GENERAL ELECTRIC
# Monogram
NOVEMBER-DECEMBER 1974

AN INTERNATIONAL ASSIGNMENT: Career byroad or high road?

Plus: Checklist for change, the Hotpoint story, Tom Edison re-created.

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The Monogram's purpose is to keep its readers informed on General Electric activities so that they may more effectively represent the Company in its relationships with the public. It is published bimonthly by Corporate Public Relations Operation—Douglas S. Moore, Vice President. Editorial Supervision is by David W. Burke, Manager, Public Relations Programs, and J. Hervie Haufler, Manager, Corporate Editorial Communications. 

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# 'Help in getting some changes made'

## GE officers present an 'issues checklist'

In the normal course of things, management can expect its most serious problems to come from within the organization—from the day-to-day pressures involved in meeting customer expectations, smoothing the interaction of people, controlling the variables of production, inventories and the like. Problems arising from the external "business climate" may be difficult and time-consuming, and certainly can't be ignored, but they generally don't bulk as large as internal concerns.

Now, suggests General Electric's Board Chairman Reginald H. Jones, the equation is reversed: "The main problems at this juncture are external to the Company."

The picture of business he has been presenting in talk after talk is that of an economic, political and social environment gone out of control, posing more serious challenges to business than its own operations.

Seeing the situation as one that calls for action, he tells his audiences: "We want to ask your help in getting some changes made"—and then follows through with specific recommendations. So do other officers, presenting viewpoints on issues that intersect their areas of responsibility. These specifics, when put together from a number of recent talks, form a veritable "issues checklist" for GE people at this point in time.

In Boston on October 21, for example, Reg Jones spoke to nearly 200 guests at a GE Customer Dinner. Acknowledging the presence of many of Boston's community leaders, the GE Chairman took the occasion as an opportunity to punch home one key idea: that the root cause of inflation throughout the world "is simply that modern societies are placing demands upon their economic systems that these systems cannot supply."

He quoted Conference Board Economist Albert Sommers: "In the democratic countries, modern economic systems are living in an explosion of expectations that carry demands for output far

**A thousand GE share owners, assembled for the 1974 Information Meeting in Boston, were urged by Chairman Reg Jones to "help change national policies and improve the climate for business."**

beyond their finite resources. The failure of our political system to contain the growth of social demands within limits tolerable to the free market is the essential first cause of inflation in this society."

To which Reg Jones added "Amen."

In our efforts to build a truly great society, GE's Chairman went on to say, "we have consistently and with increasing speed elevated the psychology of expectations. Indeed, many of our citizens now feel they are *entitled* to a level of social services that is beyond what the system will produce."

The result: "an ever-increasing stream of so-called uncontrollable expenditures for federal social benefits is superimposed legislatively upon the normal costs of our society and its limited productive capabilities."

His prescription for action: "Instead of restraining the private sector of the economy through tight money and high taxes, which only invites increased government spending, we must reverse direction. We must adjust our national policies to expand private sector activity while constraining the government from competing for the dwindling stream of savings that are needed to finance the new homes, new factories and new jobs that this country is going to need in the decade ahead."

**Speaking to share owners** attending the 1974 Information Meeting in Boston the following day, Chairman Jones reviewed four additional public policy areas where change is essential in improving the climate for business:

• **Ease monetary policy:** "We hope you will lend your voice to the demand for a moderation of the tight monetary policy that has sent interest rates soaring and battered the stock market and put so many businesses, especially the hard-pressed electric utilities, into financial difficulty." Some restraint is necessary, he said, to bring inflation under control. What is needed is "a relaxation of the *excessive* restraint" in order to revive the stock market and enable customers and suppliers to obtain the financing they need to run their businesses and buy needed capital equipment."

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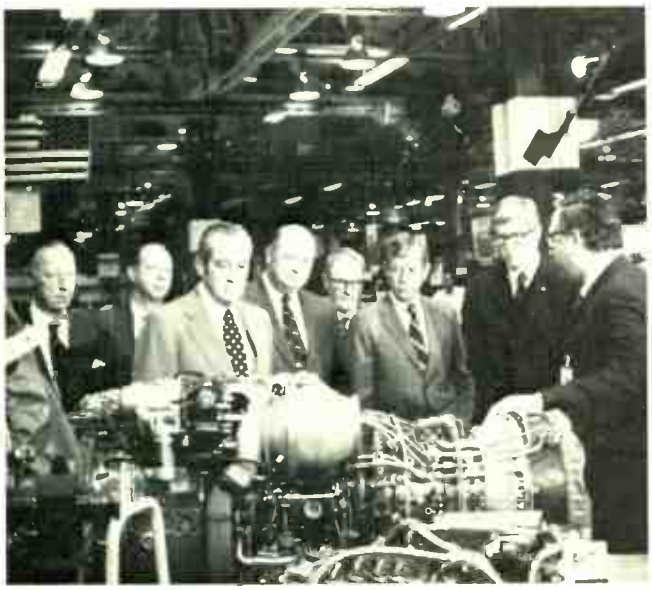


**Directors toured Aircraft Engine Group operations in Lynn and joined in a business review of Industrial and Marine Steam Turbine Operations ... new Director Samuel R. Pierce, Jr., (right) was welcomed by Director Silas S. Cathcart.**

• **Develop a strong energy program.** This is necessary, Jones said, to reduce U.S. dependence on foreign oil. He called for "a sustained energy development program" rather than "an on-again off-again program that goes up and down with the latest turn of Middle Eastern politics."

• **Increase electrical understanding.** He urged share owners to inform themselves on how electricity will have to take over for oil and gas in home heating, industrial heating and other energy applications "and then tell your friends how, in time, this country will have to move toward something close to an all-electric economy, to conserve our natural resources and provide the energy for a growing America."

• **Encourage capital investment.** A higher level of capital investment by business, the Chairman said, is needed to provide jobs now and build insurance against future inflation. "Last year the U.S. reinvested only 16% of its total output in modernization and expansion of its productive capacity. In Germany and France the figure was about 25%, and in Japan it was 37%." The result is that these international competitors are increasing their productivity faster than U.S. industry "and we're experiencing inflationary shortages in many of our basic industries."

• **Reduce government spending.** With share owners, as with customers, the GE Chairman emphasized that needless government spending is a primary cause of inflation. "Government expenditures—local, state and federal—have risen steadily from 10% of our gross national product in 1929 to 32% at the present time—and they'll reach 50% by the end of this century, unless the American people call a halt." His prescription: "We need a fundamental change of direction. We should be putting more and more of our dollars in the productive private sector rather than the inflationary government sector."

He concluded by warning the share owners that "no investments are going to be worth much in this country until we get changes in national policy that bring inflation under control and make the economy strong again."

Did we hear an answering "Amen"?

Indicative of the "issues advocacy" that GE spokesmen are articulating on other fronts was Vice Chairman Jack S. Parker's views of international trade, presented to the National Electrical Manufacturers Association on November 12.

The GE Vice Chairman urged support for the U.S. Trade Reform Bill now coming out of the Senate Finance Committee and likely to be enacted by Congress before the beginning of the year. "It's a good bill," he said. "The ball game is not over because there can be amendments on the Senate floor, and differences between the Senate and House will have to be reconciled in conference.

**Some 1400 "unseen share owners" were on hand via mailed-in cards bearing questions and comments.**

Still, it seems probable that the final version will be one with which the electrical manufacturing industry should be quite pleased."

He described the focus of the bill as "the elimination, reduction or harmonization of non-tariff barriers which have become the main obstacle to expansion of U.S. exports in many industry sectors. Revisions of the anti-dumping countervailing duty, and retaliatory provisions, will increase the arsenal of weapons against unfair foreign competition in home markets."

In addition, Parker said, U.S. trade experts are on the verge of discussions with their counterparts from all over the world to renegotiate GATT (the General Agreement on Tariffs and Trade)—"negotiations that directly affect the nearly one-fifth of the product of U.S. electrical manufacturers, and the approximately one-seventh of total U.S. production that is currently exported."

Thus, in his view, it's a time when industry in general and the electrical manufacturing industry in particular "has a real opportunity to make itself heard and to influence the outcome of the forthcoming trade negotiations in reasonable directions."

Vice Chairman Parker carries his advocacy beyond words. He has been an active member of the Industry Policy Advisory Committee at work to secure sounder international trade policies for the U.S.

# GE's elements of uniqueness

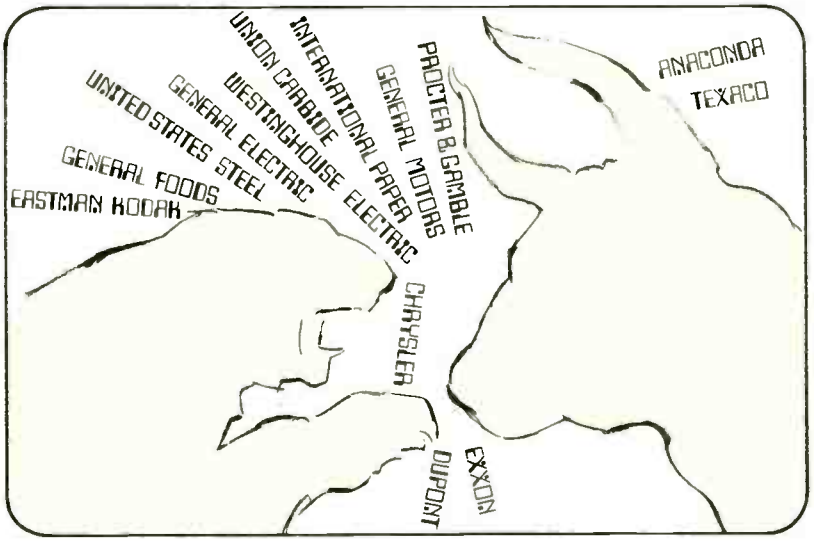
On November 7, nearly 200 of the nation's leading financial analysts met in New York to hear GE's Corporate Executive Office announce good news—that the Company's total order backlog is now at the "healthy level" of $18.3 billion—and details of what Chairman Reg Jones called "the heart of our message": GE's strategic plan to achieve sustained earnings growth over time and in spite of cycles, through the systematic management of its total resources.

He listed "four foundation stones" undergirding GE's strategy for sustained earnings performance:

- "A unique constellation of product lines that operate on different economic cycles, giving us the opportunity to offset down-cycles in some products with up-cycles in others."
- "What we call our 'evergreen nursery' of growth opportunities," including the twelve ventures businesses (*Monogram* May-June 1974), whose sales this year are 60% ahead of those for last year.
- A strategy to limit "downside risk"—by continually assessing the ratio of risk to reward for all projects and programs.
- "A strong and adaptive operating management, backed by effective controls"—some 40 business units whose managers have the capability to compose a "fearsome forty" for their counterparts in other companies, backed by controls that include contingency planning, fiscal responsibility and motivation in the form of both financial and non-financial goals.

