

GENERAL  ELECTRIC  
**Monogram**  
SEPTEMBER, OCTOBER 1974



**NEW DESIGNS FOR ELECTRICAL LIVING**  
Plus: The electric power challenge,  
Jones at the summit, sending King Customer to school

**GENERAL ELECTRIC**  
  
**Monogram**  
 SEPTEMBER-OCTOBER 1974

VOLUME 51, NUMBER 5

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 bi-monthly 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. Permission for reprinting articles should be obtained from the Monogram Editor, Fairfield, Connecticut, 06431. Copyright, 1974, General Electric Company.

*Editor*  
 EDWARD H. MORGAN, JR.

*Associate Editor*  
 WARREN P. RUSSO

*Editorial Assistant*  
 CAROL A. OLCHA

*Design*  
 LIKA ASSOCIATES, INC.

Contents of this issue

THE COMPANY . . . . . Pages 2-13  
 The electric power challenge •  
 The big move • Jones at the  
 summit • Monographs

COVER STORY . . . . . 14-17  
 New designs for electrical living

MONOGRAM SERIES . . . . . 18-21  
 Electrifying industry

PEOPLE . . . . . 22-28  
 King Customer goes to school •  
 A talk with Marion Kellogg •  
 GE bonus babies •  
 Organization changes

PRODUCTS . . . . . 29  
 Making ERTS work harder

PERSPECTIVES . . . . . 30-31  
 Should forecasts be required?

LETTERS . . . . . 31

THE COMPANY

The  
 electric  
 power  
 challenge:  
 mobilizing  
 GE's  
 response

**O**ut on the horizon for the electric power industry, bright peaks of opportunity continue to glisten. Future growth is assured by the upward bulge in new family formations, the swing to an electric economy as electricity displaces other energy sources (see page 18) and the need for a massive redirection in energy use, so that the U.S. relies more fully on its plentiful coal and nuclear resources.

But it is now apparent that between here and those mountains of tomorrow lies a valley of uncertainties and troubles. Power producers have been caught in the crunch between inflationary cost increases and inadequate rate relief. Money for capital expansion has been pushed out of sight by high interest rates and poor prospects for bond sales. And at the root of much of the trouble: a slowing in the growth rates for electrical consumption—the result of energy conservation and lowered economic activity.

General Electric has begun to mobilize its resources to help out in this interim period. The following Monogram survey gives early glimpses of ways in which the Company is moving to help meet this challenge to many of the nation's power producers.

**1. Building the base of electrical understanding**

FAIRFIELD—From his office atop the East Building of the new headquarters here, Vice Chairman W. David Dance, GE's top officer responsible for both the electric power and con-



Vice Chairman Dave Dance: his call for greater public understanding of electricity, as one means to ease the plight of many U.S. utilities, is being met by a new informational campaign that includes a pull-out booklet in December Reader's Digest and Century II advertisements.

sumer goods sectors of the Company's business, looks out on pastoral Connecticut greenery. But his mind's eye is focused more often on the hydra of problems besieging U.S. utilities.

"Back in December 1972, long before the so-called 'energy crisis' hit the headlines," he recalls, "Reg Jones made four pledges to the electric utility industry: to be even more responsive to their needs for equipment quality and reliability, to deliver higher efficiencies and greater environmental compatibility, to support their growing involvement in R&D, and to help them win needed public understanding and support. Today, we have four interrelated Task Forces studying how we can best follow through on

those pledges and initiate other ways to help."

Dance is careful to avoid over-optimism: "We don't want anyone to expect that there can be 'gee-whiz' solutions to problems as complex as those faced by utilities today. But we believe that, over time, viable answers can be developed. Already we can see some bright spots, particularly in the technical areas. Our equipment continues to get high marks for quality and reliability. The start-up of the first STAG combined-cycle plants ushers in a new era of exploration in terms of thermal efficiencies. In R&D we have hopeful new programs underway and are helping EPRI (the Electric Power Research Institute) get off to a good start."

(continued on next page)

## CHALLENGE (continued)

Another step that Dance sees as an important GE advance is the establishment of a new Energy Systems and Technology Division in the Power Generation Business Group. "Roy Beaton has moved over from his Aerospace assignment to head this one up: it represents an all-out effort to analyze the many different options available for generating electric power—everything from coal gasification to nuclear fusion—and determine which ones have the best hope of repaying concentrated attention and investment. We expect the new Division, through this work, to perform a needed service for the industry as well as for General Electric."

