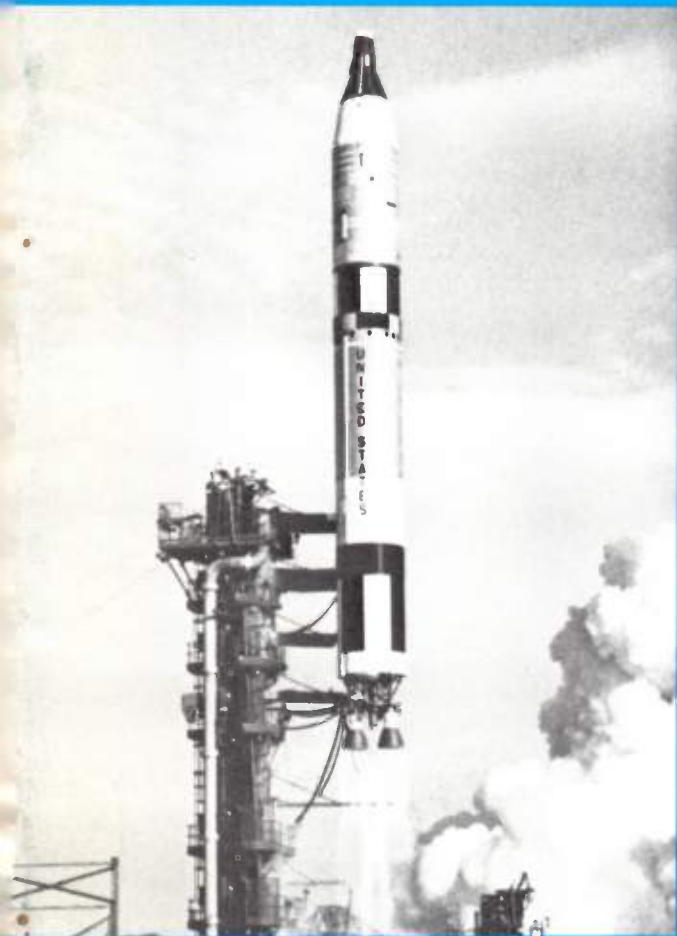


THE MONOGRAM

DECEMBER

1966



GENERAL ELECTRIC'S GEMINI POSTSCRIPT...p. 9



ALL-ELECTRIC MARKET



STARTING AT SPRINGFIELD



NEW SWITCHGEAR BUSINESS

**INSIDE: New Services...World Trade
F-111 Business...The Executive Corps**

LETTERS

P.S., Mrs. Allen

EDITOR: With reference to Mrs. Barbara Allen's letter about the armament of Gunboat 84, the answer did not clarify the point. Artillery pieces are described by their bore, in this case 3", and by their caliber, which is the ratio of the length of the barrel to the bore—in this case, 50, or 150" long, which is unusually long. A howitzer, for example, would have a caliber of perhaps 25, and a field gun, perhaps 35. The longer caliber is usually used on guns firing high velocity shells. For small arms, and machine guns, which originally fired small arms ammunition, the caliber is the bore, in hundredths of an inch.

W. F. DRALLE
Real Estate and
Construction Operation
Schenectady, N.Y.

Meter Mystery

EDITOR: May I take exception to the statement on page 12 of the November *Monogram* which says that "one (watt) meter—installed in the base of a fast growing tree—now presents a lofty problem!"

It reminds me of the old trick problem: If a nail is pounded into a tree trunk at a height of six feet and the tree grows one foot per year, how high will the nail be in 10 years? The answer: 6 feet, since a tree grows not by pushing its trunk upward, but by adding new growth at the top. Right?

CHARLES L. FANTUR
Miniature Lamp Department
Nela Park

Right! You are correct. We checked with the Department of Agriculture's Forest Service to be sure. However, the information was passed along from an official of a Texas utility. And we all know that the customer's always right. Right? —Ed.

Old Hat?

EDITOR: Regarding the October issue Talking Points, I doubt that the Radio Receiver De-

(Continued on inside back cover)

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

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EDITORS

Devere E. Logan
Lester W. Miller

The *Monogram* is produced for office employees of the General Electric Company and its affiliates. It is published monthly at New York by the Employee Communication Operation of Management Development and Employee Relations Services and printed in the U.S.A. by the Maqua Company. Permission for reprinting articles should be obtained from the Editor, General Electric Company, 570 Lexington Avenue, New York, N.Y. 10022. Copyright, 1966, General Electric Company; Gerald L. Phillippe, Chairman of the Board; Fred J. Borch, President and Chief Executive Officer; Robert M. Estes, Secretary; John D. Lockton, Treasurer.

GENERAL  ELECTRIC

ORGANIZATION**New Manpower Services**

The challenge of managing our growing Company in an increasingly complex environment and the accelerating manpower needs being created—both mentioned by Board Chairman Phillippe last month—are reflected in the establishment of a Management Manpower Services component.

Mr. Phillippe said that the new Services will be responsible for the Company's effort to cope more effectively with its fast-growing needs for managerial talent in depth, on a continuing and Company-wide basis.

Roy L. Johnson, who has been elected a vice president of the Company, will assume responsibility for the new Services. Mr. Johnson has held managerial assignments in finance and personnel administration during 30 years of prior service with the Company and rejoins General Electric after holding executive positions with the Dun and Bradstreet group of companies.

The Need: Our economy is growing at an ever-faster rate, points out Mr. Phillippe, "as businesses struggle to meet the increasing wants and needs of new customers and new markets around the world. Economists are now predicting a trillion-dollar national economy by the mid-1970's."

"In order to keep pace with this ever-

accelerating growth, business is going to have to act earlier and faster to find and develop the number of executives needed to manage expected growth over the next ten years," he said.

"General Electric is no exception. This new Services component will address itself to that work."

Two Directions: The Management Manpower Services component is expected to develop along two major paths. It will provide a coordinating and counseling function to the Company's operating business components, assisting them in developing systems for manpower planning and the early identification of potential managers, and it will also have direct responsibility for other Company-wide functions. This will include leadership in

ROY L. JOHNSON

plans to broaden managerial work experiences, as well as responsibility for management education programs such as the General Management Course and Management Development Course taught at the Company's Management Development Institute at Crotonville, New York.

The establishment of the new component was effective December 1.

Mr. Johnson will have his offices in the Company's corporate headquarters in New York City.

COMPENSATION

Exempt Salary Increases

January first of 1967 will mark the start of new increases in the range values of the exempt salary structure.

According to Virgil B. Day, vice president, Personnel and Industrial Relations Services, not only have the range values been increased, but they have also been generally widened by giving extra increases to the maximum of the ranges.

This change, plus the change made ten months ago on March 1st, is in line with "the continuing Company objective of having salaries that are fair in every sense of the word."

Mr. Day also said that the higher salary structure range values strengthen the Company's position in the competitive market for professional, administrative and executive skills.

Managers reviewing exempt employees' salaries will do so using these new higher structure values as a guide.

Details of the new structure values are available from managers in operating and services components.

WORLD TRADE

Growing Maturity

"Economic development in the emerging nations of the world is often a maddeningly slow business." So said President Fred J. Borch to the 53rd National Foreign Trade Convention last month.

"At the heart of our sense of frustration is the widespread and growing belief that for the first time in history the developed nations have tools and capabilities and resources which can be made available to those peoples who really want to reverse the downward spiral and begin the upward spiral to self-sustaining economies," Mr. Borch said.

Industry's Role: There is a role in the economic development of emerging nations for private industry, Mr. Borch said, and business should do its part to speed progress.

There are signs that our attitudes toward world trade are entering a maturing phase, he said, and the process should continue with the elimination of trade and investment barriers, and the pursuit of common development programs throughout the free world.