These are some of the elements, Reg Jones said, "that make General Electric different, if not altogether unique."

# UNDERSTANDING THE DJIA




**Will the Dow Jones Industrial Average slump below 600 or will it soar to its old peak beyond 1,000? It's the question that animates the nation's financial pages because it's the question on which investors' fortunes hang. But what is the DJIA? How is it arrived at and what purpose does it serve? The facts:**

Compiled by Dow Jones and Company's *The Wall Street Journal*, the industrial average is obtained by totaling the per-share prices of 30 industrial stocks and dividing the sum by 1.598. (Originally, the total was divided by the number of stocks on the list to obtain the average, but because the divisor is lowered when any stock on the list splits, the divisor went down to 16.02 in 1928, to 8.92 in 1950, and is now at 1.598.)

The 30 stocks used to compile the industrial average have historically been selected by Dow Jones on the basis of their market value and broad public ownership. Those on the current list account for about one-quarter of the market value of all common stocks listed on the New York Stock Exchange; 19 of them have more than 100,000 shareowners, and five (including GE) have more than 300,000. Of the 25 most active New York Stock Exchange stocks in 1973, eight (including GE) were on the Dow Jones industrial average list.

Since 1896, when *The Wall Street Journal* began daily publication of the industrial average—which was then based on 12 industrial stocks—individual and professional investors have used the average to help them forecast stock prices and market action in building their investment portfolios.

General Electric was one of the original 12 companies whose stock prices were used to compile the industrial average. As the stock market broadened, the number of stocks on the Dow Jones list expanded—to 20 in 1916 and to 30 in 1928. The make-up of the list has changed considerably over the years, as new companies were added and others removed.

Included on the current list are: Allied Chemical, Aluminum Company of America, American Brands, American Can, American Telephone and Telegraph, Anaconda, Bethlehem Steel, Chrysler, DuPont, Eastman Kodak, Esmark, Exxon, General Electric, General Foods, General Motors, Goodyear, International Harvester, International Nickel, International Paper, Johns-Manville, Owens-Illinois, Procter and Gamble, Sears Roebuck, Standard Oil of California, Texaco, Union Carbide, United Aircraft, United States Steel, Westinghouse Electric and Woolworth.

Dow Jones also publishes a 20-stock transportation average, a 15-stock utility average, a 40-bond average, the Municipal Bond Index and the Commodity Index.

And sophisticated investors supplement their study of the Dow Jones industrial average with information on the daily earnings and price-earnings (P/E) ratios for the 30 listed stocks, and they also refer to the 500-stock Standard and Poors index and the New York Stock Exchange composite average for all common NYSE stocks.

But the Dow Jones industrial average, besides being the oldest stock market average in the country, remains the most widely followed yardstick for measuring stock price movements and is, for many individual investors, their sole stock market barometer.

# Starring Tom Edison

## The making of a GE television commercial

The year: 1879. The scene: A small laboratory in Menlo Park, New Jersey. Thirty-two year old Tom Edison is connecting a DC power supply to his latest invention, the first practical incandescent light bulb.

Had you been there 95 years ago, the actual scene would not have appeared very different from the one duplicated in a New York City studio for GE's latest television commercial illustrating the "Progress for People" theme.

Guided by Hubert M. "Bart" Snider of Corporate Public Relations, the Batton, Barton, Durstine and Osborn advertising agency produces ten completely new television commercials each year and, through sophisticated editing techniques, recycles an additional five to ten previously aired commercials, aimed at an average audience of 18 million viewers for each showing.

In the Tom Edison commercial, strict attention to authenticity was a key factor from conception of the commercial to execution of the finished film.

"We wanted our audience to recognize that this fellow working in his laboratory was Thomas Edison," says Snider, "but we couldn't use the familiar white-haired gentleman because Edison was a young man when he invented the light bulb."

The cost of producing anything has soared of late, and as commercials are not unaffected by inflationary trends, there is no margin for gross error. "You have got to plan ahead in this business," says Snider, "because studio time is very expensive, and the meter is running all the time."

**"Bart" Snider of CPRO and Robert McLoughlin, BBD&O's creative director for the GE Corporate account, review storyboards for the Edison commercial.**

**Makeup experts transform actor Bill Buck into a youthful Thomas Edison.**

**In the camera's unforgiving eye, the authentically reproduced set must appear perfect.**

**Making it official**–The General Electric Corporate Headquarters was dedicated on Friday afternoon, October 4, 1974, in a genuine show of community and state good will unusual even for such traditionally best-behavior ceremonies.

GE Chairman Reginald H. Jones told the state-wide leaders gathered on the first floor of the west building that GE will continue trying to be "a useful citizen you can rely on, a neighbor you can depend on, and a friend you can believe in." Senator Abraham Ribicoff expressed pleasure at the GE move to Connecticut and praised Chairman Jones for his "perceptive and statesman-like" analysis of the current economic situation at the recent "economic summit" meetings.

Fairfield First Selectman John J. Sullivan said there can be no doubt in the minds of most that the General Electric Corporate Headquarters' relocation to the town of Fairfield will be the most significant and positive event in community development for the town in the decade of the 70's.

Shown after the ceremony are, left to right, Connecticut Governor Thomas J. Meskill, First Selectman Sullivan, Senator Ribicoff and Chairman Jones.

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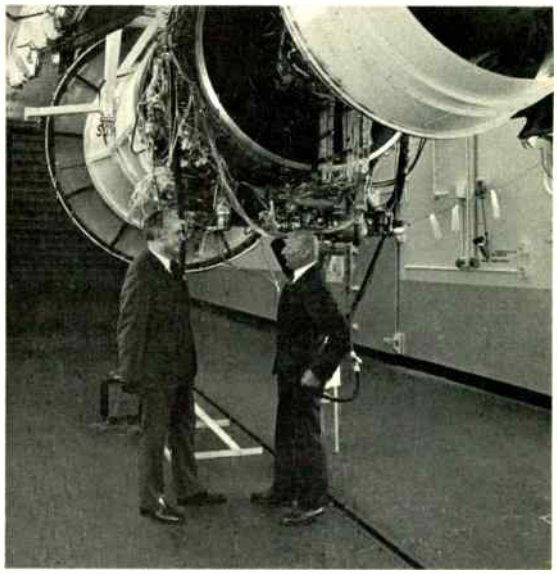
**Ready for take-off**—Joining forces to produce and market the new high- technology CFM 56 aircraft jet engine, General Electric and SNECMA, the leading French aircraft engine maker, have announced the creation of a brand new international company.

CFM International's prime opportunity, according to Neumann, is the expanding market for the next generation of aircraft jet engines. Demand for engines like the CFM 56 is expected to grow in Europe and the rest of the world faster than in the U.S.

Responsibilities for the design phase are divided between the two founding companies, with GE handling core engine development, design integration and main engine control. SNECMA developed the low-pressure and reverser systems, and is also responsible for gearbox and accessory integration. Initial tests of the new engine at GE's Evendale facility have produced full power at even greater efficiency than had been predicted.

Headquartered in Paris, CFM International is a joint venture that is managed by experienced personnel from both companies, under the leadership of SNECMA's Rene Ravaud (left) and Aircraft Engine Group VP Gerhard Neumann.



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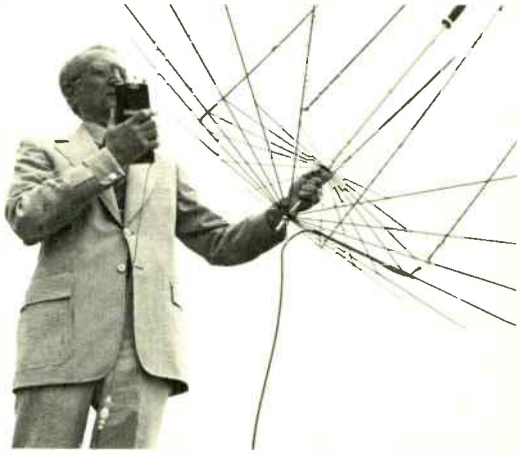
**Space-age life line**—Using an ordinary walkie-talkie and the modified frame of a golfer's umbrella as a crude antenna, Corporate Research & Development engineer Roy E. Anderson has demonstrated the feasibility of a worldwide radio rescue satellite system for lost hikers, downed pilots and shipwreck survivors.

The GE engineer's inexpensive system recently sent a Morse code signal from Washington, D.C. to Schenectady, N.Y. via a National



Aeronautics and Space Administration (NASA) satellite in geostationary orbit 22,000 miles over the Amazon River in Africa, so the tiny signal safely traversed more than 50,000 miles of space before being received at CR&D's Radio-Optical Observatory 400 land miles away. The more powerful base station transmitter in Schenectady was then able to beam a voice reply back over the same route to Anderson's small walkie-talkie, whose sensitivity was increased some 10,000 times by the homespun but efficient umbrella antenna.

Six such stationary satellites would be enough to provide coverage of weak SOS signals from anywhere on earth except the North and South Poles, Anderson said during a recent demonstration at the nation's capital.

With this system in place, he says, persons lost in wilderness areas could be contacted and found far more quickly than through the usual search and rescue tactics of aerial surveillance and ground combing.

●

**Sixth-grade slant on the news**—A contract between GE Cablevision in Walnut Creek, California and the Tice Valley Elementary School has resulted in a 15-minute world and local news program broadcast each week over the local cable system with unusually young anchorpersons and staff.

The idea for the program was originated by Mrs. Elizabeth Frandsen (shown here), a former advertising account executive and mother of two boys currently in Walnut Creek schools.

●

**General Electric Theater**—As its second offering this season, GE is presenting a repeat of the highly acclaimed drama, "I Heard The Owl Call My Name," starring Tom Courtenay as a young priest with a short time to live, and Dean Jagger in the role of his bishop.

The show, which won praise for its treatment of the true meanings of life and death, will be aired Monday, December 23, from 9:30 to 11:00 p.m. EST on the CBS Television Network.

Of special interest to viewers of the teleplay are the entertaining and informative GE-sponsored commercials that will surround it, including the realistic Tom Edison film described on page 7 of this issue.

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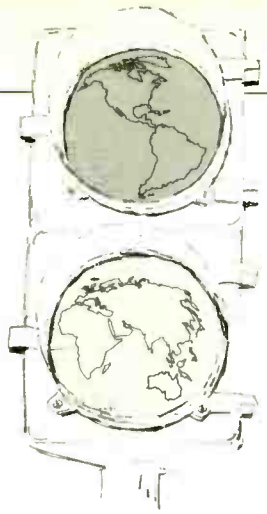
**A GE Memorial**—GE's Group Technical Resources Operation in Philadelphia has dedicated its High Power Laboratory and associated facilities to the memory of Wilfred F. Skeats, a GE engineer responsible for many notable achievements in power transmission equipment design. Skeats, who died in 1972, was a life fellow of the IEEE, holder of a General Electric Coffin Award, and a 1965 winner of the IEEE Habirshaw Award. He retired in 1967 after 37 years with GE in Schenectady and Philadelphia, and during his career acquired 28 patents and published more than 20 technical papers. Skeats was a recognized authority on switching conditions in electrical power systems and the development and testing of high-voltage switchgear.