Dance feels a special urgency about the fourth of Reg Jones' pledges: that of help in increasing public understanding. "This time of troubles for the utilities points up how far we have to go in building a solid base of public knowledge and support. As it is, the industry is prey to 'non-solutions' that include holding power production to 'zero-growth', over-sanguine hopes for unproven exotic power sources and even outright nationalization of the industry."

As one indication of what can happen when public understanding is sketchy, Dance cites energy conservation through reduced use of lighting and electrical consumer goods. "We certainly aren't against cutting out waste—in fact, our consumer goods operations themselves have been energetic in promoting more effective electrical use. But in our view consumers have been misled in believing they're making a really substantial contribution to energy saving by turning off lights and not using or buying appliances. In reality, only about 5% of the total U.S. energy supply is used by kitchen and laundry appliances, air conditioning and lighting. When you add on the fact that only about 17% of electric generation is derived from oil, you begin to understand to what degree the public has been oversold. As we see it, because of inadequate public understanding, the electrical industry has borne a disproportionate amount of the conservation burden."

Company-sponsored opinion surveys have uncovered what Dance sees as "a frightening lack of public understanding." One of every three people, for example, can't name a single fuel used to generate electricity. Six out of ten fail to mention coal—even though it provides about 45% of the nation's electric power. Eight out of ten don't think of nuclear energy as a fuel. "And for the first time in ten years," Dance says, "there has been a drop in the public's opinion that electricity is a 'good value' for the money."



Don Herbert, who won fame as TV's "Mr. Wizard" in the 1950's, is back in a series of GE-sponsored commercials designed to explain the mysteries of electricity to an energy-conscious public.

As a consequence, the GE Vice Chairman is squarely behind a new GE drive to build a stronger base of electrical understanding at the public level:

"We're telling the utilities—and ourselves—that communication has to be high on our priority list because knowledge and understanding are keys to so much else—from acceptance of plant siting and new rate schedules to more positive estimates by investors of the value of electrical industry shares. It's essential for the public to understand that utility rates must go up because costs are rising faster than revenues. If rates don't go up, the government will step in, and then the public will pay in the form of higher taxes. I guess the message is, all over again, that there's no such thing as a free lunch."

He adds: "We're calling for everyone in the industry to join in a forced draft, basic educational effort directed to the American public on electricity—what it is, how you make it, how it's used, how it benefits the consumer, what it costs, how it's the best option available because *any* fuel can be used to produce it, and why prices must go up to offset rising costs."

**GE intends to do its part.** Dance: "We've had a special Second Electrical Century program of communications going since late 1972. This will continue. In addition we're launching a new campaign more narrowly focused on developing a basic electrical understanding."

Included among the elements of this new corporate campaign:

- Television commercials in which Don Herbert, TV's well-remembered "Mr. Wizard," explains basic electrical concepts;
- A brochure to be bound into the December *Reader's Digest*, answering "the most-often-asked questions about electricity"; and—

• A special issue of the *General Electric Investor*, enlisting the support of GE's half-a-million share owners.

By means such as these, U.S. utilities are being reminded that GE is with them. Says Dave Dance: "Electric power is the core business from which we grew. We're not about to desert our friends when the going gets tough."

## 2. New tool helps utilities analyze finances

**SCHENECTADY**—The financial statement is where the present difficulties faced by electric utilities come to rest. Now the Power Generation and Power Transmission and Distribution Sales Divisions have mobilized some top talent to help utility customers stem the erosion in their earnings per share and in their financial vitality. The tool: an innovative computer-aided financial model of an electric utility, for trying out those hard "what if" questions.

Enthusiastically received on its first outings—presentations to top officers of Detroit Edison and Toledo Edison—the computer program is designed to help utilities pick, from a mountain of strategic alternatives, the highest priorities for maintaining financial health.

Electric Utility Systems Engineering Department engineers Richard M. Sigley and Perry R. Jewell have constructed on the computer, for utility presentation, a hypothetical utility they call Edison Power and Light. Put together from composite data for all investor-owned electric

utilities, Edison Power and Light has a historic kilowatt-hour growth rate of 7½% per year and an annual load factor (the average percentage of generating capacity in use) of 62.1%. If that growth rate slows appreciably, the computer reported, only large rate increases will maintain the same level of financial health. The computer shows that increasing the load factor by increasing kilowatt-hour sales growth is considerably more financially productive than increasing the load factor by reducing kilowatt demand growth—a phenomenon now common at many utilities.

Many other factors are plugged into the GE program, which is stored on Information Services Business Division's Mark III network. The basic growth parameters and other variables—such as the cost of new capital, cost of equipment and labor, and assumptions about the rate of inflation—were varied on the spot for Detroit Edison and Toledo Edison executives to show graphs of profitable projections.

