors and dealers attending, in terms of numbers of G-E products shown (Appliance, radio, and TV models shown totaled 130.), and in terms

PETERSON AND PANAMA'S PRESIDENT



of orders placed. Biggest boost in sales this year in South America is expected in air conditioning, with the G-E Thinline room air conditioner as a star performer. Mix-or-Match colors for appliances, a new low-priced G-E export model radio, the magnetic-door refrigerator, portable TV, and the electric skillet as an introduction to electric cooking, were among items most popular this year. At a banquet given in his honor, His Excellency Ricardo M. Arias Espinosa, president of Panama, was presented with the first exported G-E electronic clock. Presentation was by Eugene F. Peterson, manager of IGE's Consumer Goods Export Department, who rated the preview as one of historic importance. Peterson believes many G-E product departments are still unaware of how tremendous is the opportunity offered to them in export sales through International General Electric.

•You can see it now, near Louisville—that factory of the future you've heard about." Such is the introduction to a four-page article in the February *Reader's Digest* describing G.E.'s Appliance Park. Says the writer in conclusion: "When you leave Appliance Park you are tempted to feel that this is the ultimate in factories, that the future has met the present. But then you remember a quiet area set apart from the factory. In a building there, 30 people are working on industrial design. Their job? Planning new horizons, and still more fabulous gadgets."

Honors for Three: The winter meeting of the American Institute of Electrical Engineers has brought honors to three G-E men. Already announced as the 1955 winner of the Edison Medal (*Monogram*, Dec. 1955, p. 18), retired G-E engineering executive Leonid A. Umansky was formally presented with his award. In addition, Martin Simon of the engineering section,

G-E THEATER SCHEDULE

- Feb. 19—"The Honest Man," with Jack Benny and Zsa Zsa Gabor.
- Feb. 26—"Try to Remember," with Ronald Reagan and Kim Hunter.
- Mar. 4—"A Letter from the Queen," with Paul Muni and Polly Bergen.
- Mar. 11—"Steinmetz," casting incomplete.
- Mar. 18—"The Night Goes On," with Rosalind Russell in her television debut.

Locomotive and Car Equipment Department, received a \$100 first prize and a certificate for a technical paper in the AIEE General Application Division. T. H. Lee, test engineer at Schenectady, received a certificate as second prize for a technical paper in the AIEE Industry Division.

Research Leader: The Psychological Corporation has released figures on an opinion survey conducted during November concerning the public's opinion toward industry's leading companies. In response to the question "In your opinion, what one industrial company stands out in your mind as the leader in industrial research," General Electric was far ahead of its nearest competitor. G.E., which was virtually tied with du Pont in November, 1954 (14.6% to G.E.'s 14.5%), is now far ahead (G.E., 19.8%; du Pont, 10.2%). General Motors (6.4%), Westinghouse (3.9%), U.S. Steel (2.4%), and Ford Motor Company (1.7%) have not changed appreciably in their standings since November, 1954. The results were obtained from interviews with 10,000 men and women.

WHAT'S NEW . . . Cont'd

An automatic dispatching system can now solve the problem of how to adjust power station output to the minute-by-minute rise and fall in consumer demand. G.E.'s Instrument Department has developed an electro-mechanical "nerve center" which constantly compares power-output costs of each turbine-generator with area load requirements and automatically adjusts turbine operation to the most economical power production. Officials of Kansas City Power and Light Co., where it has been installed, believe that fuel savings in first year of operation will be in the order of its purchase price. Heretofore, elaborate records based on statistics and mathematics have been kept to anticipate peaks and valleys of power requirements. ADS eliminates such manual calculations. The system performs several data-handling functions and should not be confused with the specialized analog computer (*Monogram*, February 1955, p. 7) which computes penalty factors.

SAVES ITS COST IN A YEAR



International Exchange: For the next year it will be "Good morning, Mr. de Fries" for German engineer P. Joachim de Fries as he reports for work at G.E.'s General Purpose Control Department in Bloomington, Ill. While in Berlin, American engineer Robert P. Alley will be greeted with "Guten morgen, Herr Alley" as he arrives at the Neumunster factory of the Allgemeine Elektrizitats Gesellschaft, one of West Germany's largest electrical manufacturers. In a move arranged by G.E. and the German firm, the two men have exchanged jobs for a year to allow them to gain new industrial know-how and to become acquainted with different methods of approach to engineering problems. Photo below shows the two men aboard the *Constitution* as Alley (at right in photo below) prepared to embark for Europe.