●

**Simultaneous achievement**—The United Way Campaign and General Electric Company are sharing related positive breakthroughs in a year of mostly negative milestones.

At the same time as the national United Way Campaign is expected to pass the billion dollar mark for the first time, nationwide contributions by GE and its employees topped $10 million. That's a natural setup for a very interesting and significant statistic, says William A. Orme, manager of Corporate Support Operation for Corporate Public Relations Operation: One dollar out of every hundred dollars collected by the United Way Campaign during 1974 came from GE and its people.



# An international assignment: career byroad or high road?

In the years following World War II, General Electric tended to take a Ptolemaic view of the earth: the U.S. was the all-important fixed center around which other world markets revolved like so many distant and insignificant planets. Career opportunities in international operations reflected this low priority. As one GE manpower specialist put it recently: "It was generally considered, rightly or wrongly, that the international sector was a dumping ground for people who couldn't make it in the U.S."

Further, the individual who went international recognized that he might well be taking a no-return road. Once an employee entered the international arena it was, oftentimes, a permanent career choice, with no way back to other GE businesses.

The international career path was one-way in another sense: by and large it was reserved for U.S. employees who chose to work abroad. Rarely did an employee from another land take on an assignment in the U.S. Rarely did he or she get the chance.

Such were the overall impressions about international assignments that were generally held by GE people. "These ways of regarding international jobs did a disservice to many dedicated GE people who kept the Company afloat in world markets in a period when management's primary focus was on the U.S.," says Robert J. Haughton, Manager-Employee Relations, Organization and Manpower for the International and Canadian Group. "But they were attitudes that held wide sway, and they did greatly limit the appeal of the international career path."

An international assignment was seen by many, in short, as a career byroad, apart from the mainstream of GE's business.

What's the situation today?

A *Monogram* reporter, sitting in on the 1974 Conference of GE's International Personnel Council held recently in Montreal, drew the impression that while the pendulum may not yet have swung completely to the other extreme, it's well on its way.

The fact is that a great deal of attention is being focused on strengthening every aspect of international careers. The objective is simple but ambitious: to raise careers for General Electric people, in the U.S. and in other countries, above nationalistic limitations.

An international assignment at GE is, thus, much more a career high road today than ever in the past, and becoming steadily more so.

The results of this change in emphasis are increasingly apparent. A visitor around the GE world circuit today encounters a new breed: the young comer who takes an assignment outside his native boundaries not necessarily in the expectation of becoming an international careerist but as a shortcut in advancing his career no matter where opportunity beckons.

Listen to James Heap, 35-year-old Financial Management Program graduate now serving as manager of corporate planning and analysis for General Electric de Mexico:

"I'm definitely not planning to spend my whole career in international business. I'm here because I see this assignment as an opportunity to gain more experience faster than I could in a similar career move in the U.S. I'm sure I'll come out of, say, three years here with more exposure to greater challenges, plus the whole personal enrichment—for my family as well as myself—that comes from immersion in a different culture and a divergent way of life. My expectation is that my next assignment will be in the U.S. and that, because of my work here, I'll bring a great deal more to that assignment than I would otherwise."

Jim Heap speaks for a growing number of people around the GE circuit: an international assignment is looked upon increasingly as a

plus and an asset for the career-builder.

The principal reason for this change in GE attitudes is, plainly, the change in importance that top management places on international markets. John F. Burlingame, VP and Group Executive for the International and Canadian Group, reminded the conferees that over half of the market for GE-type products lies outside the U.S. and includes many markets that are growing more rapidly than those in the U.S.

"It's a very fast-growing segment of the Company," he said, "and 1973 was a banner year." International affiliates and exports—not including the substantial business done by "direct-coupled" nondiversified overseas affiliates—accounted for 18% of the Company's total sales and 22% of earnings. Burlingame added that "even though this is a tough act to follow, 1974 is continuing 1973 trends."

The task for international manpower experts is to find the talent to meet the opportunities. That this will be no easy task was underscored by Burlingame. He pointed out the practical limits to personnel interchange imposed by "the perceived national interest" in many countries and by the sophisticated economic and political trends that no visitor from another land can hope to cope with effectively.

The objective, however, remains: "an integrated manpower loop" developing both top national talent and U.S. professionals with a world perspective "so that the decisions they make, as they advance in their careers, are made in a world context."

At Montreal, the 25 specialists forming the International Personnel Council concentrated on ways to improve every link of that integrated manpower loop, from recruiting to retirement, visas to re-entry programs.

● **New orientation for FSEs.** Formerly, the Foreign Service Employee who left the U.S. for work abroad most often fitted one of two categories: he was a senior manager moving to a top spot in an international affiliate; or he was a technical specialist going over to help an operation in distress. It's a concept that has proved to be too limited and too limiting.

One main reason is the demonstrated competence of local nationals. Top managerial jobs are no longer "reserved" for FSEs—they're going increasingly to capable local nationals, many of whom have accelerated their knowledge of the Company by U.S. assignments and/or management development courses.

It's the same with technical jobs—the growing interchange between overseas operations

*(continued next page)*

*GE's International Personnel Council at work: improving every link in a worldwide "integrated manpower loop."*

and the U.S. is helping to develop cadres of native technical experts who can solve their own problems, thank you, and maybe tackle some in the U.S.

Do these trends mean fewer openings for FSEs? No, say International's people experts, for two reasons: the growth of GE's overseas operations keeps opening up more opportunities that FSEs can fill; and there's a growing interest in interchange at a younger age—a trend that means more opportunities for younger FSEs. Says Haughton: "We want an FSE assignment to be thought of more often as part of the formative process, an early career step, rather than a convenient terminal assignment."

In recognition of their continuing importance, International has formed a working committee of operating managers and manpower professionals, from domestic and overseas businesses, to restudy GE's policy relating to FSEs. The committee is making a thorough new assessment of every phase affecting an FSE's way of life, including housing differentials, cost-of-living adjustments, taxes, transfer allowances and language training.

- **More opportunities for LNs and TCNs.** If the FSE is receiving more attention, so is the LN (local national) and the TCN (third country national).

For LNs, the horizons at GE are definitely widening. The Company is looking to this group to man ever more responsible positions in GE affiliates. Thus, today Canadian GE is under the leadership of a Canadian, Cogenel in Italy is run by an Italian and other high-level positions are filled by citizens of the countries in which the businesses are located.

In addition, LNs are finding advancements in the U.S. and other countries outside their own borders. Roger H. Hawk, in charge of International's selection and placement program, reported that at the Group level so far in 1974 some 100 key jobs have been filled by FSEs and 30 by LNs. "These totals are indicators," Hawk said, "that career interchange across national borders is becoming much more the way of life for GE—and is likely to become more so, as the Company gains more top managers who can look back on an international phase in their careers."

Not overlooked in all this are the TCNs. Says Hawk: "If we are going to be a truly international Company, we can't afford to pass up the unusual talents represented by those nationals of one country who can bring special expertise to bear on operations in another country." Today, for example, a Scot heads up the European operations of the GE's plastics and silicones businesses headquartered in Holland. Similarly, a Frenchman is transferring to GE-Europe's Brussels headquarters to work on GE projects with the USSR, and an Argentine now heads up Brazil-GE's service operation.

As a consequence, the agenda at Montreal included time for a special study to be given to the development of better plans for TCNs.

- **Improving identification and return placement.** Two problem areas receiving attention at

## GE's WORLDWIDE CAREER INTERCHANGE

***Bellamy H. Schmidt,** 27, is an FSE on assignment with Europe Business Division in Brussels: "An overseas assignment is invaluable, in my opinion, in providing a more complete understanding of the cultural factors that affect international communications."*

***James Heap,** 35, is an FSE on assignment with GE de Mexico as the affiliate's manager of strategic planning: "My assignment in Mexico isn't a cozy spot out of the main stream; it's a vigorous preparation for a future career step — anywhere in GE."*

***John Laaper,** 33, from GE—Germany, is now in marketing planning for Laminated and Insulating Materials in Coshocton, Ohio: "The days of haphazard international marketing are over. In the 1970's, you've got to travel abroad and meet the customers if you want to sell to them."*

Montreal were the identification of capable people and "return placement"—the process by which an employee re-enters his own national operations after an assignment abroad.

International's Jack R. Mulford reported to the Council that "much is being done to improve the process of identification. We are developing better procedures for spotting high-potentials, top local nationals and promotables throughout the GE world system. Also, we're tying identification with training exposure and career moves that will bring these people along most rapidly."

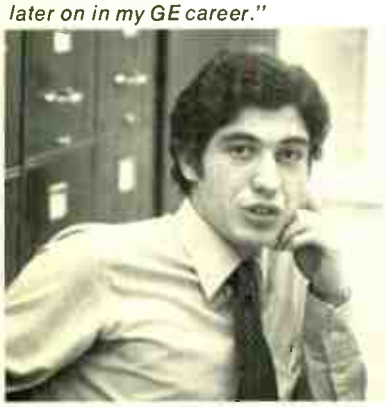
Similarly, the recycling of people is being strengthened. Says Roger Hawk: "It's essential to have effective programs by which people can re-enter their domestic operations. Much greater attention is also being given by domestic operators to return placement programs. We're seeing better results: a recent analysis shows many more FSE return placements, for example, involving promotions and higher levels than lateral placements or downgrades."

• **Opportunities for seasoned professionals.** If the impression left by Montreal is that International's new manpower emphasis is entirely a youth movement, a correction is in order. Says Carrol D. Houser, Executive Manpower Staff Consultant: "International operations, of course, need people at all age levels in the work force. We see a continuing need for the experienced professional who can take a short-term assignment abroad. Often these professionals have the advantage that their families are grown and on their own, so they're 'free' to try an overseas assignment. These seasoned professionals have been a source of strength in the past; we expect them to remain so in the future."

If the Montreal participants had any misgivings about the importance of their work, they had only to listen to the conference's principal guest speaker, Orville Freeman, former Secretary of Agriculture, who now heads up Business International Corporation. A key point made by Freeman was that multinational companies offer one means by which human creativity can transcend "beggar-thy-neighbor" nationalism and turn present world crises into opportunities for peaceful cooperation.

**Why take an international assignment?** The final assessment is that of Bob Haughton: "For most people an overseas assignment, whether in the U.S. or another country, turns out to be a highly stimulating experience, one that puts the individual on a very steep learning curve. The opportunities have, in the past, been limited by a number of practical considerations. Our meeting in Montreal, and the further meetings planned for this Council, have one overall objective: to remove these barriers and promote a free flow of people throughout the GE world system. Narrowly and immediately, we're trying to fill the manpower needs of our international operations. But, more importantly, we see these efforts as contributing to the transition of General Electric from a formerly domestically oriented enterprise to one that is a contributor and leader on the world scene."