Utilities, most of whom have been experiencing cost increases beyond anything they ever dreamed of, plus minimal or even negative kilowatt-hour growth in the last year, can provide their own financial inputs and examine alternatives for themselves.

Vernon A. Rydbeck, manager of Power Delivery's Electric Utility Market Development Operation, sees these computer analyses serving another purpose: that of improving public understanding of the utilities' financial plight. He cites two "scenarios" prepared by Sigley and Jewell to analyze divergent courses of action open to the investor-owned utility.

One hypothesizes the results of a minimum growth policy and low-profile public communications in a period of cost increases, conflicts with intervenors and delays in construction. The other traces the effects of more aggressive communications and a policy of moderate kilowatt-hour growth through selective marketing of off-peak applications such as heat pumps and street lighting. The analyses offer convincing documentation that this second approach is the path to greater financial vitality for the utility.

Says Rydbeck: "Advocates of no-growth or limited growth policies standing outside the electric utility industry should study these analyses very carefully, because they offer strong evidence that the growth scenario is best for the country as well as the industry."

Due to hear the GE presentation are Pacific Gas and Electric, Southern California Edison and others.

*(continued on next page)*



Electric Utility Systems engineers Sigley and Jewell: How to succeed in the electric utility business.

CHALLENGE (continued)

### 3. STAG: new efficiencies

HOUSTON: The era of combined-cycle generating plants has opened here at the Wharton Station of the Houston Lighting & Power Company. Utilizing a pair of GE STAG (STeam And Gas) 400 power systems, Wharton is the first commercially operating, large combined-cycle power plant.

The important expectation for STAG is that it will improve heat rates for generating plants and thus break through to new levels of efficiency in power generation. Today the most efficient plants wring just over 40% of the possible energy from each unit of fuel. With STAG, the thermal efficiencies are expected to rise to nearly 50%.

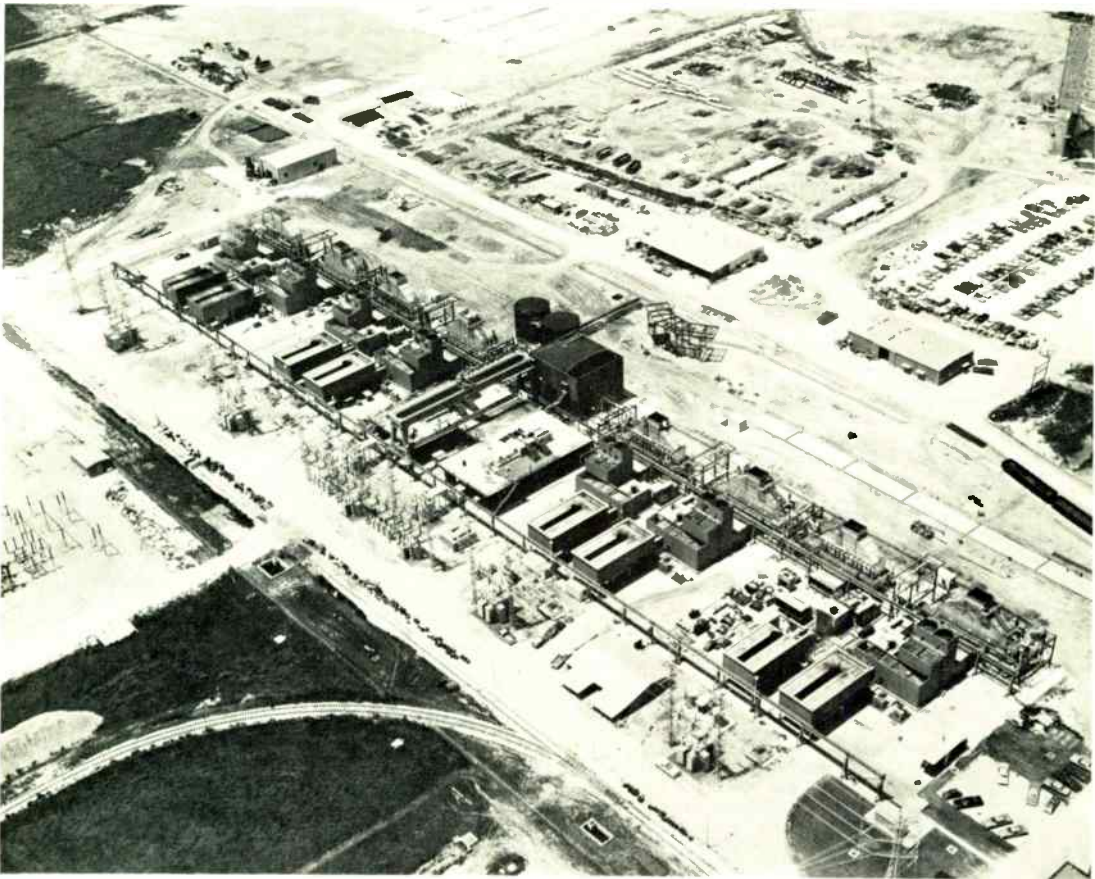
A close-up look at the Wharton Station indicates how these new efficiencies will be achieved. In the plant's final configuration, exhaust heat produced by eight gas turbine-generator sets

will, instead of being wasted, produce steam to drive two steam turbine-generators.