Mr. Borch said the Company is making planning studies for several countries and has set aside a small fund to be used in developing nations, at the discretion of Area Division General Managers.

"These investments might be in regional development, basic industries, natural resources, education—in accordance with the principle that these developments must be kept in balance with agriculture and rely heavily on the nation's human and natural resources," he said.

"We are prepared," Mr. Borch said.

(Continued on page 4)

AT DEADLINE

late last month at its birthplace: Lynn, Massachusetts, nearly 25 years after the beginning of jet flight in the U.S. An engine similar to the GE turbojet engines that powered the top-secret XP-59 was presented to GE and Gerhard Neumann, vice president and general manager of the Flight Propulsion Division by the Jet Pioneers' Association. The memorial will be on Western Avenue near the entrance to the Lynn plant.

Mr. Phillippe Testifies: The U.S. Senate Subcommittee on Executive Reorganization heard testimony by Board Chairman Gerald L. Phillippe early this month. Mr. Phillippe said that "We have a national commitment, shared by public and private leaders as well, to erase our slums and give all city dwellers equal and rewarding opportunities for clean, healthy and productive living. With this commitment, I know we will move ahead."

Germ-Free Job: The Re-Entry Systems Department has begun research on a "Bio-isolator Suit System" that would be used during sterile assembly of interplanetary spacecraft. The project includes a special suit, tunnel, hatch and life support sub-system and is being conducted for NASA's Langley Research Center.

Holiday Glow: Constitution Plaza in Hartford, Conn. (at right) is aglow with 175,000 GE "Merry Midget" Christmas bulbs, which are the tiny stars of the city's annual Festival of Light. Another kind of light is spread by the Hotpoint mid-Atlantic district office in Philadelphia. Hotpoint dealers will receive long-stem Flame of Hope candles manufactured in the workshops of the mentally retarded.



"to make 'risk' ventures on a long-term basis in investments of significance to the development and integration of the economy, where we can identify opportunities for progress and profit."

Mr. Borch said hopeful trends for the future of world trade have emerged in the last 18 to 24 months, "despite a resurgence of nationalism and protectionism."

Trade continues to grow considerably faster than the various national economies, he said, and the number of multinational companies is rising. Of the 200 largest non-American companies in *Fortune* magazine's annual list, 68 percent would be rated multinational by the modern definition, as would 84 percent of the top 200 U. S. companies.

Greater Maturity: Among Americans with whom Mr. Borch talks, he finds a more thoughtful approach toward international trade and investment problems than there was five or ten years ago.

Pointing to the Kennedy Round of the GATT negotiations, which is still in progress, Mr. Borch said that out of the discussion to date has come not only a greater understanding of formal trade restrictions, such as tariffs, but a greater appreciation of the informal ones as well—those things such as border taxes, indirect taxation, restrictions on direct investment, and subsidized export prices, which may not be deliberately designed to dry up the free flow of trade but have the effect of distorting free world trading conditions appreciably.

Mr. Borch declared that U. S. government agencies, such as the Department of State and the Department of Commerce, and the business community are working together more effectively to solve trade problems. He cited the voluntary program under which American companies have sharply cut their flow of dollars abroad.

UNION RELATIONS

Signers and Strikers

The ink was still wet on newly-signed contracts at four plant locations early this month, but strikes were still wearing on at two other Company plants as *The Monogram* went to press.

At Evendale, members of local UAW and IAM unions, who have been working under a Taft-Hartley injunction since October 18, reached agreement with the Company on a new three-year contract. Members of Local 647 of the UAW ratified the agreement on December 6, and the IAM members were voting on December 11. The new agreement includes a three-step streamlined grievance procedure, a management-employee safety panel and a job evaluation committee to review the equitability of job relationships.

About 2,000 members of the UE at the Company's Clock and Timer Department in Ashland, Mass., returned to work following a membership vote November 20, thus ending a strike that began on October 3.

A strike at Fort Smith, Ark., was settled on November 29 as 410 UAW members voted to accept a new contract and end a walkout that started October 20 over local issues.

The two-month-old strike by Pittsfield draftsmen ended with the signing of a memorandum of agreement by Local 140 of the American Federation of Technical Engineers. AFTE Local 145 had agreed to a new contract late last month. About 400 draftsmen were involved in the strike.

Still Striking: Meanwhile, at Detroit and Schenectady, strikes were continuing.

About a thousand members of the UAW

have been striking the Metallurgical Products Department in Detroit since mid-October. A major issue delaying the return to work is the Company's discharge of two employees for picket line misconduct.

In Schenectady, about 12,500 employees represented by IUE along with AFTE, Teamsters, and Plumbers & Steamfitter locals continued their strikes.

The local issues include those arising out of the Make Schenectady Competitive agreement signed by the Company and IUE Local 301 in 1964. Although the Company proposed modifications to the agreement worth about \$10 million to employees, the union refused to accept the offer.

Federal mediators have met with the Company and union, including a meeting held in Washington on December 6. No agreement was reached.

TUBE

Hundred Million Milestone

Owensboro's vacuum tube assembly lines brightened last month as the golden-grid 100-millionth GE compactron tube passed in review.

The compactron, which was introduced by the Company six years ago (*The Monogram*, July '60), is a multi-purpose electronic tube that can replace as many as three conventional radio-TV tubes. It's one of the key reasons why the Company is in a position of leadership in the domestic entertainment tube market despite Japanese and European imports.

And, compactrons get around. About 85 percent of all television set manufacturers use compactrons, and the use of

these tubes is expected to rise due to the rapid growth of color television.

Making More: Robert B. Ames, general manager of the Tube Department (at right in photo), says the compactron has been an extremely significant addition to the entertainment tube line, and that the Department intends to make its second 100 million "within two years."

To meet this goal, the Department is expanding compactron manufacturing space by adding a \$2-million, 25,000-square-foot building scheduled for completion in early 1967.

This expanded production will mean 400 to 500 new jobs for Owensboro according to Irvine D. Daniels, manager of manufacturing.

"Compactrons should start coming off the first additional production lines by January, 1967, and all lines are scheduled to be in full production during the second half," he said.

While compactron production has been "tight" this year, Mr. Daniels predicts that "in 1967, Owensboro's production of compactron tubes will be increased to fully satisfy the needs of our customers."

TUBE'S DANIELS AND AMES

They're making millions.



AVIONICS

Equipping the F-111

Currently zipping through flight tests at speeds up to Mach 2.5 is the world's first variable-wing tactical aircraft, the F-111.

Each jet is carrying \$400,000 worth of General Electric avionic equipment and represents the largest dollar volume in avionics business that the Company has placed on any aircraft.

With recent equipment orders for F-111 attack radars (\$28 million), flight controls (\$13 million), and sights (\$5 million), the Light Military Electronics Department could tally \$103 million in F-111 business.

Winging It: The variable-wing F-111 fighter-bomber has been in development since 1962 and has been selected for service by the U.S. Navy and Air Force. The two-man, twin-engine jet can change the angle of its wings from virtually straight (16 degrees) at take-off to 72.5 degrees during flight.

Charles W. George, general manager of the Light Military Electronics Depart-

ment at Utica says that a "significant portion" of the Department's resources are being applied to the program of equipping the planes with avionic devices.

The high-resolution GE attack radar supplied is the latest in a long line of radars developed and manufactured by the Company and incorporates advances in microelectronics and solid state circuits to meet tough size and weight requirements. The radar will help crews zero in on targets and update navigation data.

Under Control: The flight control system produced at Johnson City is a high-reliability design resulting from a back-up system called triple redundancy. According to William J. Kuehl, general manager of the Avionic Controls business section, this means that there are three separate flight control systems in one—each with its own roll, pitch, and yaw channels. The flight control system continues to function after a failure in one of the control channels.