***Jose S. Creixell,** 25, is from GE Española and is now with the International Management Program in Bridgeport: "When GE recruited me, I jumped at the chance to learn the business and see the U.S. I'm certain that this international experience will be an asset later on in my GE career."*



***Dieter Eberhard,** 35, of GE—Germany is now with the International Sales Division in New York: "What better way to learn global marketing than through international assignments? It's a terrific opportunity for anyone aiming at a career in the business world today, in my opinion."*

***J. Carlos Azambuja,** 30, from GE do Brasil, is also on an International Sales Division assignment in New York: "U.S. companies used to send Americans to manage all their branches in South America. But they have found that competent local nationals can establish greater rapport."*

# GE gas turbines: powering an entire country

When Brunei, a small country in Northern Borneo on the South China Sea, decided to enter its first electrical century, back in 1967, an 8750-kilowatt GE gas turbine generator was chosen for its ability to get on line quickly and reliably.

Thousands of kilowatts later, the demand for electricity by the 2,226-square-mile country's population of 140,000 has sparked a fifth order for GE gas turbines, which will soon bring Brunei's generating capacity to 62,850 kilowatts.

Oil-rich Brunei, which knows no gas shortage, is ruled by a 28-year-old sultan, and his entire country is powered by GE gas turbines.

"They have found over the years that not only do we have state-of-the-art equipment, but we meet our commitments," says Whitman Ridgway, Vice President and General Manager of Gas Turbine Products Division. "Many countries aren't accustomed to suppliers who meet time and price commitments."

### World wants turbines

From the sultanate in Borneo to searing Suez, from the frigid natural gas fields of the Soviet Union to steamy Sumatra, units from GE's Gas Turbine Products Division have recently been selected over competing manufacturers in six other countries and the United States. Examples:

**Egypt**, a new GE gas turbine customer, has joined the chain of international markets served by the Gas Turbine Products Division by ordering four 23,000-kw units for installation along the Suez Canal. The heavy-duty gas turbine power generating machinery, which will be situated at Port Said, Ismailia and Suez City, will not only supply electricity for people living near the canal but also provide the reliable electric power needed to operate the locks of the Suez Canal.

The Model 5001 Packaged Power Plants, factory assembled and tested in Schenectady, were purchased by the General Egyptian Electricity Corporation, an agency of the Egyptian government, and are being installed by the Egyptian power company, with the General Electric Technical Services Company, Inc. (GETSCO) serving in an advisory capacity.

### Mid-East market

"The Middle East is a rapidly growing market for gas turbine units for power generation and pipeline pumping applications," says Whit Ridgway, "and we've got several other projects working there that may bear fruit in the future."

**The Soviet Union's** record-breaking $250-million order for 65 modular gas turbine compressors, according to Vice Chairman J.S. Parker, "is an indication of the extent of the worldwide demand for GE gas turbine technology."

Production is already underway in the U.S. and at GE manufacturing associates in five other countries to fill the order for the 65 gas turbine compressors and related equipment for use in the Soviet Union's gas pipeline system.

When shipments are completed early in 1976, the installed equipment will pump the country's vast supplies of natural gas from distant fields to Soviet cities.

**Sumatra**, Indonesia, a large Indian Ocean island just south of the Malay Peninsula, is the Division's latest international customer. The country's government has ordered 12 heavy-duty, 28,000-horsepower GE gas turbines with options for 9 more for the liquefaction of its sizeable reserves of natural gas. Initial delivery is scheduled for Spring 1976, with completion of the order expected by the end of 1977.

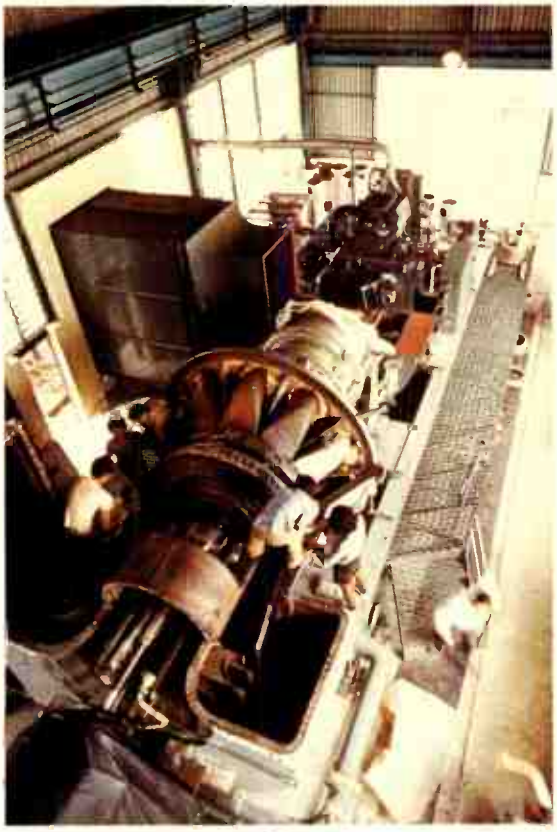
### Global service

Overseas customers give several reasons for selecting GE heavy-duty gas turbines over multinational competition. Superior metal alloys, allowing higher temperature operation and higher efficiencies, are the basis for GE's state-of-the-art designs. Installation and Service Engineering Operation maintenance anywhere in the world is a second asset. GE has chartered aircraft to fly in huge rotor replacements to Libya and dispatched Schenectady-based experts overnight to back up Middle East service shops in emergencies, for instance. Customers have responded with brand loyalty.

During the 1960-1973 period, the international area accounted for about 40% of the Division's total business, and this latest raft of orders from abroad is certain to enhance the already preeminent stature of GTPD in the global market.

## Big in Brunei —

**Now that General Electric gas turbine generators are on the job in tiny Brunei, electric lights have replaced flickering oil lamps in the sultan's palace, as the whole country enters the electric age.**



# Flights of recognition for Joan Black's terns

Three one-woman shows in recent months have documented the photographic talents of Joan S. Black, manager of Survey Operations for Public Opinion Research at GE's corporate headquarters in Fairfield, Connecticut.

She has concentrated on photographing terns—members of the sea gull family but, in Miss Black's view, "smaller, more active, graceful, agile and elegant."

Her most recent show was at the American Museum of Natural History in New York (from which the photo sequence shown here was selected). The others were at Cornell University, of which Miss Black is a graduate, and at the Cape Cod Museum of Natural History.

Tern photographs "by Joan Stormonth Black" have appeared in *Natural History*, *National Wildlife*, *Vanishing Wildlife*—a National Geographic publication, and on the cover of *On the Sound*, a magazine for Long Island Sound area residents.

Several of her pictures have been purchased for permanent display in the Environmental

1. Courting tern displays elongated tail feathers.
2. Parents take turns sitting on the eggs.
3. Warmed by the adult, a young tern begs for food.
4. Fish delivery.
5. Learning to fly.
6. End of the summer: young tern in flight.

Protection Agency building in Washington, D.C.

Miss Black has been a "serious" photographer since 1970, when, she says, "I was a weekend volunteer at the American Museum of Natural History field station on Great Gull Island, off Long Island's eastern tip. I started by taking pictures of the naturalists at work, but my interest soon turned from the people to the birds they were studying. So I began photographing tern behavior, especially sequences on the family life of terns that nested within my lens range."

Advice for people who want to go further in photography than the usual vacation picture-snapping? Miss Black: "Learn to photograph *one* subject well, with *one* kind of camera and *one* kind of lens, before you begin branching out. Don't just take pictures at random, of anything and everything, if you want professional recognition.

"Remember that photography beyond the snapshot stage is not inexpensive. Good cameras and lenses are expensive; so are developing and printing; so is film—I often use 20 rolls of film in a weekend." The investment, in Joan Black's case, was obviously worthwhile

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# The Hotpoint Story



**Hotpoint—that other GE brand whose name derives quite literally from a better idea in electric irons—has brought the kitchen a long way from the 1914 model at left to the 1974 version above.**

**The Monogram looks at how Hotpoint's business has grown from a housewife's idea in 1904... how it became a part of GE... and plans for the future.**

The time is 1904. The place: a modest turn-of-the-century room in Ontario, Calif., near Los Angeles. It is the home of Earl Richardson, a young and ambitious meter reader for the Ontario Power Co., and his wife, Mary.

In those days, virtually the only use for electricity in the home was for lighting. Consequently, generating stations in Richardson's California area operated only at night. But Richardson had an idea: if appliances used in the home could be electrified and popularized, then more power companies could afford to generate during the day, rates would come down and more people could afford to have electrical servants.

An electric iron had already been invented in 1882, but 23 years later it was still heavy and cumbersome, no better than the non-electric irons most women heated on their cookstoves. Richardson designed a sleeker, lighter model, passed out samples to utility customers, then persuaded his local utility to generate electricity on Tuesday, traditional ironing day.

**Initial acceptance was encouraging,** so Richardson left his meter reading job and set out on his own to manufacture electric flatirons. Sales by his Pacific Electric Heating Co. languished. Housewives complained that the iron, which relied on a wire-wrapped brass core to conduct heat to the base, got too hot at the center. Discouraged, Richardson turned to his wife: What to do?

"Why not," she responded, and here was born both the name and the inspiration for a great business, "why not make an iron with a hot point that women can use to press around buttons and ruffles and pleats and curtains and such?"

As in so many stories of successful men, it was a woman who provided the impetus needed for a major breakthrough. Richardson did just what his wife suggested, designing a new iron with heating elements converging in the tip.

The next year, 1905, he sold more "Hotpoint" electric irons than any company in the 45 states—and set Ontario on the course it still holds, as the "World Capital" among electric iron producers. The electric iron was the first electric appliance to gain general acceptance in the home.

But Richardson and his iron tell only half the story of the founding of Hotpoint.

While Richardson was reading meters and moonlighting on his electric iron, a Fargo, N.D., newspaperman, George A. Hughes, became fascinated with electricity—so fascinated that he quit his job and formed a new electric power company. More importantly, he was also tinkering with the first experimental electric range.

Hughes' mission was more formidable than Richardson's. Coal and oil stoves already worked fine—why should they be electrified? What's more, his experimental models were expensive and crude, with open wire heating elements in clay bricks that burned out after a few hours' use. But Hughes, who has come to be regarded as the father of the electric range, was as dogged as he was dedicated.

In 1909, convinced that the time had come for his electric range, Hughes sold out his utility company interests and moved to Chicago, where he founded the Hughes Electric Heating Company in a basement on South Dearborn Street. One of his experiments there produced the first loaf of bread to be baked by electricity.

**During the summer of 1910** Hughes packed up one of his bulky black electric stoves converted from second-hand coal and oil models and set up a display at the National Electric Light Association Convention in St. Louis. There he hoped to prove to electric utility men what Richardson had championed in the West: that getting electric appliances into the home would expand their business.