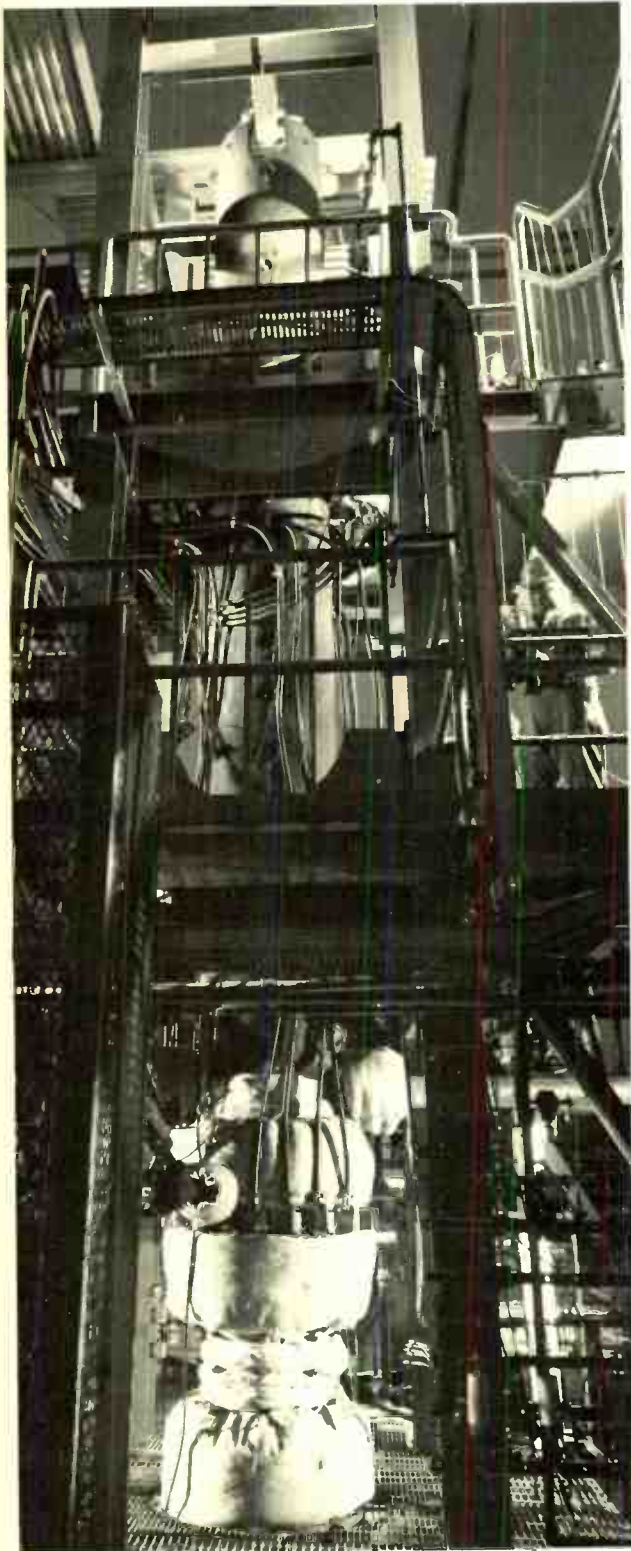
Houston L&P planned it this way from the beginning. Installed in two phases, the Wharton plant was originally composed of six simple-cycle gas turbines, with provision for later conversion to STAG operation. To accomplish this conversion, the utility ordered two additional gas turbines and two steam units. As a result, the plant now has two independent sets of STAG 400 generating facilities—each with four MS-7001 gas turbines, four waste-heat recovery boilers and one steam turbine-generator. The control room is their only link.

When both units go into full operation, they are designed to produce nearly 10% of Houston L&P's total capacity.

An additional important STAG installation, that of Duquesne Light Company, has begun commercial operation on Brunot Island, in the middle of the Ohio River just downstream from Pittsburgh.