The weapon control system for the F-111 uses a lead computing optical sight set providing a versatile control system for gun or missile firing. This system operates in much the same way as a hunter will "lead" a duck so that his bullet and the moving bird will arrive at a point in space at the same time.

Adding On: Other GE departments are contributing to the F-111 program, including the Missile and Armament Department at Burlington, Vt., producing 6,000-round-per-minute vulcan guns with linkless ammunition feed system.

The Instrument Department, West Lynn, is equipping the F-111 with its SR-3 directional guidance system and mass fuel flow (gas gauge) system. The jets will also include Lexan® and silicone materials by General Electric.

VARIABLE-WINGED F-111

A dashing delta at Mach 2.5.



ARMAMENT

Muskets to Miniguns

The home of the fabled Springfield Rifle will soon be manufacturing Vulcan and Minigun parts for the Company's Missile and Armament Department.

The Springfield, Mass. Armory, one of the nation's first gun factories, established in 1794, was scheduled to be phased out of operation as an economy move by Secretary of Defense McNamara.

Now, instead of the one-shot musket, the Armory will manufacture a weapon capable of firing 6000 rounds per minute.

Room to Grow: The Department will initially lease about 50,000 square feet of the Armory's massive facilities, and has options to use another 450,000 square feet by next April. Production is scheduled to begin in early 1967.

George R. Harris, formerly manager of of avionics programs at the Light Military Electronics Department, and now manager of the Springfield operation (see cover) said that present contracts for gun parts will require an employment level of about 500 persons by mid-1967, rising to about 1000 by early 1968. Mr. Harris said that meetings are already being held with present Armory employees scheduled to be released from their jobs.

"We hope to persuade many Springfield Armory employees to stay here and go to work for General Electric so they can utilize their skills doing work very similar to what they have been doing," Mr. Harris said. He also said that the Springfield operation may eventually be broadened to research and development activities for the Company.

Signing the lease last month was (see photo) Springfield Mayor Charles V.



LEASE SIGNING IN SPRINGFIELD
New lease on life for employment.

Ryan, Jr. (center), Tyler Port, Deputy Assistant Secretary of Defense (left), and Mr. Harris.

Here's to the Housatonic

Meanwhile, in Pittsfield, the Company was announcing a major anti-pollution project designed to eliminate sources of pollution to the Housatonic River.

The first "brick and mortar" phase is a \$55,000 oil separator that will remove most of the oil presently flowing into the river from the Company's Pittsfield plant. The unit will be in operation by February, but the total anti-pollution project will extend over three years.

General Electric at Pittsfield is one of the first industrial operations in Massachusetts to have mapped out its anti-pollution program. Engineering studies were underway last year—well ahead of enactment of the Massachusetts Clear Waters Act which goes into effect this month.

Mayor Del Gallo of Pittsfield praised GE for its program, saying "We are indeed fortunate that the dominant industry in our city has always shown an interest in the health, the beauty and the well being of the entire area."

SWITCHGEAR

Custom Power

Last month, the Switchgear Department received an order in excess of one-half million dollars for the largest self-commutated solid-state power inverters in the world. The customer is the National Rayon Corporation of Bombay, India.

American Airlines last month placed an order with the Department for the world's largest solid-state uninterruptable power supplies. This system will provide constant voltage to American's SABRE computer system, protecting it from critical voltage dips and power failures.

These orders are typical of the solid-state equipment revolution in industry today, and the Switchgear Department is leading the way.

Modern Alchemy: The basis for this technological revolution is the silicon controlled rectifier. An alchemist's dream and a serendipitist's delight, these relatively small devices can transform or convert large block of alternating current to direct current. They can also change one

electrical frequency to another with ease and efficiency.

Vice President Hubert W. Gouldthorpe, describing the potential value of the silicon controlled rectifier says, "I believe the technology represented by this little device will eventually change the nature of our business more than any other discovery since Edison's Day."

The eventuality of change described by Mr. Gouldthorpe rushes closer every day. Since 1961, when the Switchgear Department delivered its first silicon controlled rectifier equipment, the business has doubled every two years.

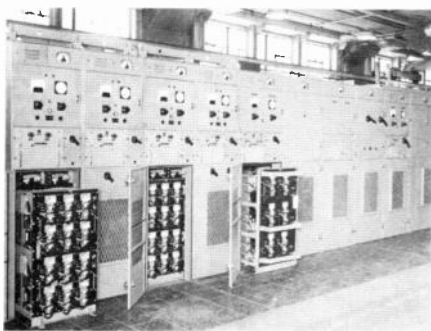
Robert W. Lewis, Department general manager, feels that while business will not continue to grow at this rapid pace, it will continue to be extremely healthy. "We should see our business doubling in this area in the next five years and perhaps tripling in the next ten. The static power conversion business represents roughly one quarter of our Department's sales."

Serendipity: The magic of the business can be attributed to careful market development and product planning. There is also a trace of serendipity involved—searching for gold and finding diamonds. The Department has developed a dynamic technology, and by using it to solve the application requirements in one area, has been able, with further development efforts, to solve the requirements of several more that might not have been considered earlier.

This new technology is continually displacing traditional ways of getting the job done, including mercury arc rectifiers and motor-generator sets. The Switchgear Department's major areas of concentration in solid-state devices are power supplies for information systems, industrial process, transportation, and electric utility systems.

TYPICAL TEXTILE INVERTER

The largest of its kind for Bombay.



Power Boost: The success and excitement behind the solid-state business lies in utilizing the circuitry knowledge and power system competence of the Department's engineering staff and the Department's ability to dramatically increase the power handling capability of the silicon-controlled rectifier cells.

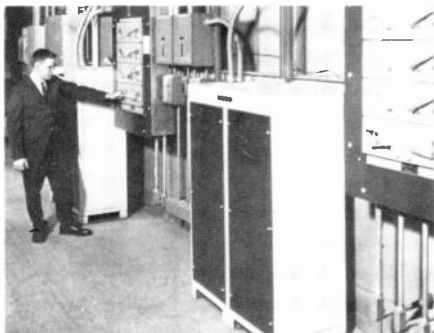
One of the most significant targets for the Department is the electric utility. Mr. Lewis takes advantage of every opportunity to tell electric utilities about the "Wonderful Wide World of Static Power Conversion," and how it can build load for their systems.

New Business: The Department is venturing into three new industrial application areas: induction heating, induction melting, and arc furnace systems. The idea is to use more controllable, "custom power," to increase manufacturing capacities while boosting load requirements for the utility.

In one induction heating installation now being proposed to a major steel manufacturer, static power conversion equipment will increase the size of the metal slabs that the manufacturer can heat and roll, and reduce the job to just minutes as compared with hours with a gas furnace. The power requirement for the furnace—200,000 kilowatts—is about five percent of the connected load on the utility system which will supply the power.

An induction melting system being proposed to another major manufacturer will triple the manufacturer's capacity, eliminate air pollution from gas fired furnaces, and potentially boost the electric utility's load by an estimated 2,100,000 kilowatts. The customer plans to replace 140 gas-fired melting cupolas over the next four or five years with 15,000 kilowatt electric units.

Mr. Lewis sees an unlimited horizon for



3000 CYCLE CONVERTER

Pioneering power at Burlington, Iowa Plant.

the static power conversion business. "We really do not know all the opportunities that exist for the application of solid-state technology either in the industrial or utility areas—new ones keep coming up each day."

AEROSPACE

The End and the Beginning

The National Aeronautics and Space Administration's record-breaking Gemini program is history, and the fantasy world of Flash Gordon comes closer to reality.