His canny demonstration of frying bacon and eggs and baking apples attracted crowds of people, and even a few orders.

For the next several years an itinerant Hughes stumped the land like a latter-day Johnny Appleseed, selling electric cooking. Gradually but certainly the electric range business caught on. As it did, Hughes' company increased production to meet demand. To make his product more desirable, Hughes attached white enamel doors and bright metal chrome to the black wrought-iron ranges, explaining that the kitchen-brightening eye appeal his product offered was not available from coal and wood stoves that had to remain black to hide smoke stains and soot. It was the first step toward the "white kitchen."

**Meanwhile, back in California,** Richardson's electric iron business was thriving. By 1914 the trademark "Hotpoint" was registered, a factory to serve the Midwest had been established in Chicago and the first shipment of appliances had been exported for sales in the Far East.

Then in 1918, to capitalize on their individual strengths, the Hotpoint Electric Heating Co., the Hughes Electric Heating Co., and General Electric's heating device section, three business operations with combined sales of about $14 million, were merged by GE into a new company, the Edison Electric Appliance Co.

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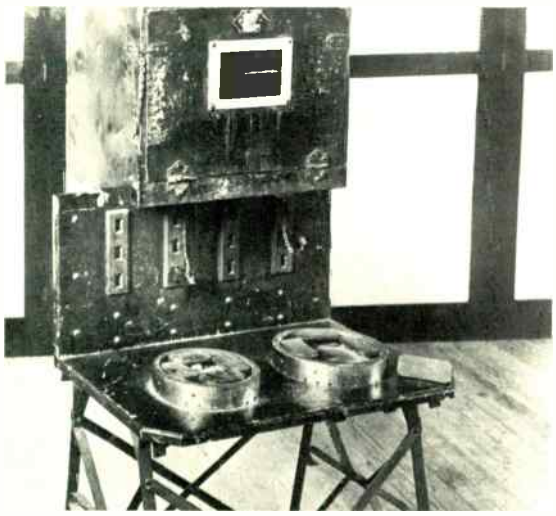


The new company manufactured Hotpoint appliances in Chicago, with George A. Hughes its first president. Indicative of how well electric living had caught on by the end of World War I is the company's 1918 catalog, which lists among many others such appliances as electric percolators, foot warmers, griddles, radiant heaters, ranges, chafing dishes, irons, sewing machines and vacuum cleaners.

**By the early '20's,** the Edison Electric Appliance Co. had established more than 27,000 retail outlets; furthermore, practically every home appliance utilizing electrical heat had been pioneered by Edison Electric. In 1923 the company revolutionized the range business by introducing the first all-white and fully enameled model; almost every other manufacturer tagged along the following year.

In 1931 the company changed its name to the Edison General Electric Appliance Co. A manufacturer of some 135 different appliances, the company in 1932 decided to drop its small appliance line and concentrate its research, engineering and selling resources on major kitchen and laundry appliances. Over the next eight years it introduced new ranges, refrigerators, dishwashers, a food waste disposer and clothes dryers.

During World War II all Hotpoint facilities were converted to defense production and some 750 Hotpoint employees joined the armed forces. Before the war's end, George Hughes, then Chairman of the Board, died.

In December 1946, Edison Electric became Hotpoint, Inc., and the following year a multi-million-dollar expansion program was inaugurated to meet the bulging postwar demand for major appliances. During these postwar years Hotpoint accelerated its policy of pioneering product developments by introducing an automatic clothes washer, lighted pushbutton-controlled ranges, combination refrigerator-freezers and a completely automatic dishwasher with dial control.

**Then, in June of 1952,** Hotpoint was formally consolidated as a division of General Electric. Hotpoint became a brand rather than a separate company, but its leadership role continued. In 1954 came the first complete line of built-in appliances,

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**Earl Richardson, of California, top left, was the originator of the "Hotpoint" iron. George A. Hughes, top right, started his own Chicago-based company to pioneer electric ranges like the primitive 1909 model.**

**Retail Sales Division VP Clemmens, left, and Contract Sales Division VP Andres, right, market the thousands of Hotpoint major appliances rolling off Louisville and Columbia assembly lines.**

a Hotpoint first that is taken for granted in today's kitchen, but was then a major advance for builders with whom Hotpoint remains a favorite brand.

Hotpoint firsts in the '60's included the first refrigerators on wheels, refrigerators with thin-wall insulation, electric ranges with removable Teflon panels, a 16-pound capacity washer and other washer innovations.

Today, Hotpoint operations are guided by William B. Clemmens, VP of GE's Retail Sales Division, and Arthur E. Andres, VP of the Contract Sales Division. They oversee the two important ways both GE and Hotpoint appliances reach the hands of consumers: retail sales through dealers and installation by builders, contractors and mobile home builders.

Hotpoint, on the eve of its 70th anniversary, remains a separate product line with its own network of dealers. Retail Sales VP Clemmens comments on the relationship between GE and Hotpoint: "We operate," he says, "with a great sense of commonality of purpose today. The quality of both lines is high because they are built and tested in the same manufacturing facilities."

Hotpoint's sales growth curve allows no room for the opinion that it is a neglected part of the GE major appliance family. The five-year plan to double Hotpoint's retail business in the period 1970 to 1975 has been exceeded. Sales have already doubled, a year ahead of schedule. And in every one of those years Hotpoint has outpaced the industry in retail sales growth.

**Broadening of opportunity** within a market is the major contribution Hotpoint makes to GE today, Clemmens told the *Monogram*. "Our opportunities to sell are greater, just by the arithmetic of the number of dealers we can appeal to."

But there are more than just extensive sales outlets involved in the continuing strong contributions of Hotpoint to total sales. Contract Sales VP Andres: "A lot of it has to do with past loyalties. Remember, Hotpoint started the range and dishwasher businesses, it has a long heritage and has a very strong product line. Ranges and dishwashers are essential in the building business, so Hotpoint has a great deal of strength in the building business. A big part of it is that these customers like doing business with Hotpoint people. Most builders are not company-owned, they're individuals, and they get used to doing business with Hotpoint individuals—they like the service they get from Hotpoint people. That's what we emphasize with Hotpoint. For the last four or five years we've stressed the 'Hotpoint hustle' theme—Hotpoint isn't number one so we have to try harder, work harder, we have to hustle a little bit more to sell our products."

*(continued next page)*

## Hotpoint Historical Firsts

| | |
|---|---|
| 1905 | First electric appliance to be generally accepted: Earl Richardson's electric iron with the "hot point." |
| 1905 | First appliance service for consumers: instituted by Earl Richardson. |
| 1908 | First carload of appliances shipped cross-country: from Richardson's Ontario, Calif., plant to Chicago. |
| 1908 | First appliance manufacturer to advertise in a national magazine: Pacific Electric Heating Co. in *LIFE*, 1909 in *Collier's* and first double-page appliance ad in *Saturday Evening Post*. |
| 1909 | First electric range: developed by George Hughes, later to become Hotpoint's first president. |
| 1909 | First one-piece wrap-around range body: still used today. |
| 1913 | First electric dishwasher. |
| 1916 | First carload of electric appliances shipped across an ocean: 5,000 electric irons, from Ontario, Calif., to China, India and Australia. |
| 1920 | First cooking school co-sponsored by a newspaper: Edison Electric Appliance Co., school in Seattle. |
| 1924 | First all-white, fully-enameled electric range. |
| 1936 | First front-loading dishwasher. |
| 1937 | First line of matched kitchen and laundry appliances. |
| 1940 | First fully-automatic dishwasher with electric drying. |
| 1947 | World's largest electric range plant built: in Cicero, Ill. |
| 1947 | First two-door combination refrigerator-freezers. |
| 1954 | First complete line of built-in appliances. |
| 1956 | First refrigerator on wheels. |
| 1960 | First refrigerator with space-gaining, thin-wall insulation. |
| 1963 | First electric range with removable Teflon oven panels. |
| 1965 | First sixteen-pound-capacity automatic washer. |

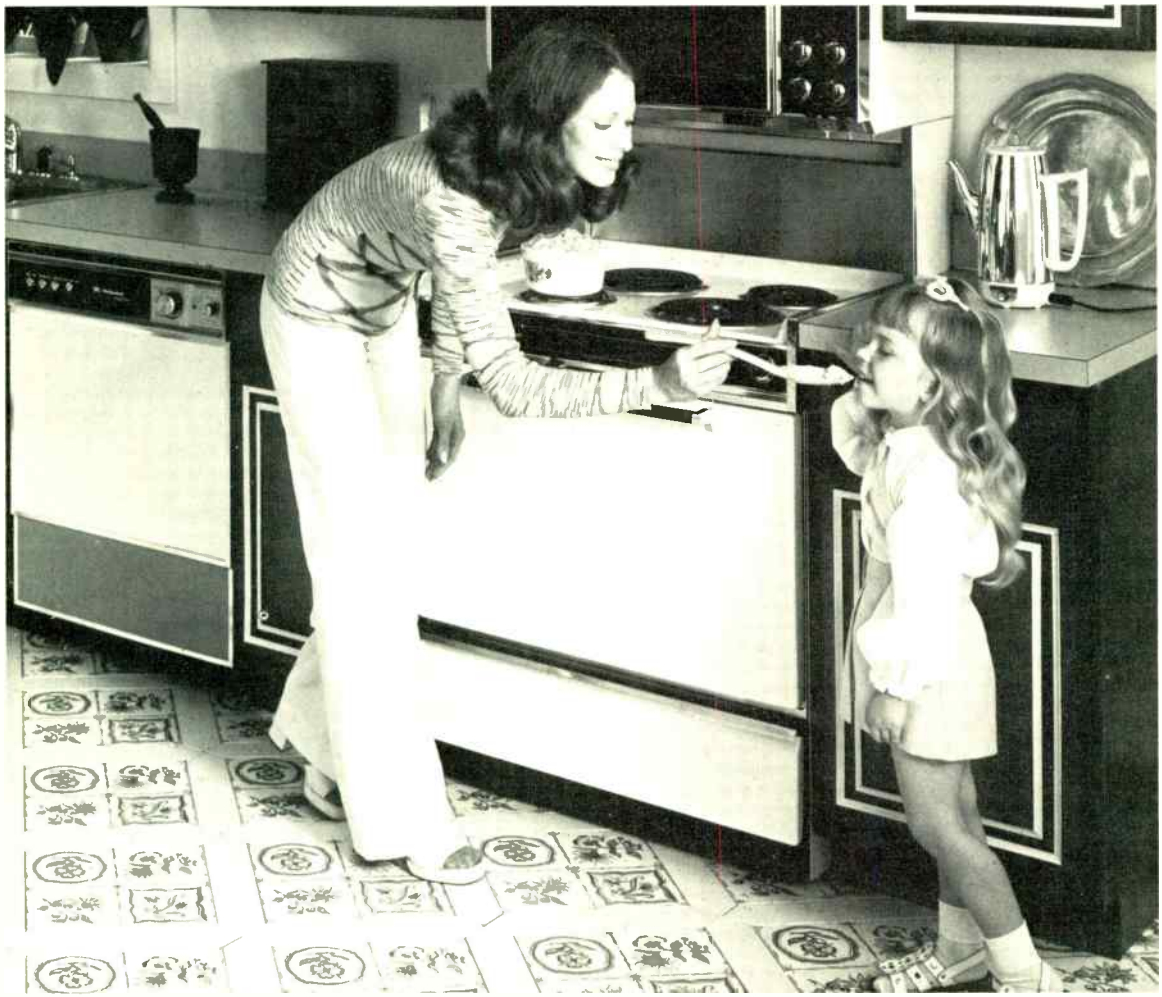
Hotpoint advertising today retains another distinctive thrust, Clemmens explains. "We're putting this brand across as the 'full family of appliances,' encouraging awareness of the already great loyalty to Hotpoint as a name from the past."