Aerial view shows layout of dual STAG 400 installation at Houston L&P's Wharton Station. Steam turbine-generator sets are situated in center (one unit is obscured by overhead crane), with gas turbine-generator units arrayed to the left and right. Square building in center houses the master control room.



GE's blowdown heat transfer test at San Jose, California, one of many used to confirm the acceptability of nuclear components and systems.

#### 4. Boost to nuclear: safety supported

General Electric's long-standing belief in the safety of nuclear power plants has received important national confirmation on two fronts.

One is a study by independent experts, released August 20 by the Atomic Energy Commission. It shows, as the *New York Times* headlined it: "Hazards of Reactors Very Slight."

The \$3-million, two-year study was directed by Massachusetts Institute of Technology professor of nuclear engineering Dr. Norman Rasmussen. The findings, assuming 100 operating plants, state that the chance for a significant reactor accident is the same as for a meteor striking a U.S. population center—"once in a million years."

Results of the AEC study corroborated General Electric analyses discussed in hearings held earlier this year by the Joint Committee on Atomic Energy. A. Philip Bray, general manager of the Boiling Water Reactor Projects Department, told the committee that GE and industry estimates of accident probability represented "good ball-park judgments and illustrate that the risk is extremely remote."

A second study: the independent U.S. Advisory Committee on Reactor Safeguards has formally reviewed the first GE BWR/6 Mark III plant application and given it "outstanding grades," according to Ivan Stuart, manager of licensing and safety for the Nuclear Energy Division. The review covered Mississippi Power and Light Company's Grand Gulf plant equipped with two GE 1290 MWe units—the first BWR/6 units to proceed through the U.S. licensing process.

#### 5. Keeping up the R&D pace

Year in, year out, a primary expectation of the electric power industry is that General Electric will keep coming up with technological innovations for their power systems. Three recent announcements indicate how the Company is meeting its Chairman's pledge to step up support for the industry's R&D programs:

**VALLEY FORGE—MHD breakthrough.** Magnetohydrodynamic electric power research has taken a giant step toward practical application by breaking through to new levels of efficiency at GE's Space Sciences Laboratory here. A newly-developed MHD generating system, using

*(continued on next page)*

## CHALLENGE (continued)

hot gas roaring through a 60-foot shock tube at 3,000 miles per hour, achieved a 20% conversion of the heat generated in the shock tube to produce 1,800 kw of electricity in hundredth-of-a-second bursts. Prior to this, MHD research had been stalled by low efficiencies for some ten years.

According to the GE laboratory and its co-sponsor for the project, the U.S. Office of Naval Research, this efficiency breakthrough is an important step in exploring the promise of closed-cycle MHD power as a realistic energy option for the nation's utilities. In addition, the Navy is considering MHD for applications in simplified, lightweight and more efficient main propulsion systems for the 100-knot fleets of the future.

**SCHENECTADY—Better breakers.** Until now, new circuit breakers designed to protect high-voltage transmission lines have always required expensive, full-scale testing. Now GE's Research and Development Center, under a contract from the Electric Power Research Institute, is investigating the possibility of approximating field conditions in the laboratory, using scale models of the circuit breaker designs.

The two-year project is aimed at developing more effective ways to cool and extinguish the

large electrical arcs formed in high-voltage air-blast and gas-blast circuit breakers when the contacts open to interrupt the power flow and protect wiring and equipment during power surges caused by lightning and other faults.

Success of the project could mean not only greater operating efficiency but also significantly reduced development expense by minimizing the number of full-size breakers (at \$100,000 each) needed for tests.

**WASHINGTON—Toward Energy Parks.** General Electric has received a grant from the National Science Foundation for a study of "energy parks"—the concept of an aggregation of generating plants and associated equipment on a single site, constructed and operated so as to take maximum advantage of economies of scale.

Harold B. Finger, manager of GE's Center for Energy Systems, explains that the funds will be used to assess the benefits, costs, barriers and other aspects of the energy park concept and to compare them with alternative means of meeting electrical demand. Both all-nuclear and all-fossil parks will be studied.

Each park, according to Finger, would not only be capable of supporting massive amounts of power generation but also of including auxiliary facilities for nuclear fuel reprocessing, waste disposal and environmental control.

Joining with the Center for Energy Systems in the study will be GE's R&D Center, Nuclear Energy Division, Electric Utility Engineering Operation, Installation and Service Engineering Business Operation and Industry Sales and Engineering Operation.



Developing new design principles for high-voltage circuit breakers at the R&D Center under an EPRI contract are (l. to r.) Dr. Henry T. Nagamatsu, Dr. A. Harry Sharbaugh, Jr., project manager, Dr. Richard E. Kinsinger, and Dr. Gerhard Frind.