As Gemini 12 touched down last month, the second act curtain fell on one of the most spectacular dramas in history—man's journey to the Moon and beyond.

General Electric's contribution to the successes recorded by the Gemini program are many. Two departments, however, have attracted international acclaim for their technological prowess—Special Information Products at Syracuse, once the Radio Guidance Operation, and Direct Energy Conversion Operation at Lynn.



GUIDANCE CONTROL TEAM
And 136 consecutive successes

Almost Perfection: The Special Information Products Department's aerospace track record is one of industry's most impressive—reaching 98.5 percent of perfection. The SIPD-designed and manufactured radio guidance systems have directed into orbit some 500 missiles, satellites, manned and unmanned spacecraft. Gemini 12 was the Department's 136th consecutive mission success.

The list of programs that have been directed by SIPD's systems reads like an aerospace "Who's Who," including Atlas, Ranger, Mariner, Lunar Orbiter, Mercury, and of course, Gemini.

A laboratory device only a decade ago, General Electric fuel cells made their missileborne debut on Gemini 5 and flew on seven of the 12 Gemini missions. Their success aided in proving prolonged manned space flights, a major prerequisite for the Apollo flight to the Moon. One NASA official cited the fuel cells as being "the major technological achievement" of the Gemini program.

Fire First—Aim Later: The demand for accuracy and reliability involved in guiding a spacecraft into its proper orbit can be likened to a golfer who hits 136 consecutive holes-in-one. The odds are one out of 8,606 against scoring a single ace.

The radio guidance function itself is like firing a rifle and then aiming the bullet before it can leave the barrel.

In essence, radio guidance steers a vehicle on a hairline course by a rapid-fire exchange of signals between the vehicle and the ground. These radio signals, along with other mission information, are processed by a computer. It instantly determines whether the course and speed of the vehicle are correct and if necessary, calculates corrections and flashes them back to the on-board guidance system.

Each ground-to-air exchange occurs in a split second, and is repeated continuously until the required speed and flight path are reached. To achieve the proper orbit, the guidance system then must shut off the rocket engines at the exact moment the planned velocity is reached.

Miss by a Mile: Even a tiny variation in speed would have a significant effect upon the mission. For example, missing the correct velocity by only 35 miles an hour would mean a deviation of 30 miles in the altitude of the orbit.

While radio guidance has been proved invaluable in successfully hitting the "window in space," fuel cells onboard the Gemini spacecraft in a sense gave the program its "time" in space. Without them the flight durations would have been severely limited. The two-week flight of Gemini 7, for example, would have had to rely on 2,000 pounds of conventional batteries for spacecraft power. The entire fuel cell system for Gemini 7 weighed about 576 pounds, including fuel.



GEMINI FUEL CELLS

"The major technological achievement."

The Beginning: Although the last Gemini shot marks the end of radio guidance and fuel cell contribution to manned space flights for the time being, their futures may just be beginning. The Special Information Products Department, for example, has radio guidance commitments until at least 1970 at both the Eastern and Western Test Ranges.

One potential business has grown from the Department's Missile Trajectory Measurement system which monitors the performance of missile and launch vehicles traveling at speeds of 34,000 miles per hour. As part of the system's development program, the Radio Guidance Operation in 1960 developed a real-time computer. In 1962 the Operation supplied a 236 computer to the Heavy Military Electronics Department for inclusion on the Ballistic Missiles Early Warning System.

In the latter part of 1963, the Operation contributed significantly to what has become the Company's "Compatibles 600"

series of computers and joined with the Computer Department in furnishing computer systems for NASA installations at Merritt Island, Fla., and Wallops Island, Va. These systems handle missile tracking problems and between launches do standard batch processing chores.

Fuel Cell Future: Roy S. Mushrush, manager of the Direct Energy Conversion Operation, believes that many isolated or mobile applications are natural for fuel cells, "particularly if they require silent, reliable, long-lived and light-weight power. An isolated application would not necessarily mean an inaccessible location, merely one where electric power lines are unavailable."

While the Operation has made no formal announcement as to those applications that it will be seeking in the future, Mr. Mushrush says, "Some day, soldiers, campers, forest rangers, weathermen, trainmen, and motorists—in fact, many segments of the economy—may find practical daily use for fuel cells."

Earth-bound fuel cells, according to the Operation, will use oxygen taken directly from the air. The hydrogen will come from simple hydrocarbon fuels such as propane or butane. They won't run down like conventional batteries and they consume fuel only on the user's demand for electric power.

Some day in the future we may be using a fuel cell power pack weighing only 30 pounds on camping trips to power lights, small refrigerators, radios and television sets. The horizon is unlimited.

Summarizing, Mr. Mushrush said: "One of the legacies of Gemini is a new power source with enormous potential. How rapidly fuel cells achieve wide acceptance here on earth will depend on a number of factors familiar to most developers of new products: reduction in size

and weight, longer life, lower cost, etc. General Electric has a good headstart and intends to continue to lead the way in this promising technology."

Hail The Hero—Nimbus II

Nimbus II, the second in a series of advanced meteorological satellites designed and built by Spacecraft Department for the National Aeronautics and Space Administration is a hero.

Heralding Nimbus II's six-month birthday in space, Pennsylvania Governor William W. Scranton paid special tribute to the men and women of the Spacecraft Department by proclaiming November 15, 1966 as Nimbus II day throughout the state.

In his proclamation Governor Scranton said, "All Pennsylvanians can take pride in the amazing accomplishments of this very complex meteorological satellite."

Governor Scranton was not alone in his praise. Harry Press, NASA's Nimbus Project Manager said, "I believe Nimbus is one of the major milestones of the space business." U.S. Senator Joseph S. Clark of Pennsylvania said, "It is a pleasure to join with all Pennsylvanians in giving justifiable recognition to the meteorological advances of Nimbus II, to the innovation and resources of thousands of Pennsylvanians, and to the leadership of the General Electric Company which is not only at the heart of one of the most significant projects in our nation's space program, but the exciting promise of unlimited headway in the pursuit of man's greatest conquest."

Six Months in Space: During its first six months in space, Nimbus II has been a record-shattering success. It has flown more than 72 million miles around the Earth and has taken more than 860,000

day and nighttime photographs of the Earth's weather.

From its orbiting perch 700 miles high, Nimbus cameras tracked 16 typhoons, 10 hurricanes and scores of storms. Its control system worked so well that the six month cold-gas propellant supply may last as long as 90 months. The vehicle was stabilized so well and so quickly that its sensors continually pointed toward Earth to within one degree accuracy in all three axes.

Stand Taller: In a letter to Division employees, Spacecraft Department general manager Richard E. Roberts said in part, "The success of the weather satellite enhances our technical image. It provides us with that little extra dash of pride in our work that we all crave. And, perhaps most important, the Nimbus long-life performance has given us valuable technological insights that are contributing to our current programs and preparations for future contracts—everyone who is—or was—part of the dedicated Nimbus team stood just a little taller on Tuesday morning."

GOVERNOR SCRANTON received a model of Nimbus II at ceremonies proclaiming November 15 as Nimbus II Day. Presenting the model are Edward S. Pelling, Jr. and Lee L. Farnham (left) of the Spacecraft Department.





GLOWING GROWTH OF ELECTRIC LIVING

AS WINTER'S icy blast whips across the country, people in America's three million electrically-heated homes will check their thermostats and stay warmly oblivious to the deep freeze outside.

The number of Americans enjoying the comfort of electric heat is growing. Since last winter, an additional 500,000 homes and apartments were electrically-heated according to estimates by the Electric Heating Association, which points out that the trend has been growing steadily over the past decade.