The future for Hotpoint involves continuing industry leadership in the strongest growth areas, both Clemmens and Andres agree. Andres comments on the bright prospects for replacement sales in the contract markets, for instance: "All of the multi-family units that went up in the early '60's have goods that are ready for replacement. But we don't want these just to be replaced but to be upgraded, moving up to frost-free refrigerators, self-cleaning ranges, sound-shielded dishwashers. We also want to increase the usage factor of low-saturated items like dishwashers and compactors."

The replacement market is, of course, the major sales area on the retail sales side and Hotpoint is concentrating on making replacement faster and easier. Clemmens: "We realize homeowners want to replace out-of-date built-ins, but often can't afford the cost of the appliance plus installation charges. So we have simplified the installation job to the point where the average handyman can tackle it with reasonable anticipation of doing it right the first time, introducing a special Dishwasher Replacement Installation Kit which makes possible replacing almost any brand of built-in dishwasher with a Hotpoint model."

Clemmens elaborates on Hotpoint's basic credo of retail sales growth: "To continue the growth, in profits as well as in customer acceptance—one can't go without the other. You can make money for a short period, but if you don't build that customer acceptance, then you're not building the kind of business that has longevity. When you see the growth we've made so far, you have to conclude we're doing that kind of solid building.

"Looking into the '70's and early '80's, we're much better off in the appliance industry with Hotpoint in the GE family than we would be without it. You're going to see this arrangement for a long time to come."



# Transporting People Electrically

**In this fifth article in a series on opportunities for electricity in the U.S. energy future, the Monogram probes into two aspects of electrical transportation: mass transit and electric automobiles.**

Some 26% of all energy consumed in the U.S. goes for transportation.

By contrast, only four-tenths of one per cent of the nation's electric power is used to move people and goods.

Consequently, in any long-term look at opportunities to accelerate the swing to an electric economy, transportation must loom large.

But the consensus of GE experts is that opening up those opportunities will require tough, hard work.

"The future for moving people electrically is clouded with uncertainties," says Dr. Thomas A. Vanderslice, VP and Special Systems and Products Group Executive. "There are uncertainties as to whether energy-efficient mass transit will be allowed to develop fully. And for electric private transportation, the future is clouded by uncertainties in technical developments."

**The case for electric** mass transit is clear: a way out of congested city streets, a diminution of air pollution, and sharp advances in the more efficient uses of energy.

Nevertheless, mass transit is sputtering—stalled for lack of adequate funding and agreement on who should provide that funding. Says Vanderslice: "Can you name a mass transit system in the country that's making money? The combined deficits of American mass transit systems in 1973 totaled $800 million. For existing systems, such as those in New York, Philadelphia, Boston and Chicago, present and proposed levels of national funding appear to be adequate for important modernization programs. However, there is no sign of the availability of significant funds from the federal government for the construction of new mass transit systems in Los Angeles, Miami and Rochester."

Yet stalled as it may be, mass transit isn't permanently derailed, Vanderslice believes. Favorable trends have become evident in 1974. Urban transportation has reversed a 25-year decline and shown consistent ridership gains. Sparked by last winter's energy crisis, the growth continued as the crisis eased and new riders apparently stayed with mass transit. A September 1974 total ridership figure for 120 cities was up 7.8% from September 1973.

The GE-powered Lindenwold Hi-Speed Line links downtown

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**VP Vanderslice and the GE-powered Lindenwold line: a financial model for developing mass transit?**


**Work goes on at the Transportation Systems Business Division's modern transit car assembly building in Erie.**

Philadelphia with the thousands of commuters in the Camden area suburbs of New Jersey and is perhaps the most successful recent example of the proper application of mass transit technology.

With just 267 employees, from car cleaner to general manager, the Port Authority Transit Corporation (PATCo) has the highest ratio of passengers to employees, 150-1, of any rail transit system in the world, according to traffic supervisor David L. Andrus. Yet the line efficiently and economically moves 40,000 passengers per day, or ten million per year, over the 14.5-mile route from 16th Street in Philadelphia across the Delaware River and on to Lindenwold, New Jersey, achieving a 98.5% record of on-time performance.

Since the Lindenwold line went into service in 1969, it has drawn some 40% of its fares from the bumper-to-bumper ranks of former automobile commuters.

**The Lindenwold experience** includes some other highly pertinent pluses. It's estimated, for example, that the line saves each individual commuter some 400 to 600 gallons of gasoline per year. And with its emphasis on operating efficiencies, the line may well become a financial model. Aided by tolls paid by users of the Delaware Bridge, Lindenwold more than covers operational expenses, despite modest fares in the 35-to-75 cent range.

"What PATCo was able to do in that situation should stimulate thinking on some basic questions," says Vanderslice. "In our view, funds should be re-allocated in a more balanced way between mass transit and highway construction. The question is—will the federal government take a broad look at the overall transportation problem and the cost-effectiveness of various means of transportation and allocate monies accordingly?"

In summary, electrical mass transit is a technology that could trigger a huge swing to electricity—if its funding problems ever got solved. But no one is predicting how soon that will happen.

For most Americans right now, however, mobility is still symbolized by their automobile.

"Most people's idea of mass transit is driving down an empty highway while everyone else takes the train," says Dr. Vanderslice. What is the outlook for an electric revolution in this area? There's general agreement that the electric car's future is a long way off—yet a close-up look shows it making definite headway in some specialized parts of the whole.

The main barrier to widespread use of electric cars remains the familar one: the available batteries aren't good enough to compete with the internal combustion engine. The fact is that one pound of gasoline provides as much energy as a 100-pound battery. Average range for today's electrics: 60 miles at 20 mph or about 30 miles at 50 mph—then an eight-hour recharge.

**The specialty markets** are booming, however. Over-the-road work vehicles—delivery vans and mail trucks—are backordered for months. "About 50% of in-town multi-stop work vehicles have a daily range which would qualify them for replacement by electrics," says Melvin "Teb" Feroe, Assistant to the President of Battronic Truck Corp., in Boyertown, Pa., a leading manufacturer of electrics and user of GE motors and controls. Planned communities, with their closer knitting of jobs, schools, communities, services and families, are taking a look at using two-passenger electrics as runabouts within the community. Examples include Hilton Head Island, South Carolina and Woodlands, outside Houston, Texas.

As for uses beyond these specialty markets, hopes center on battery research—most specifically, today, on the sodium-sulphur battery.

Work has been underway since September of 1973 on this type of battery at GE's Corporate Research and Development Center. The primary goal under this Edison Electric Institute contract is possible use in bulk electricity storage at utilities, but the battery is also under consideration for electric vehicles. "The

battery has an energy density five times that of lead-acid batteries but, among other problems, it still has to be operated at a temperature of at least 350°F —a serious problem in a car," says Dr. James M. Lafferty, manager of the Physics and Electrical Engineering Lab for CR&D.

Dr. Lafferty recently returned from West Germany and the Netherlands where he saw the private electric automobile in a considerably higher state of development than in the U.S., despite battery limitations. He reports: "In Amsterdam they envision a major shopping section of the city being off-limits to all but special credit-card-rented electric cars. In Essen, West Germany there are 100-passenger electric buses with quick-replacement batteries in revenue service."

**In this country** GE is prominent in supplying motors and solid state controllers to the leaders in the mini-renaissance.

The tiny electric vehicle industry could grow to a level of 250,000 vehicles a year by 1980, according to some optimistic estimates. It is being helped principally by the threat of fuel shortages and the efforts to control pollution. No one sees replacement of more than a tiny fraction of the existing 115-million-vehicle pool until a battery breakthrough, however.

Meanwhile, other alternatives are being proposed. Electric city buses, already in experimental operation in Long Beach, California, could be a transition step between private cars and new rail mass transit projects or a permanent part of the electrical transportation solution. Other innovative possibilities: dial-a-ride computer-controlled taxi vans, personal people-movers in the form of moving sidewalks or overhead city monorails. A Monocab System which would be the nation's first commercially built personal rapid transit system has been proposed for Las Vegas and its airport.

"At the present time the Company is not hopeful for the more exotic forms of personal rapid transit," Vanderslice says. "From what we have been able to see, they're fundamentally uneconomical—won't pay for themselves."

The best balanced business point of view is the Company's target in the transportation business. Vanderslice believes GE is on target. "Note," he says, "that all the proposed solutions have one thing in common—they're electrical—and they require basic strengths we already have. We are not just in the self-propelled transit car business; we also hold very strong positions in propulsion systems and components for mass transit. Our systems are going to propel the Stockholm subway, for instance, something few people hear about.

"GE strengths in the transit business," Vanderslice continues, "extend to all kinds of associated equipment like communications gear from Lynchburg, automation equipment and power distribution equipment."

**Summing up,** Vanderslice says: "The Company is carefully watching what is essentially a political, sociological and economic transition period in U.S. transportation history. We are confident that the urgent and pressing need for more mass transportation as the first order of business will find a political and economic solution and that GE will be transporting people electrically in increasing numbers."

**The Battronic electric Minivan is successfully covering a 90-stop-per-day mail route in Spokane, Washington. The GE powered and controlled vehicle uses less than 1¢ worth of recharging electricity per mile.**

# Cancer — what can be done?

Cancer is second to heart disease as the leading cause of death in the U.S. But it is more feared than heart disease; to most people, a diagnosis of cancer means a death sentence. They are familiar with the visible and often spectacular progress being made against heart disease—advances in open heart surgery and even heart transplants—but they still think of cancer as always "incurable."

Is such an attitude valid? What should the individual know about cancer? How can he guard against this stubborn threat to life? What are his chances of being cured of cancer? What *can* be done?

The *Monogram* interviewed the Medical Director at the Syracuse GE Medical Center, Dr. Raymond Jacques, who recently initiated a highly successful cancer detection program for GE employees in the Syracuse area.