## 6. New push for EPRI

Long-term, utilities look to EPRI, the Electric Power Research Institute, to spearhead many new advances in electric power technology. GE is taking an active part in helping EPRI shift into high gear. This report was filed by Earl E. Spencer, manager—Western Regional Public Relations.

In the hills near San Francisco is an institute where decisions made today will affect the world's energy supply in the 21st Century.

The Electric Power Research Institute, a cadre of 149 scientists, engineers and support personnel, represents the research and development efforts of nearly 500 electric utility companies which produce 85% of the electric power consumed in the U.S. EPRI is charged with the



task of organizing all available energy information and evaluating energy-related innovations. Financed by a tenth-of-a-mill-per-kilowatt contribution from each sponsoring utility, EPRI was formed in 1972 but began staffing in 1973



At EPRI: (top) Dr. Chauncey Starr, the Institute's president; (center) new Palo Alto, California headquarters; (bottom) Robert E. Perry, director of Institute's transmission department, with Ivan Landes, manager of power research market development for GE.

after moving into permanent quarters in Palo Alto, California.

Dr. Chauncey Starr, EPRI's president, defines the Institute's role as that of "a catalyst to spur joint ventures combining utilities, government and manufacturers, with the ultimate goal of developing technology in the best interests of all segments of our society."

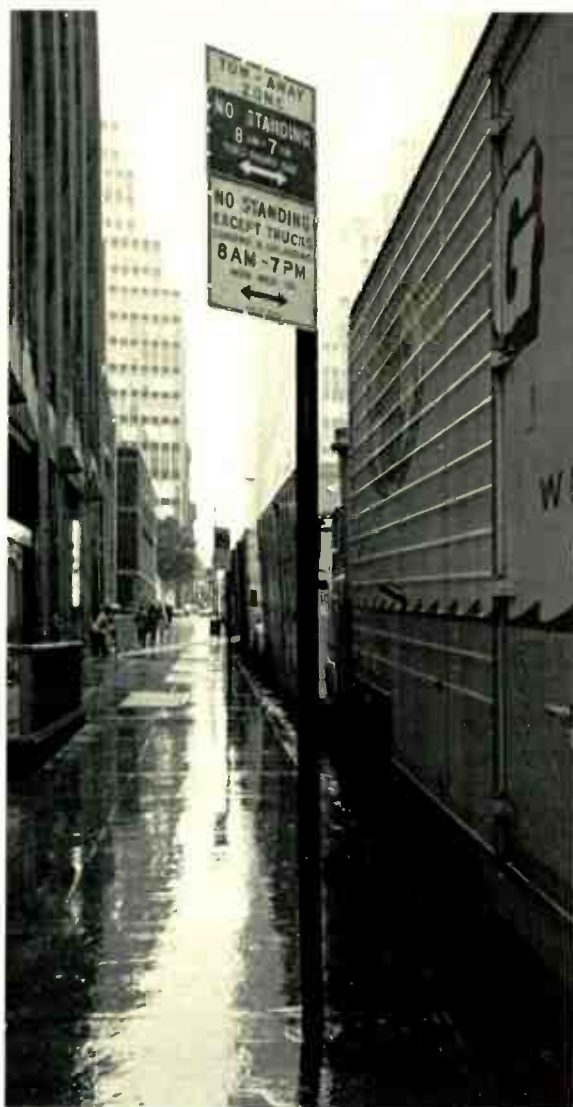
Formerly dean of UCLA's School of Engineering and Applied Sciences, Dr. Starr uses a methodical, four-step approach to projects under scrutiny by EPRI: basic scientific evaluation, engineering feasibility, economic and environmental considerations, and practical application for use by U.S. electric utilities. The organization sponsors seminars and funds studies for the development of nationally planned programs that point toward not only increasing the supply of electricity but also making more efficient use of all present and potential energy sources available to generate electric power.

Many GE operations work closely with EPRI, notably Pittsfield, which holds a UHV transmission study contract and shares another EPRI contract with Philadelphia to develop a new high-voltage prototype DC power system.

Other GE components hold study contracts for development or improvement of nuclear reactor cores, sodium sulfur batteries, cable insulation, ultra-high temperature turbines, arc interruption devices and cryogenic cables. The Company also has a coal gasification proposal in active negotiation. Eight GE components hold R&D contracts from EPRI. In most cases these are joint projects with GE sharing in the costs.

Although many GE operations and laboratories contribute to EPRI, Ivan Landes, manager of Power Research Market Development in Palo Alto, has the full-time responsibility for GE's day-to-day relations with the Institute. When EPRI expresses interest in a specific technology, he sees to it that the appropriate GE operation is alerted, and if someone in GE has a new idea, Landes makes sure it is presented to EPRI.