By 1980, about 19 million residential units will be electrically heated according to Federal Power Commission estimates. This would mean that some 100 million people—about 40 percent of the U.S. population—would be enjoying total comfort heat.

For the electrical industry, this means business.

Louisville is headquarters for two of the Company's prime movers in the electric heating business: the Air Conditioning Department and the Construction Market Development Operation which is charged with increasing the over-all electrical content of new construction. Product

lines also come from such plants as Tyler, Texas, Trenton, N.J., Shelbyville, Ind., and Morrison, Ill.

While electric heating has emerged within the past several years as a major growth business, it is no stranger to the Company. Electrically-heated homes were equipped by GE in the late 20's and early 30's, and the first GE heat pump system was installed in 1934 in a Salem, N.J. office building.

Since then, product lines have grown to include electric heating units for a wide range of applications for either zonal or central heating. All provide flameless, silent, safe, clean and convenient heat.

The heart of electric resistance heat products is the GE Calrod® unit used in GE baseboard heating systems, wall heaters, and electric furnaces. Radiant wire is more subtle in its service since it's imbedded in ceiling plaster or under heating panels that can be made part of a room's ceiling or wall.

New air conditioners that also heat are being marketed in thru-the-wall designs with decorator panels that match interior and exterior walls. Nela Park is also

promoting electrical "space conditioning" using a heat-by-light system.

Electric Environment: The term electric heat is received coolly by Richard L. Heckman, manager of contract sales for the Air Conditioning Department.

"Possibly the electric heating industry has made a mistake in talking heating instead of a total environmental system," he points out. "Electric comfort conditioning is the term we prefer to use, and it's certainly more appropriate to cover the broad range of heating, cooling, filtering, ventilating and humidifying."

The Company does produce some gas furnaces to supply GE dealers with full product lines, but Mr. Heckman suggests that in terms of heating efficiency, electric systems have the edge.

In evaluating systems, the yardstick is the coefficient of performance—or how much heat is produced for each unit of fuel or electricity supplied.

"A typical gas or oil-fired furnace is about 70 to 80 percent efficient due primarily to heat losses of flue gasses up the chimney," says Mr. Heckman. "However, any electric resistance heating system, including one with an electric furnace (which doesn't require a chimney), is 100 percent efficient because it delivers a watt of heat for a watt of electricity."

Good Weathertron: But the top performer is the GE Weathertron® heat pump (*The Monogram*, June, '65) with a coefficient of performance of about 200 percent. This two-for-one advantage is matched by the unit's ability to reverse itself and then cool instead of heat. It uses only electricity and air, operating on much the same principle as a refrigerator or air conditioner.

The Weathertron has come of age in its reliability record which now tops 99 percent. According to W. F. R. Karsten, man-



AIR CONDITIONING'S HECKMAN
A system for all seasons.

ager of product service for the Air Conditioning Department, a sample of 20,000 Weathertrons in service showed a failure rate of only one percent annually, thus making it as reliable a performer as central air conditioners or today's modern refrigerator.

"The heat pump is most likely going to be the predominant source of electric year-round air conditioning in the future," says Frank H. Faust, manager of marketing research, (air conditioning and heating) for the Department. Mr. Faust's perspective is the result of 40 years in the Company's electric heating, refrigeration and air conditioning businesses. He designed the Company's first central air conditioner in 1928—the first room unit in 1930.

Thinking Cool: One factor stimulating heat pump and electric furnace sales is the growth of central air conditioning. With ducts installed, the trend is away from zone heating or radiator systems and

toward possible installation of a central electric system. And, with air conditioning's power demands stimulating electric utilities to beef up their generating capacity to meet peak summer loads, utilities undoubtedly will be looking for a winter outlet for this potential. A logical choice: electric heat.

The air conditioning market is growing at a healthy 22 percent a year and there's comfort in the fact that both the size and cost of units has been declining. In fact, over the past ten years, the average cost of a central air conditioning unit to a distributor has been cut in half.

Mr. Faust feels that in 15 or 20 years virtually all new buildings will be equipped with air conditioning and, in many cases, electric heating. In fact, his forecasts show that in just two years, industry sales of central air conditioning units will exceed that of gas-furnaces.

Such growth is bound to affect the Air Conditioning Department. Joseph H. Gauss, deputy division general manager of refrigeration and air conditioning products, points out that manufacturing space is currently at a premium. "We're running at capacity now, and finding it difficult to meet demand for many lines of heating

and air conditioning systems. We're presently building a 241,000-square-foot addition here at Appliance Park to increase manufacturing space by 60 percent."

Last summer's heat wave led to a sell-out of room air conditioners for Louisville. There is an equally bright picture for electric furnace sales which have soared to three times what they were last year.

Electric Movers: Promoting all-electric construction is the job of the Company's Construction Market Development Operation. The operation coordinates the work of some 17 Company sales channels and the products of some 60-plus product departments to help the Company expand its sales in the new construction market.

Paul F. O'Neill (see cover), manager of electrical systems engineering, Community Systems Development Division, is closely involved with electric heating and cooling systems in his work with the builders and developers of large projects. "We generally work with a consulting engineer or architect and take a systems perspective when looking over plans for proposed multi-unit dwellings, commercial buildings, or shopping centers," he explains. "Then we make recommendations as to types of equipment, insulation, wiring, or ducting. We work with available components and products and, if necessary, work with a product department to come up with the right unit to do the job."

Chicago's Marina City is probably the best known all-electric project in which the Construction Market Development Operation has had a role, but it also has active commitments with some 2,300 builders who are planning construction of over 300,000 all-electric units. Such coordination builds sales for the Company, and may save the builder money.

The new \$3-million all-electric People's Savings Bank in Bridgeport was built by

FAUST AND WEATHERTRON

Likely comfort source of the future.



the Hammerson Fusco Amatruda Corp., working with General Electric. President of HF&A, Edmund J. Fusco, said that his firm estimated "an immediate saving in construction cost of approximately \$180,000. The cost of heating and air conditioning equipment, for example, would have been about 40 percent higher had we used an oil or gas system."

Going all-electric allowed HF&A to use a penthouse, previously allocated for housing the central heating system, for an extra 4,800 square feet of rentable space which will bring a net revenue to the developer of about \$15,000 per year.

Multiplier Effects: With each all-electric unit built or converted comes an important stimulus for related business. The "pull-through principle" is how Vernon A. Rydbeck, manager of electric utility market development, Distribution Equipment Sales Operation, describes it.

"The difference between an average home, and an all-electric one really means a growth opportunity for the industry and the Company," he says. "The increased load in a total electric home would add

MR. GAUSS AT APPLIANCE PARK

"A major factor in this industry."



MAKING FURNACES AT TRENTON

Jobs from customer comfort.

perhaps 20,000 KWH annually to the utility's load; the electrical apparatus manufacturer would realize a gain of about \$400; the electrical appliance manufacturer might receive an extra \$400 for such units as electric heaters, ranges, and home heating units and there would be similar increases in revenue for wiring and equipment manufacturers and the electrical contractor."

The "pull-through" also applies to the Company's employment picture. As the all-electric concept grows, so too does the number of GE jobs needed to meet product demands. At Trenton, for example, where a majority of the GE electric heating units are made, employment rose by over 50 percent during the past year.

"It has taken the General Electric Company a long time to 'get' into the heating and air conditioning business," Mr. Gauss said. "There can be no mistake today; we have become a major factor in this industry."

"Our biggest single problem today is lack of manufacturing capacity and this problem is being solved. Soon we will be in a strong position to capitalize on this rapidly growing market. The future is bright."

The Executive Corps

When Charles V. Schelke retired from the Company in 1963, the former Vice President and General Manager of the IGE Export Division said that he "planned to do some traveling."