**Dr. Jacques, are people justified in thinking of a diagnosis of cancer as a death sentence?**

No. There is no need to be as pessimistic as most people are. New methods and machines for cancer detection are being developed every day. For example, GE itself markets the Spectrotherm® and a mobile mammography unit, among other diagnostic aids.

And many types of cancer, if detected and diagnosed early, can be effectively treated—with surgery, radiation or chemotherapy, and sometimes with a combination of all three.

More than 200,000 Americans with cancer will be saved from death this year—that's about one out of every three patients. And with early diagnosis and prompt treatment, an additional 100,000 could be saved, bringing the ratio down to one out of every two patients. There are more than 1½ million people in this country who are currently listed as cured of cancer, meaning that they have been without evidence of the disease for at least five years after treatment.

There are additional millions who have been cured of superficial skin cancers and precancers of the cervix. Cancer is *not* always fatal!

**All right. We accept a more positive view. But with the cause of cancer still unknown, is there anything a person can do to protect himself against the disease?**

In its early, most curable stage, cancer usually causes no symptoms obvious to the layperson. But cancer at this early stage can often be detected by a physician.

So the first and basic safeguard is to have regular physical examinations—every three years up to age 34, every two years from 35 to 44, and annually after the age of 45.

If possible, both men and women over 40 should have their doctors include a proctoscopic examination for colon-rectum cancer as part of a physical check-up. Colon-rectum cancer occurs about equally in men and women and will strike about 99,000 Americans this year. And three out of four patients might be saved by prompt treatment following early diagnosis.

Women should, of course, have an annual Pap test for detection of uterine cancer.

And because breast cancer is the leading form of cancer in American women, every woman should have her doctor teach her how to examine her own breasts, and should conduct such a self-examination once a month.

Other safeguards would include the avoidance of excessive exposure to the sun—too much sun can cause skin cancer—and of course, the reduction and ultimate elimination of cigarette smoking, which contributes heavily to the rising death toll from lung cancer.

**We've heard about the cancer "warning signals" publicized by the American Cancer Society. What are they and what do they mean?**

There are seven warning signals:

- Change in bowel or bladder habits.
- A sore that does not heal.
- Unusual bleeding or discharge.

- Thickening or lump in the breast or elsewhere.
- Indigestion or difficulty in swallowing.
- Obvious change in a wart or mole.
- Nagging cough or hoarseness.

They do *not* necessarily indicate cancer or a precancerous condition; in fact, more often than not, the symptom is caused by some other problem. But if any one of the symptoms persists for as long as two weeks, a medical check-up is definitely indicated.

Incidentally, it's easy to remember the warning signals if you keep in mind that the first letters of the seven symptoms spell CAUTION.

**Dr. Jacques, what was it that your Medical Center did recently for GE employees in the area of cancer detection?**

General Electric was the first industry in Syracuse to offer women employees free Pap tests for uterine cancer detection. We wanted to familiarize GE women with the simple procedure and remind them of the importance of having annual Pap tests at a clinic or doctor's office.

Uterine cancer has become the third most common form of cancer in American women; the Pap test is an easy and painless way of detecting the disease, even in its early stages, and prompt detection can help significantly in saving lives.

**Was the free Pap test program a success?**

Definitely. We scheduled appointments over a three-day period, and 98 women participated.

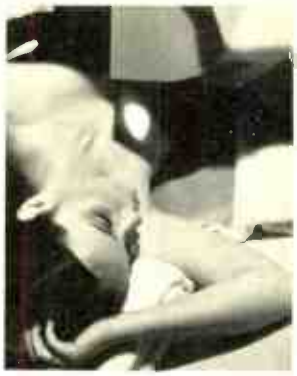
That may not seem like a very large number, but it is meaningful when you realize that this was a pilot project and we were primarily interested in helping women who had never had the examination or had procrastinated.

We also know that many women, largely through ignorance, are fearful of the procedure. We believe that the women who participated have now disseminated the message that the experience was not a harrowing one, and if we organize a similar clinic in the future, there will be even greater participation.

**Did the three-day clinic include any additional cancer-detection information for the women who took part?**

Yes. Employees were given the opportunity to watch an audio-visual demonstration and explanation of breast self-examination. It's steps like these, we believe, that will lead to making cancer less feared—and less effective as a killer.

# GE products join in the cancer fight



**Two products of GE's Medical Systems Division—the MMX® mobile mammographic X-ray system, top, and the Spectrotherm® thermographic system—are designed specifically for use by physicians in breast cancer detection.**

**The Spectrotherm is an infrared scanning system which uses thermography to discover possible breast cancers in their earliest stages of development.**

**Because tumors have a higher blood uptake than normal surrounding tissues, skin heat at a tumor site is increased, and that increased heat can be readily detected by the Spectrotherm unit. With the patient seated in front of the unit, a "scan" is produced in only two seconds and displayed on the unit's TV-like screen. The image is photographed and can be simultaneously recorded on video tape.**

**If an abnormal pattern is revealed, the patient will then receive an X-ray examination.**

**The MMX mammographic X-ray system is a compact mobile unit designed solely for breast examinations.**

**Also of substantial importance in cancer detection procedures is GE's Maxiscan whole body scanner, which "counts" the concentration, at possible tumor sites, of short-life radioactive substances previously injected into the patient's body.**

**Together.** That's how one of Switchgear's Minority Intern Program (MIP) participants characterizes Donald D. Scarff, GE's Vice President—Atlantic Regional Relations. "He was together. . . . Mr. Scarff didn't talk down to anyone. He just talked sense." Scarff met recently in Philadelphia with 21 young people representing three groups of GE minority employees—MIP, co-op students attending college and working, and the Company's local Development Program for Minority Professionals on GE career opportunities.

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**Hotpointer.** November ushered in the regime of a new manager for Hotpoint's New York Zone. Her name is Carolyn McDonald; she's been with the Company 28 years, and she was Manager—Sales Planning for Hotpoint's New York District before being named to her present post. *The Specialist*, an appliance trade magazine, recently dubbed her "Hotpoint's problem solver" and cited her for a quarter century of successful work with Hotpoint dealers in the New York metropolitan area.

**Strategist.** As the only woman member of General Electric's corporate strategic planning team, 32-year-old Linda Bryant believes that women who produce in business deserve and can get equal treatment. A 1962 graduate of the New York University School of Commerce—one of the few women in her class, she was a successful securities analyst before joining GE. Mrs. Bryant says that what impressed her most about the Company was her assessment of the management and its commitment to establishing an efficient and honest system of perceiving and analyzing facts about the corporate environment.

●

**Winner.** The 1974 "American Business Woman of the Year" award, given annually by the American Business Women's Association, was presented to Alma Joan Daugherty, of GE-Louisville, at the 25th annual ABWA national convention in Denver, Colorado. Miss Daugherty, who joined GE in 1953 as a secretary and has since earned both her bachelor's and master's degrees in night school at the University of Louisville, is Supervisor — Financial Data Liaison, Range and Dishwasher and Disposal Products Divisions, for the Major Appliance Business Group.

# ORGANIZATION CHANGES

### CORPORATE

**Richard E. Schlegel,** *Staff Executive—Financial Planning and Analysis.*

### AEROSPACE BUSINESS GROUP

**Thomas I. Paganelli** *elected a Vice President.*

### COMPONENTS AND MATERIALS GROUP

**James M. Warren,** *General Manager—General Purpose Motor Products Department.*

### POWER GENERATION BUSINESS GROUP

**Elbert F. Lowell,** *General Manager—Energy Systems Programs Department.*

### INDUSTRIAL AND POWER DELIVERY GROUP

**Robert B. Kurtz,** *Vice President and Group Executive—newly established Industrial and Power Delivery Group.*

**Arthur E. Peltosalo,** *Vice President—newly established Power Sales Consolidation Project.*

**James S. McClea,** *General Manager—Large AC Motor and Generator Products Department.*

**James F. McGuckin,** *General Manager—Power Circuit Breaker Products Department.*

# SAVING PANAMA'S MULE

Not all faithful GE products come to such a well deserved end, but after 50 years of towing ships through the Panama Canal, and another ten as a homeless hunk of rust, General Electric towing locomotive or "Panama mule" No. 686 has found a place of honor at the Roanoke, Virginia Transportation Museum. Thanks are due in part, we say modestly, to the *Monogram*.

Of more than 100 25-cycle electric mules built by GE for the Panama Canal after it was electrified in 1914, only three are known to exist today. When the Canal was renovated in 1964, new 60-cycle-equipment replaced the last of the original towing locomotives, and most were sold for scrap value.

At least four electric mules, each with its own winch and cable, were required to move vessels through the Canal, while larger ships, such as the Battleship Missouri, needed 12 of the units, six on either side, in order to keep ships from brushing the Canal's concrete walls.

Weighing 42 tons each, and crammed with electric motors, gear trains, cog wheels, winches and controls, the Schenectady-built electric "Panama mules" represent one of the earliest successful applications of three-phase AC electric power to traction equipment, according to retired GE engineer J. D. Thompson, who brought No. 686 to Schenectady in 1964 when it, too, was retired.

Eight years later, the proposed "American Museum of Electricity" planned for Schenectady still had not been built, and Thompson wrote to the *Monogram* to solicit a home for the unusual vehicle.

*GE mules towing the H.M.S. Hood through Panama Canal in 1924.*

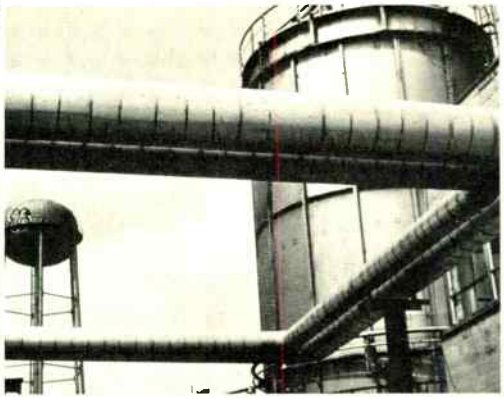
That letter, published in the May-June 1972 issue, aroused the interest of J. E. Dorn Thomas of Roanoke, now manager of ICPD's plastic machinery unit, who was born in the Canal Zone, and in the 1950's worked as an electrician on the locks his father helped build between 1907 and 1912.

Dorn contacted the Roanoke chapter of the National Railway Historical Society, convinced them of the mule's value as a public exhibit, and personally paid the moving expenses.

Meanwhile, the Railway Society had organized a "Save The Mule Fund," which covered the costs of sand blasting, repainting and restoring the ancient, rusting locomotive.

Official dedication is scheduled for Memorial Day, 1975, when old No. 686 will be presented to the city of Roanoke, Virginia, in memory of the men and women who participated in the construction and operation of the Panama Canal.

*GE Panama Mule No. 686 as it looks today.*



RECO's Hank Heddesheimer left, and some energy-saving success stories. Examples are at

# ENERGY CONSERVATION

**One year after the energy crunch began, GE's efforts to save energy have been productive. Caution: more shortages ahead.**

A whopping $25 million in energy costs has been saved as a result of the GE energy conservation program launched one year ago, and the goal of a 15% energy savings as compared with 1973 has been achieved.