GE's contribution to EPRI is evident also in the persons of seven former GE employees now working at the Institute. Dr. Edwin L. Zebroski, formerly with GE's Nuclear Energy Division in San Jose, is Dr. Starr's assistant director in the nuclear division. Vance R. Cooper, from GE's R&D Center, and Arnold P. Fickett are involved with advanced fossil fuel projects, while Dr. Richard T. Fernandez, Dr. Floyd Gelhaus, Sidney T. Oldberg and Louis J. Martel find that their GE experience is used to advantage at EPRI's nuclear power division. ▲



## THE BIG MOVE



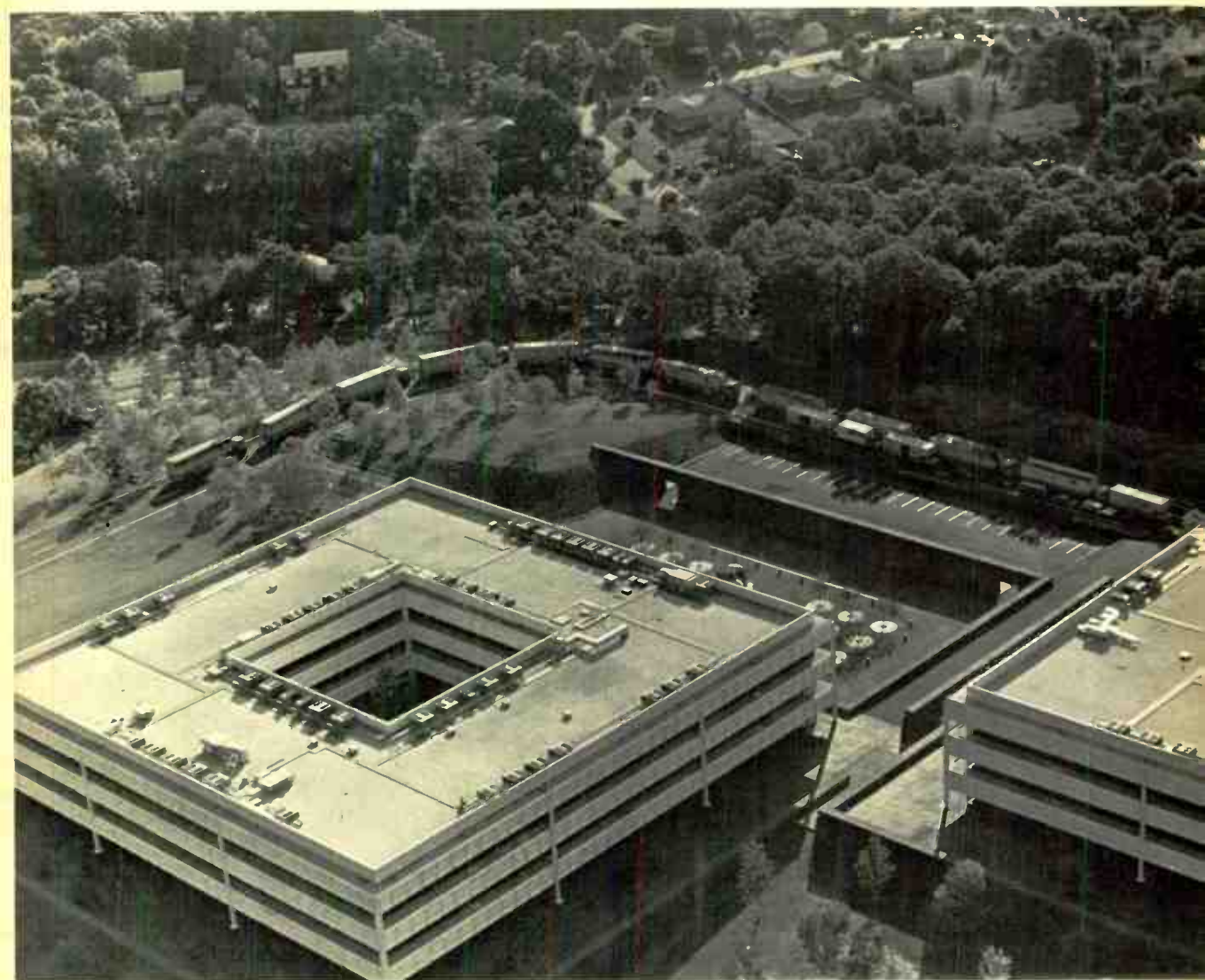
On Monday morning, August 12, more than 600 GE Corporate Headquarters employees drove up a landscaped driveway to gleaming new offices most had never seen before. No one forgot and went to 570 Lexington Avenue by force of habit. Almost without exception corporate staffers found the books and papers they had left in cartons in New York City Friday afternoon neatly stacked on their own desks in impressive new surroundings. Just ten out of 7000 cartons of papers and books were reported misplaced—all were found that day.