Despite the fact that Mr. Schelke had been in almost every country but Russia during his 39 years with General Electric, his zest for international business remained with him. So, in what he describes as "keeping a hand in the international arena," Mr. Schelke accepted an invitation from the International Executive Service Corps* to conduct an economic study and submit recommendations to Chilean industry for the further development of its export markets.

The job provided Mr. Schelke and his associates with an opportunity to make personal contributions to the IESC objective of strengthening business management in developing countries. Another was the expectation that their efforts will contribute to a better utilization of AID funds supplied by U.S. taxpayers.

Team Work: Mr. Schelke was joined in his Chilean assignment by C. Paul Moss, retired former GE manager of financial personnel placement service, and Richard Arf, a retired General Motors senior design engineer.

During April and May of this year, the team worked with managers, engineers, financial and manufacturing executives of 27 Chilean metal-working companies through grueling seven-day work weeks filled with sessions that stretched into evenings and through dinner hours.

The result of the team's consulting and study was a laudatory letter of thanks from Enrique Vial, director of the New York office of Corporacion de Fomento de la Produccion, saying that the recommendations of the IESC trio were "enthusiastically received."

"A good idea" is how William C. Wichman, former GE vice president and general manager of the IGE Export Division, describes the International Executive Service Corps.

"Private enterprise is an indispensable ingredient in the development of international commerce," he points out, "and even a partial success in helping these people is better than failure."

The IESC is a non-profit organization formed primarily to help improve the performance of privately-owned industrial and commercial enterprises in developing countries. It has access to some 2000 executives—averaging 30 years' experi-

EXECUTIVE CORPSMAN SCHELKE

Challenges start at retirement.



*720 Fifth Ave., N.Y.C.

ence each—who are made available on request for limited periods of time to advise management. Wives of IESC advisers accompany their husbands while on assignment.

The Executive Committee of the IESC includes Philip D. Reed, former Board Chairman of the Company and Virgil B. Day, vice president, Personnel and Industrial Relations Services.

"The IESC has only been in operation since January of 1965," points out Mr. Day, "yet requests have come from nearly 400 companies in 37 countries. So far, IESC has assigned executive advisers to over 200 companies.

"When IESC receives a request, it attempts to locate a volunteer executive whose skills and experience match the job to be done. Companies assisted pay a part of the cost of the program." While IESC has the support of the U. S. Government's main foreign assistance organization, The Agency for International Development (AID), it still retains its private status.

Says Frank Pace, Jr., director of the International Executive Service Corps: "In our working relationships with these host companies there have been some immediate and spectacular successes in terms of cost reduction and increased profits or growth. But the material impact of most of our efforts may not be felt for a year or more. Time will be our judge."

Encore? After such a demanding assignment would they do it again?

The answer comes from C. Paul Moss:

"I would recommend an IESC assignment to other retired GE managers, but anyone interested should understand that the work is hard, much is expected of him, and there are many frustrations. It is not a vacation trip."

AROUND THE COMPANY

Rights Award: The Commercial Equipment Department of Chicago Heights, Ill., has received the Human Relations Award of the local south suburban N.A.A.C.P. The Department, which has maintained a policy of impartial recruitment among members of the local Negro community, was cited for its participation in "the international crusade for universal justice and dignity of mankind." Presenting the award to Herman Stern, manager of employee relations (see photo) was Mrs. C. William Billingslea, president of the N.A.A.C.P. chapter.

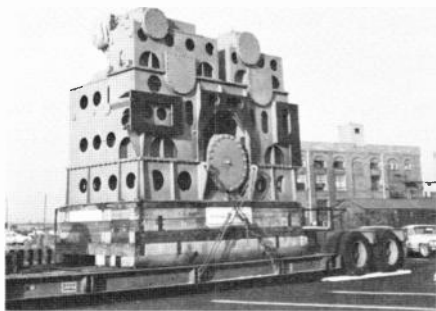
Monorail, Oui, Oui: The Company's Transportation Systems Division has acquired the rights to manufacture and market a suspended monorail system of the French firm Sasege Transport of Paris.

Hefty But Historic: The heaviest assembled propulsion gear (92 tons) in the history of the Medium Steam Turbine, Generator & Gear Department at Lynn has

AWARD AT CHICAGO HEIGHTS

In the crusade for dignity of mankind.





BIG GEAR FROM LYNN

In this corner, weighing 92 tons . . .

been shipped to the General Dynamics shipyard at Quincy, Mass. The 21-foot-high unit is part of a 22,000 hp propulsion system for a Navy ammunition ship and was loaded onto a Navy floating derrick from the nearby Massachusetts Electric pier.

Military Management: Thirteen senior officers from branches of the U.S. Armed Forces participated in a week-long study of the Company's management policies at the GE New York headquarters. The officers, part of the Armed Forces Industrial College and slated for key policymaking positions in the Nation's defense structure, met with Company executives to learn how major decisions are made in the fields of sales, accounting, labor relations, international commerce, research, and defense production.

Real-Time Television: GE computers earned good ratings from television stations in two cities last month. In Philadelphia, WCAU-TV conducted an audience poll on a controversial new Philadelphia stadium and fed viewers' telephoned votes into computers at the Company's Missile and Space Division computer center. In Syracuse, WHEN-TV used a GE 235 com-

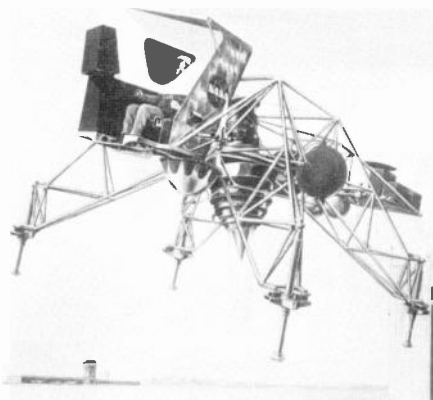
puter to keep up with the election returns last month, and had assistance from the Company's local Information Systems Marketing Operation office.

Enterprising Erie: The Locomotive and Parts Department has received orders from four major railroads for a total of 80 U28 diesel-electric locomotives. The 2800 horsepower units will soon be rolling along the Burlington, Santa Fe, Pennsylvania and Norfolk & Western lines. . . . An \$8-million modernization and expansion of the Erie plant has been announced by Oscar L. Dunn, vice president and general manager of the Transportation Systems Division. Included is new construction of 163,000-square-feet plus other modernization and rearrangement.

Lunar Landing Power: Flight Propulsion Division will supply four jet engines to be used in the Lunar Landing Training Vehicles being built by Bell Aerosystems of Buffalo, N.Y. Bell is building the vehicles for NASA's Manned Spacecraft Center, using an aft-fan version of the J85/CJ 610 turbojet family.

LUNAR LANDING TRAINER

Fine for a gentle GE jet-down.



PEOPLE

Helping Ham: Stanley C. Wrzesinski is a process control technician in the Power Transformer Department at Pittsfield and an amateur radio operator (ham) who regularly chats with people around the world. Among his favorite contacts is Maryknoll missionary and former GE employee Rev. Joseph W. Kowalczyk, now in charge of the San Martin de Porres Seminary high (12,500 feet) in the Andes Mountains of Peru.

This high altitude has brought severe lightning damage to the seminary during rainy season electrical storms—a fact noted by Mr. Wrzesinski, who works in the city where GE home lightning protectors are made.

He discussed the lightning problem with Henry B. Ebbets, employee relations manager of the Distribution Protective Equipment Department, who relayed the message to Joseph Friscia, overseas business manager. Working with IGE, DPED ar-

RADIOMAN WRZESINSKI

Keeping electricity in its proper place.



ranged to have home lightning protectors sent to Peru from Pittsfield to provide protection for the seminary's buildings.