Caddy Caper: Russell E. Wescott, Graybar Electric Company salesman from Tulsa, Okla., recently picked up the keys and title to a 1956 Cadillac "Coupe de Ville"—top prize in the Large Lamp Department's "Caddy Caper"—a nationwide lamp sales contest. Salesmen from each of Large

CROSS OCEAN TO TRADE JOBS



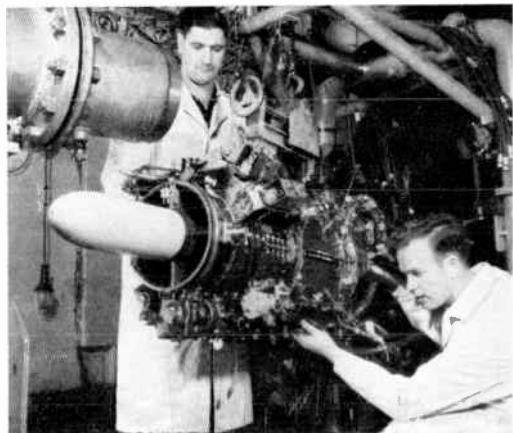
Lamp's 32 sales districts competed for a chance at the prize. In the photo at right, Wescott is shown being congratulated by Herman L. Weiss, general manager of the Large Lamp Department, and Donald L. Millham, vice president and general manager of the Lamp Division. Many salesmen were awarded portable TV sets locally during the sales campaign.

Heli-Power: G.E.'s T58, a small gas turbine engine being developed for the Navy's Bureau of Aeronautics, is in advanced stages of development, according to the Small Aircraft Engine Department, Lynn, Mass. The engine (shown at right in a test cell) is rated in the "1000-horsepower class" and incorporates advanced design resulting in light weight and small size. These and other features, such as the "free" power turbine, are expected to provide heavier payloads, higher flight speeds, better fuel economy than equivalent piston or fixed turbine-powered helicopters, and give smoother, more comfortable rides to passengers and crew.

Another Route to Europe: G-E employees interested in touring Europe at bargain rates with other G-E personnel and their families now have the choice of a spring or fall trip. The New York City G-E Women's Club can book as late as March 1 those wishing to visit Ireland, England, France, Switzerland, and Italy in May at a cost of about \$750 via chartered plane. (For details see December *Monogram*, p. 21, and contact Miss Dorothy Brogan, Room 4002, 570 Lexington Ave., NYC.) The Schenectady G-E Women's Club has plans under way for a September trip to many of the same countries at an all-inclusive cost of about \$905 via regular TWA airliner. (For details write to Miss Virginia Collins, 818 Rankin Ave., Schenectady.) Both European tours are entirely



SELLS LAMPS, WINS CADILLAC



WORKING MODEL OF THE T58

employee-sponsored activities which involve no official responsibility of General Electric Company.

Lenten Services: Religious services are being conducted in the Bridgeport (Conn.) plant this year, as well as in the Lynn (Mass.) River and West Lynn Works. Both Catholic and Protestant noon-hour services are being held each week all during the Lenten period. Lynn installations introduced in-plant Lenten services last year.

PEOPLE

Miss Betty Olson of St. Louis, Mo., has been appointed manager of the Consumers Institute at Appliance Park, succeeding Lura Jim Alkire who resigned Nov. 30. For the past two years, Miss Olson has been manager of the Home Economics Department of Monsanto Chemical Company. Prior to that she held similar posts with Crosley and with the Hamilton Manufacturing Company. Miss Olson was born in Minneapolis, Minn., and is a graduate of North Dakota State College.



BETTY OLSON

... new manager of Consumers Institute

Orville F. Haas, commercial vice president and consultant—Philadelphia, retired January 31 after more than 37 years of service. He had been an officer of General Electric since 1946, and prior to that was manager of the Large Lamp Department's Continental District.

Dr. William D. Coolidge, director emeritus of the General Electric Research Laboratory, was recently inducted into eminent membership in Eta Kappa Nu, the electrical engineering honor society. Dr. Coolidge retired from G.E. in 1945.