As exhilarating as this news may be, however, it's tempered by a warning that we're "in the eye of the storm" in respect to energy supplies.

According to Henry E. Heddesheimer, manager of Plant Engineering Consulting for the Real Estate and Construction Operation, the Company effort to save energy has been "extremely successful." The prime goal of the program has been to keep GE people at work and to continue serving customers without interruption. "Even though many plants received a 90% oil allocation, had greater than normal natural gas curtailments and experienced other energy shortages, production levels were maintained through the careful use of the energy available," reports Heddesheimer.

The General Electric boxscore of energy savings on an annualized basis: 33.2 million gallons of oil, 58 thousand tons of coal, 615 million kilowatt hours of electricity, 3.9 billion cubic feet of natural gas, and 70 million pounds of purchased steam.

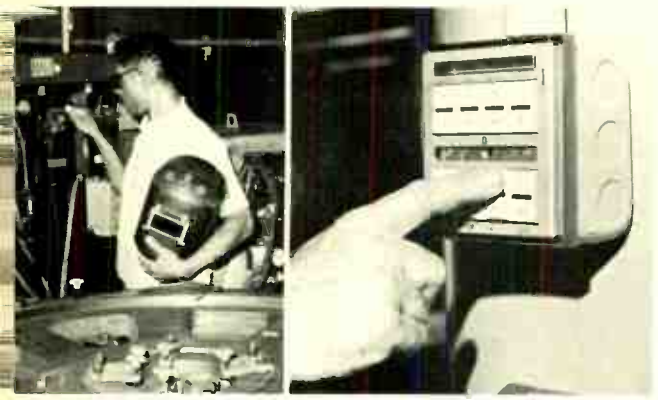
Heddesheimer, who has been actively involved in GE energy conservation for over ten years, has been working closely with 43 division energy coordinators across the Company. He reviews progress, conducts an information exchange, and submits monthly progress reports. Some 400-plus energy-saving ideas have been listed to date, with their impact multiplied via distribution to all energy coordinators.

How the Company achieved its energy savings is suggested by scanning the list of over 400 proven ideas: sealing unnecessary building openings, controlling ventilation and exhausts to minimum needed, lowering plant temperatures, recycling process heat, checking pipe insulation, reducing boiler pressures to minimum required, checking combustion equipment for proper fuel-air ratios, optimizing loads for production equipment, installing timers on equipment and switching to high-efficiency light sources.

"The opportunity for savings in energy is great," emphasizes Heddesheimer, "and is a little like an iceberg: the more you eliminate what's visible, the more that surfaces."

How to measure energy saved? "The system we're using is, in my opinion, a reasonably true measure of energy saved, not just an accounting of energy used," explains Heddesheimer. "Energy savings are derived by calculating and annualizing the savings from each specific energy conservation action, step by step, plant by plant — not by comparing meter readings of this year vs. last. Thus, an expanding business operation, where total energy consumption may be increasing, receives credit for energy conservation actions which prevent energy use from rising even further, but an operation does *not* receive credit for reduced energy use when that reduction results from production cuts or weather variances."

An analysis of total fuel-and-energy-saving results to date on a Company-wide basis shows that the greatest savings — about 30% — are found in plant heating, ventilating and air conditioning systems. Another 20% each comes from eliminating leaks and from better utilization of equipment. The remaining 30% comes from more efficient lighting, installation of timers and interlocks and a variety of miscellaneous opportunities.

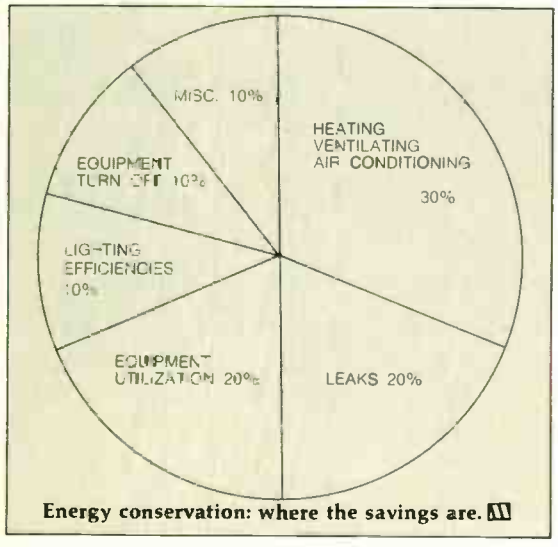


Aircraft Engine Group's Evendale plant.

"A rather noteworthy fuel substitution plant is nearing completion of construction in Lynn, Massachusetts, where our River Works will use steam produced by burning solid waste," notes Heddesheimer. "Annual energy savings will be equivalent to about 12 million gallons of residual oil."

While the first year's program has been effective at General Electric, Heddesheimer warns against complacency: "We're in the eye of the storm. Last winter we had a taste of things to come. As an example, there have been natural gas cutbacks every year since 1970. Some estimates point to a 50-70% greater curtailment of natural gas for industry this winter.

"I hate to sound like a 'doomsday forecaster,' but I just cannot see any short-range relief from the energy problem. The one immediate relief we have is assuring that we're using every BTU of energy as effectively as possible. More than ten years ago, we started an energy conservation program at GE geared to stopping waste. It wasn't an austerity program then. It *is* now."




**Energy conservation: where the savings are.**

## SCORE — Another way to help

*Editor's note: After the article on GE retirees appeared in the July/August Monogram "They've retired — to apply their skills in foreign lands", we received this letter telling of a third way they can use their experience.*

Ten years ago I read in the *Wall Street Journal* that the Small Business Administration was recruiting retired executives to volunteer as non-paid consultants for small businesses. I had been retired from GE as a District Sales Manager for the General Electric Supply Co. for a couple of years and applied for the job. I was accepted, and became a charter member of the Buffalo Chapter of the Service Corps of Retired Executives.

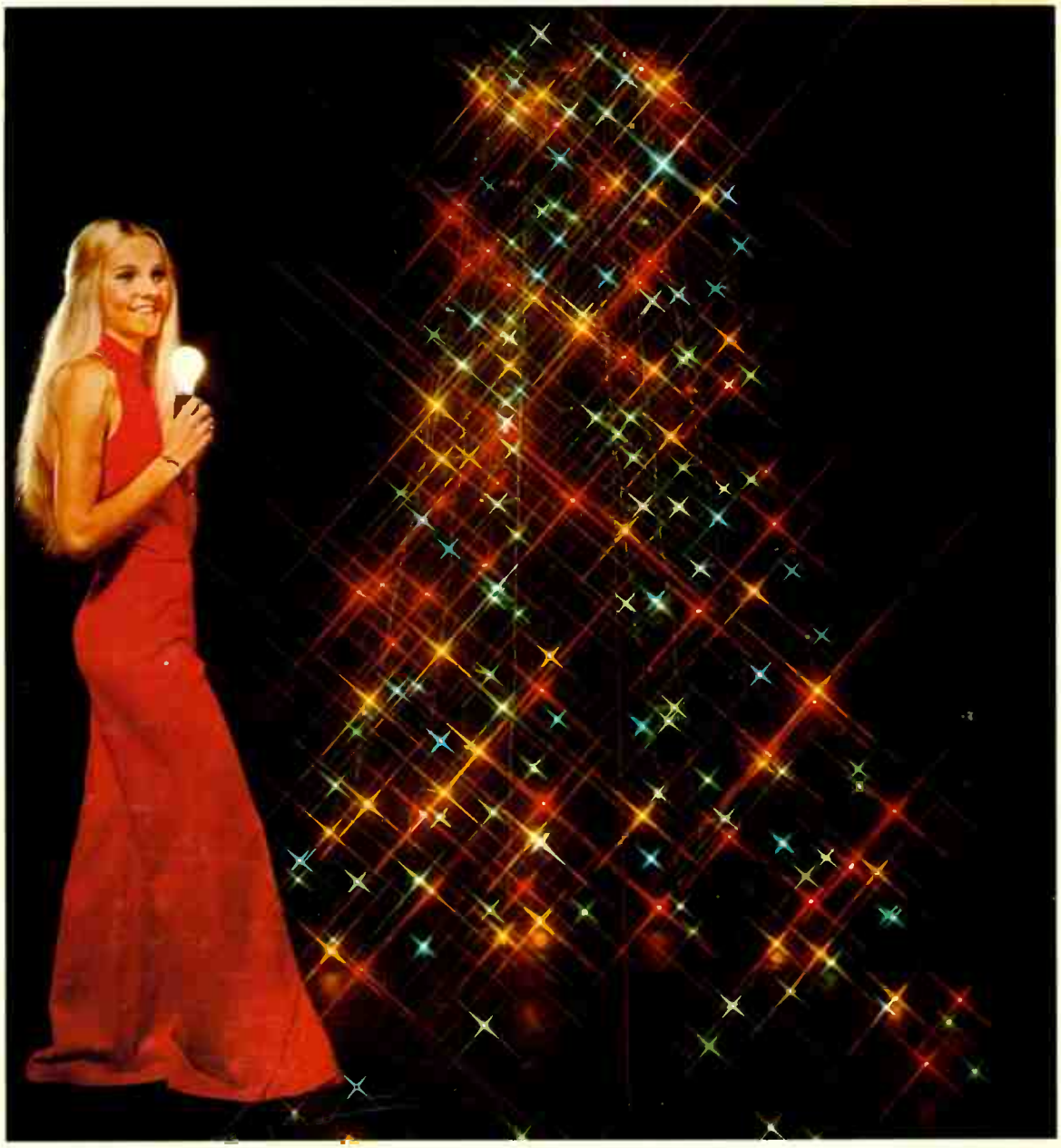
SCORE cooperates with the Small Business Administration in trying to help all small businesses to be profitable and cut down the number of bankruptcies in order to contribute to the economy of the nation. Five thousand volunteers are part of SCORE chapters in every large city in the nation.

During the last ten years I have handled many cases, ranging from a $2,000,000-a-year industrial distributorship to a corner delicatessen to people wanting to start new businesses.

There have been failures as well as successes, but those of us now serving in SCORE are finding the work a most rewarding experience, broadening our outlooks, and keeping us young. I get a much bigger kick out of turning a business around and saving some from bankruptcy than I could ever get making a hole in one or winning in shuffleboard.

I would like to urge all retired or retiring GE employees to offer their services to SCORE.

*Aldred K. Warren, Jr.*
*Buffalo, N.Y.*



**Christmas lights will glow again this year** after last year's lapse during the worst of the energy crunch. With the Federal Energy Administration's go-ahead, GE is encouraging the public to decorate tastefully and conserve energy at the same time. By turning off one 100-watt lamp, for instance, homeowners can decorate with more than 250 Merry Midgets, above, and still use less power.