Mr. Wrzesinski happens to live near Peru, Massachusetts.

Honorable Men: Charles E. Wilson, former President of the Company, was awarded the Department of Defense Distinguished Public Service Medal by Defense Secretary McNamara for a quarter century of dedicated services, including World War II. . . . Dr. Louis T. Rader, vice president and general manager of the Industrial Process Control Division, was presented the first alumni Distinguished

In Crotonville: The sixth General Management Course is underway at Crotonville, with the following participants enrolled:

Accounting Services: *R. E. Breen*
 Engineering Services: *C. Mannal*
 Manufacturing Services: *A. V. Feigenbaum;*
J. B. Austin; W. F. Reardon.
 Marketing and Public Relations Services: *J. H. Sweeney; K. F. Yarbrough.*
 Research and Development Center: *R. E. Hoffman*
 Treasury Services: *J. M. Gallagher*
 Defense Electronics Division: *J. J. Suran*
 Defense Programs Division: *L. L. Nentwig*
 Flight Propulsion Division: *W. R. Carroll*
 Missile and Space Division: *D. F. Huebner;*
J. H. Genest; H. Kitson, Jr.; A. E. Schwerin.
 Component Products Division: *C. H. Findley;*
R. N. Mills.
 Construction Industries Division: *R. E. Sessions*
 Electronic Components Division: *D. S. Bates;*
G. W. Fiske.
 General Electric Supply Company Division: *R. W. Field; G. Umberger.*
 Consumer Electronics Division: *R. F. Reid;*
D. E. Garrett; F. R. Wellner; P. D. Brooks.
 Housewares Division: *J. F. Bohnsack*

Service Award by the California Institute of Technology. . . . R. Hosmer Norris, consulting engineer at the Research and Development Center, and Dr. Salomon Levy, manager of systems engineering, Atomic Power Equipment Department, received the ASME heat transfer division awards. . . . Dr. Victor A. Phillips, metallurgist at the Research and Development Center, was elected a Fellow of the Royal Microscopical Society.

Speak FORTRAN? Mario V. Farina, a communications and training specialist in the Telecommunications and Information Processing Operation in Schenectady, is

Lamp Division: *E. F. Apple; W. E. Tragert.*
Major Appliance and Hotpoint Division: *W. G. Spiegelhalter; J. E. Horak; D. K. Mills; R. B. Lewis; J. R. Lehmann; J. E. Rhodes.*

Electric Utility Sales Division: *A. J. Clay; R. H. Annin.*

Nuclear Energy Division: *E. L. Zebroski; W. P. McIntosh; J. Williams, Jr.; C. R. Anderson; J. E. Van Hoomissen.*

Power Distribution Division: *F. F. Collyer; M. W. Hellar, Jr.; A. J. Pezdek.*

Power Generation Division: *W. L. Marshall; D. S. Bennett.*

Chemical and Metallurgical Division: *R. J. Prochaska*

Industrial Drives Systems Division: *P. A. Travisano; W. M. Schweder; G. B. Morgan.*

Industrial Process Control Division: *G. R. Petersen; P. C. Shirkey; D. B. Schneider.*

Industrial Sales Division: *J. A. Baker*

Information Systems Division: *F. R. Cuda; G. B. Farnsworth.*

Transportation Systems Division: *L. B. Close*
Area Division-Latin America: *R. P. Woolery*
Area Division-Mediterranean: *P. Fresco; G. Orsi.*

Canadian General Electric Company Limited: *V. L. Clarke*

IGE Export Division: *D. MacInnes; M. Kalikow.*

helping in the struggle to learn FORTRAN with a newly-written book: *FORTRAN IV Self Taught*. Mr. Farina says that anyone with a knowledge of elementary algebra and trigonometry can program in FORTRAN with the aid of his book.

Life Savers: Two alert employees of the Switchgear Department who saved lives in two emergencies are being recommended for National Safety Council President's Medals. Anthony Fulginitti, electrician, gave emergency mouth-to-mouth resuscitation to a fellow employee who had stopped breathing following a choking spell. Mr. Fulginitti later administered oxygen to the stricken man as he was moved to the dispensary.

John Hopta, an assembler, was driving home from work when he saw a woman holding a baby leap from a bridge. Mr. Hopta and a patrolman were alone at the scene, but rescued mother and child. Mr. Hopta revived the baby with mouth-to-mouth resuscitation.

New Fellows: Six General Electric employees recently became Fellows of IEEE—the highest grade in the 150,000-member organization and conferred upon persons "of outstanding and extraordinary qualifications in their fields."

The group: Jordan J. Baruch, general manager, Medinet Department; Burton P. Brown, Heavy Military Electronics Department; Lawrence E. Fisher, Distribution Assemblies Department; Leroy Kelling, Specialty Control Department; Weston Morrill, Power Distribution Division; Tage P. Sylvan, Semiconductor Products Department.

Air Advisor: Vice President J. Stanford Smith has been selected for membership in a New York City Business Advisory Panel on Air Pollution.

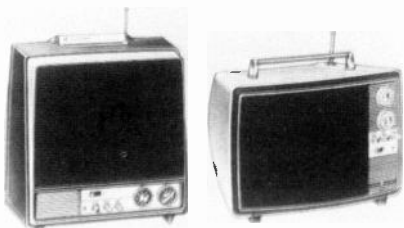
PRODUCTS

Pacemaker's Pace: The X-Ray Department's new Threshold Analyzer enables thoracic surgeons, cardiologists and internists to evaluate the performance of implanted Cardiac Pacemakers without surgery or patient disrobing. The device measures the all-important safety factor between the patient's heart stimulation requirement and the Pacemaker output.

Using the Threshold Analyzer, doctors can predict possible high thresholds in advance and recommend treatment. It can also help predict battery life to determine the optimum time for replacement.

NEW FOR 1967

No time at all—no glare at all.



Ultra—Insta: The popular personal portable television receiver line for 1967 will include two new viewer delights: "Ultra-vision" and "Insta-view." "Ultra-vision" is a tinted faceplate that makes viewing easier, indoors or out, by reducing glare and screen reflections. "Insta-view" coddles the impatient viewer by bringing up the picture immediately without the usual "warm-up" waiting period.

Models with both new features are the MI57CEB, the 12-inch, Adventurer I at a suggested retail price of \$99.95 and the 11-inch MI38CVY at \$89.95.

New Look in Tape: The Closed Circuit Television Business section last month introduced an industrial video tape recorder system for use in industrial, educational and training applications.

Leo M. Storey, Jr., the section's marketing manager, said "Our system fills an obvious gap between the highly sophisticated professional VTR and available home entertainment equipment."

The market for the new system is unlimited. Within the Company alone, counting marketing managers, general managers, and managers of manufacturing, the market could be above 300 units. A tongue-in-cheek look at the potential would be more than 3.6 million—that's the number of U. S. elementary and secondary schools, institutions of higher learning, and manufacturing locations.

The new system is available in a "Tri-Pack" with separate monitor, camera, and recorder, or in a mobile console. The "Tri-Pack" has a suggested list price of \$1695 while the console lists for \$1995.

NEW VIDEO TAPE SYSTEM

Program now—learn later.



SO WE SAY

Responsible Creativity

Creativity is undoubtedly one of the most significant forces in the General Electric Company. Accompanying the creative effort



K. A. KESSELRING

must be responsibility according to Kenneth A. Kesselring, general manager of the Knolls Atomic Power Laboratory. The following excerpts are from an article by Mr. Kesselring in the publication KAPL Review, observing the 20th anniversary of the Laboratory, which is operated by the Company for the U. S. Atomic Energy Commission.