Achievement Award: "To Ralph Cordiner—a native son, for his brilliant achievements as a national leader of industry, which have brought both recognition and pride to his home town." Thus read the citation recently given G.E.'s president by the publicity committee of the Walla Walla, Wash., Chamber of Commerce.

Award of merit: Some 90 per cent of the bottled blood (13,870 pints) shipped by the Red Cross in the past 15 months



CORD BISCHOFF

... his plan aids American Red Cross

between Syracuse, Schenectady, Utica, and Auburn, N. Y., has been carried by Electronics Division trucks. The plan to reserve space for this purpose on Company trucks running between these points was conceived by Cord Bischoff, of the Equipment, Utilities and Relations Department. Begun in the fall of 1954, the practice affords the Red Cross an annual saving of over \$3000. In recognition of the program, an Award of Merit was presented to the Electronics Division for "Outstanding contributions to the Syracuse Regional Blood Program of The American Red Cross."

WE SALUTE . . .

Robert W. Gunderson, a blind radio amateur, who has been selected to receive the General Electric Edison Radio Amateur Award for 1955. Gunderson, who holds amateur radio station license W2JIO, designs special test instruments that open up the field of electronics to the blind. He is also editor of *The Braille Technical Press*—the only monthly electronics magazine for the blind. In addition to publishing his 15,000-word monthly magazine, Gunderson teaches three nights a week at the New York Institute for the Education of the Blind and works three days a week as a radio consultant in a New York City radio parts store. In his "spare" time, he actually manufactures test instruments of his own design for use by the blind. These operate by making a variety of sounds—some click like Geiger counters—instead of indicating results on dials which can only be seen. Occasionally, he takes on free-lance electronic design jobs for small radio manufacturers. Gunderson was chosen from a total of 33 amateurs who were nominated for the "Ham of the Year" award for outstanding public service. The Edison Award

trophy and a \$500 check will be presented to Gunderson at a banquet in Washington, D.C., on February 16 by J. M. Lang, general manager of the Tube Department. Chester H. Lang, retired G-E vice president, will be toastmaster. The ceremony will be recorded and rebroadcast by the Voice of America.

AWARD WINNER GUNDERSON designs electric instruments for use by electronics service men who, like himself, have lost their eyesight.

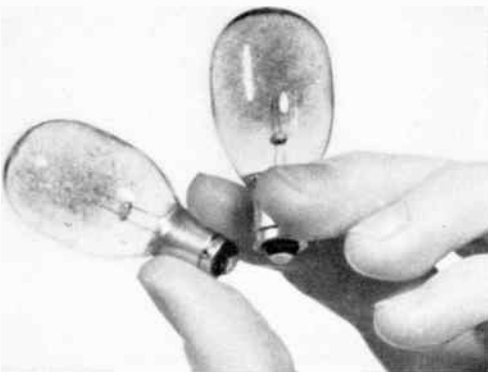


PRODUCTS

Flash: The revolutionary PowerMite flashbulbs introduced by G.E. some two years ago are now more amazing than ever. Still not much larger than a peanut, the M2 clear bulb for black and white photography is now rated at 7000 lumen-seconds, a 66 per cent increase in light output which greatly increases its effective range. And a new M2B has been introduced for color photography, offering 5500 lumen-seconds—more light than was produced by the earlier clear bulbs.

On Thomas A. Edison's birthday, February 11, people at Nela Park this year were talking about the newest member of the General Electric light-bulb family. A far cry from Edison's 1879 lamp, the new "dunk light" has its own generator wrapped around its base like a small strip of adhesive tape. Merely dunking the base in water will cause the lamp to burn for an hour or more. Possible application is seen in their use as distress signals at sea. In photo, Sharon Brumley, standing near bronze bust of Edison at the Lighting Institute, holds one of the tiny lamps.

Accurate headlamp aiming will be easier and quicker with General Electric's latest "All Weather" headlamps equipped with "Aim-right Gizmos." These are small glass pods molded into the lens to serve as mechanical seats for new aiming devices being used by auto service people. Aiming can be accomplished without even turning on the headlamps.