"An unfortunate paradox exists today in our universities, laboratories, industrial design departments, factories and operations centers. Never have the opportunities for accomplishment through applied creativity been so great; at the same time, many individuals are reluctant to exploit these opportunities — and in many cases consciously ignore them.

"Responsible Creativity means using the senses fully, integrating accumulated data, and then making the necessary extrapolations and iterations to yield new combinations of ideas which:

- answer a true need of man;
- are worth the time necessary to bring the concept to fruition;
- are not allowed to be emasculated or reduced to marginal value by neglect or sloppy handling.

"It is, of course, the 'Responsible' that adds the *effort*, and often the frustration and failure, to the *fun* of exercising creativity in any application. Sadly enough, it is very often the highly capable but selfishly shrewd potential contributor who foresees that 'you can't have one without the other.' His choice is too often to be a critic, a compiler, or — as a concession to economic requirements — a carefully 'programmed' creator. On occasion, and without critical involvement or follow-through, he discreetly makes a limited, and extremely valuable contribution.

"The result of this far too common phenomenon is that those who are not so capably creative become by default the directors of 'creative' work — the blazers of expensive, but blind or endless trails; the prophets and salesmen of differences or novelty, rather than of true creative developments.

"I would like to believe that what I have said is an exaggeration because as active members of a technological society, we have so much to do and so little time to do it. We cannot afford irresponsible creativity, leadership by default, or conscious evasion of the exercise of capability.

"Discoveries at the ever-expanding frontiers of technology continue to validate the amazing promises of the future. But in many cases the very genius and creativity that produce this 'fairy ring' or *perimeter* of discovery have left behind a barren *area* that is unexploited, degraded, or simply forgotten. Exercising true Responsible Creativity means recognizing that as the parent of the creation, its continued care and nurture are your tasks, and the protection of its value is your burden.

"Responsible Creativity is a character-

istic that can be acquired only by purposeful and dedicated effort. I firmly believe that the capability for creativity exists in all of us, but the willingness exists in only a few to suffer not only the indignity of personal self-appraisal, but also the humbling effects of competent, objective criticism as well.

This requirement—impartial appraisal—represents an inhibiting barrier to the ‘smart’ but lazy, the untalented but honest, and the clever but impractical—but seldom slows down the incompetent but articulate! If such an opportunist is in a position to command manpower or facilities allocation, development of the ‘creation’ will quickly and wastefully use up critically short human and natural resources, and, above all, time.

“An equally serious form of irresponsibility in the application of creative talent that survives the assault of objective appraisal is the conscious desertion of the ‘creation’ or the knowledgeable toleration of its degradation. Material things of value must be without flaw. Constitutions are not first drafts; great works of art are not first attempts; and certainly the most valuable creative thought or concept can be rendered worthless unless the follow-through holds perfection as a goal and dedication as a practical habit.

“The need for creativity and progress in both our human and our technological societies cannot be questioned. But, these two words — creativity and progress — represent far from synonymous functions.

“Progress is the result of Responsible Creativity.

“Only with dedication, objectivity of appraisal, and follow-through can creative inspiration be brought to fruition and qualify as an element of progress in our society.”

ORGANIZATION

Industrial Sales

The name of the Systems Sales and Engineering Operation is changed to Industry Sales and Engineering Operation and George W. Knapp continues as Manager.

Major Appliance and Hotpoint

In order to develop and maintain better focus on all parts of the major appliance market, three new positions are established and managers are appointed reporting to the Vice President and General Manager of the Division.

Joseph H. Gauss is appointed Deputy Division General Manager, Refrigeration and Air Conditioning Products.

Irving L. Griffin is appointed Deputy Division General Manager, Kitchen Appliance and Home Laundry Products.

Edward L. Stehle is appointed Deputy Division General Manager, Distribution Marketing Operation.



J. H. GAUSS

I. L. GRIFFIN



E. L. STEHLE



Management Manpower Services

A Management Manpower Services is established, and Roy L. Johnson, Vice President, is assigned responsibility for the Services. (A story on the establishment of the Services appears on page one.)

Personnel and Industrial Relations Services

The name of the Management Development and Employee Relations Services is changed to Personnel and Industrial Relations Services.

Power Distribution

Robert L. Gibson, Vice President and General Manager of the Power Distribution Division has announced his retirement from the Company effective February 1.

Mr. Gibson, who is a 40-year employee of the Company, will assume the chairmanship of the Berkshire Community College Business Department in September.

Mr. Gibson was named a Vice President of the Company in 1954. He became General Manager of the Power Distribution Division in 1964.

Power Transmission

G. Ronald MacArthur is appointed General Manager of the Power Transformer Department. Mr. MacArthur was previously Manager, Financial Section of the Department.

R. L. GIBSON



G. R. MAC ARTHUR



LETTERS

(Continued from inside front cover)

partment scored a first in materials handling techniques as you describe. In 1962 a trailer (approximately 20,000 pounds gross weight) was filled with electronic equipment and loaded aboard a ship. After checkout was completed, this same technique was used to unload the trailer at the permanent site.

This handling technique is a spin-off of commercial trailer loading facilities that are available at some shipyards and so we at HMED did not claim a "first" at that time.

NICHOLAS GULLOTTA

Heavy Military

Electronics Department

Syracuse, N.Y.

Appreciation in Virginia

EDITOR: After reading the feature on various open houses, I felt that you'd like to know that we at Specialty Control Department held a very successful Appreciation Day at our plant grounds on October 16. The event attracted 7500 employees and members of their families.

C. J. ROMEO

Specialty Control Department

Waynesboro, Va.

General Electric College Bowl

(NBC, Sundays, 5:30 p.m., EST)

Participants: Jan. 1—Iowa Wesleyan College (Mount Pleasant, Iowa); Jan. 8—University of North Carolina (Chapel Hill, North Carolina); Jan. 15—St. Mary's College (Notre Dame, Indiana); Jan. 22—University of Southern California (Los Angeles, Calif.); Jan. 29—State University of New York at Albany (Albany, N.Y.).

EDITORIAL

Bridging the International Gap

"THE FASTEST ROUTE to the progress the whole world is seeking is the broadest possible movement of people, of capital, of products, with the fewest possible restrictions," said President Fred J. Borch last month. Speaking before the National Foreign Trade Council in New York, Mr. Borch called on private enterprise and government to work together to speed the progress in the developing areas of the world where progress has "unquestionably been too slow, too irregular, and too uncertain."

General Electric is playing a significant role in stimulating the development of these emerging nations. With pride, the theme "General Electric Cares" can take on new meaning when we realize that the effectiveness of the Company's technological and human resources need not be limited by national boundaries.

Care comes in many forms and faces. It comes in the pride and responsibility we take in the products we produce. It comes in the willingness of the Company to apply its vast resources to meeting human needs—and at the same time to take risks in overseas capital investment programs. Care also comes in innovation and research and development programs that will pro-

duce the products that will make man's way more productive and meaningful tomorrow.

Care can be found in a group of employees at the Large Motor and Generator Department who cared enough to send shoes and clothing to a poor child in Ecuador. It can be found in retired Company personnel like Philip D. Reed, former Board Chairman of the Company, and Charles V. Schelke, the former Vice President and General Manager of the IGE Export Division and C. Paul Moss, once manager of financial personnel and placement service, who are giving their time and talents to help improve the economic performance of developing countries through the International Executive Service Corps.

As Mr. Borch said, "Where there is no vision, we are told, the people perish. Where there is no maturity, there is no vision. The problems in this increasingly complex and crowded world won't grow any less—but if we can face them with greater knowledge and maturity, with better use of our resources—then the promise of progress with peace, to which the continued expansion of world trade and investment contribute so much, may yet be achieved."