NOW 66% MORE LIGHT



A CORDLESS LIGHT BULB

IT SIMPLIFIES AIMING





HOTPOINT'S WONDER OVEN

Bacon cooks in 15 seconds: eggs poach in 10 seconds; frozen biscuits ready in 10 seconds, and coffee or tea ready in 15 seconds. That's how fast Hotpoint's new electronic oven cooks foods and vegetables. Designed for modern American kitchens, the advanced unit resembles large built-in oven finished in satin brushed chrome. An electron tube converts electrical energy into high-frequency waves that cook foods in seconds. Cooking containers do not get hot. Frozen foods can be put directly into the electronic oven with no defrosting. Retail price is about \$1000.

Rust-proof Water Heater: Hotpoint has just announced a new "rust- and corrode-proof" automatic electric water heater designed especially for areas with high corrosive water conditions. The new heater, which is priced \$30 below last year's models, will be ready for shipment this month in either 50- or 80-gallon capacities. The tank is completely lined with a 1/4-inch-thick layer of cement, and in addition, all plumbing connections are made of brass, giving complete protection from the dangers of rust and corrosion.

LETTERS

(Continued from inside front cover)

in competition with other outfits, we will always look the G-E product over. I'm not claiming we will always buy yours, but we will give it fair comparison."

As *Monogram* readers know, good service is good public relations.

WALTER BENNETT
Appliance Park

Christmas "Miracle"

Editor:

On the Sunday before Christmas the Philadelphia Service Shop was without electric power for a period of 12 hours. In the circumstances connected with the failure, Milton E. Young, Service Shop manager, sees the evidence of a minor miracle.

On this particular Sunday, a small boy was seen going around the neighborhood of the Service Shop nailing placards to electric light poles. Opposite the shop building he selected a pole to which was secured a three-inch lead conduit. The soft lead pipe apparently was an attractive target for his nail and placard. He was not aware that inside was an electric cable carrying 13,200 volts.

In searching for the cause of their electrical trouble, two shop men found the lead conduit split 60 inches by the terrific force of the short-circuited cable. On the ground near the pole was a small boy's cap, a hammer, a few nails and several placards bearing the message: "Christmas Is Christ's Birthday."

No hospital or doctor in the area had reported a badly burned boy. We think that Christ had saved a small boy for His birthday.

T. L. GOLDEN
Philadelphia Service Shop

Everybody Came

Editor:

Page 8 of the January *Monogram* gave a striking impression of prominent people viewing "House of Magic" shows in Pakistan and India. It is noteworthy that 680,000 common people also attended the 1900 performances. There were 25 to 30 shows per day.

BILL GLUESING
House of Magic

EDITORIAL

An Idea Edison Would Have Liked

"Live Better . . . Electrically" has been launched. The biggest national promotion ever undertaken by the electrical industry to increase residential use of electricity and electric products is under way.

The timing of the announcement (See page 1.) was quite appropriate, coming as it did during National Electric Week and within a few days of the 109th anniversary of Thomas A. Edison's birth.

The participants in the kickoff meetings were enthusiastic and their roles in the program were highly diversified—every segment of the electrical industry was represented and was pledged to the success of the campaign.

Perhaps for the first time, as one speaker noted, "the people who bring better living to America through the magic of electricity—the doers as well as the planners—" had come together to discuss the challenge involved in building a better America for today and for the future *through electricity*.

Utility companies, which for years have individually promoted the residential market in their own service areas, are convinced that our expanding economy now calls for this integrated approach toward mass market development by the whole industry.

The "Live Better . . . Electrically" program will function under the direction of each sponsoring utility in its own service area. But it will do so against the backdrop of co-operation from the entire electrical industry and with the aid of nationwide promotion and natural sales allies.

As a specific goal, the program will seek to raise consumption of electricity from the current average of 2500 kilowatt-hours to 4500 kilowatt-hours per family by 1960.

Appliance distributors and dealers should be among the first to reap the benefits of this residential load-building program. As the consumer becomes more and more conscious of the benefits of electrical living, architects will be able to bring entirely new concepts to home planning. This will also give builders and realtors a powerful sales story.

Harlee Branch, Jr., president of Edison Electric Institute, expressed the spirit, scope, and aim of the program in these words: "If we can put this across—this broad concept of 'Live Better . . . Electrically'—all segments of our far-flung interests will benefit economically. And—what is even more important—the entire nation will be enriched with the opportunity for better living, easier living, happier living."