General Electric's new corporate home—just off the Merritt Parkway in Fairfield, Connecticut—began operation in just as smooth a manner as the three-year construction phase which is already serving as a model for other corporations (July-August *Monogram*). Meticulous

planning, orchestrated by Corporate Facilities Services Vice President Robert W. Lewis, was the key to success for both operations.

The last stage of the historic move for GE: a small army of 160 men and 27 moving vans—most making two trips—working through the night for 17 hours from the close of business Friday August 9. They brought thousands of color-coded cartons down the elevators of the Lexington Avenue tower in what seemed to be a random pattern rather than floor by floor. It was actually the exact "loading out" pattern needed to put the boxes into the new building floor by floor, area by area, desk by desk.

Manager of the Fairfield Planning Operation, Lowell F. Kindinger, top center, who had spent months working out the details, exchanged his business suit for khaki and spent the night



shuttling between both locations. "The last truck pulled away from the new headquarters by 11 a.m. Saturday morning," says Kindinger, "and we were able to accomplish that because we had moved a lot of material in the pre-move shipments, because the component coordinators waiting at the new site cooperated so well and because of the sheer amount of manpower we used. When you've planned well and you have that volume of help—160 moving men—there isn't much that can really go wrong." For Kindinger, it was the climax of a two-year assignment he calls his most rewarding.

The building was polished and cleaned on the Saturday and Sunday after the big move. "It has stayed immaculate," says Robert L. Holliday, manager—Corporate Buildings Operation, "and we've had especially good comments about

all the services, from the food to maintenance."

While employees got acquainted with their new surroundings in the first few days, Hershner Cross, Senior Vice President in charge of the Corporate Administrative Staff, held a series of meetings in the new auditorium to welcome employees. Among his points was an observation heard commonly among veteran "570" elevator travelers: GE has become a horizontal organization instead of a vertical one—in physical layout, that is. Cross to headquarters employees: "Because we are now spread out horizontally rather than vertically, we will be more conscious of one another. I believe we're going to have a real opportunity to get to know each other much better. I hope this will be the case—I feel there will be real advantages for us as people and consequently for the Company".



Thanks for Expo-Tech, GE's wheeled primer on engineering designed to interest minority youth in engineering careers, was expressed by three Philadelphia students in a recent visit with GE Chairman Reg Jones. Shown with the Chairman are, left to right: Kyle Lunsford, Jill Thomas and Michael Womak.

## JONES AT THE SUMMIT

GE Chairman goes to Washington on behalf of the economy, minorities

General Electric's Chairman of the Board, Reginald H. Jones, is making two important appearances in the Capital during September: one to present his views on the economy at the National Conference on Inflation—termed the "economic summit" by the press; the second to serve as Chairman of the National Advisory Council on Minorities in Engineering (NACME).

Called by President Gerald R. Ford, the National Conference on September 27-28 is expected to supply guidance to the Administration in charting the soundest economic course for the country.

Chairman Jones was also active in procedures leading to the summit. On September 16 in Pittsburgh he was one of over 40 industrialists joining in the Business and Manufacturing Mini-Conference called by Secretary of Commerce Frederick B. Dent.

At the Mini-Conference, the GE Chairman emphasized the need for the U.S. to increase its money supply. He noted that the real money supply in the last year, when adjusted for inflation, has declined by 5%, or twice as much as it declined in the 1969-70 credit crunch.

Continuation of current monetary policies, he said, would result in unemployment approaching 7½%, a corporate profits dip of 20% and a Federal budget deficit of \$25 billion.

The GE Chairman recommended that the government allow money supply to expand at the rate of two to three percentage points below the rate of inflation.

**More minority engineering graduates** is the goal of NACME, as an arm of the National Academy of Engineering. At the September 18 meeting the Council, under Jones' chairmanship, sought to activate a national program to achieve a ten-fold increase in minority engineering graduates over the next decade.

NACME members were among guests visiting GE's Expo-Tech van, at the building housing the National Academy of Science and the National Academy of Engineering. The van is beginning its fall tour in the Washington, D.C. area. During the school year it is scheduled to visit schools in Erie, Pa., Cleveland and Cincinnati, Ohio, Louisville, Ky., and several other cities. ▮

# MONOGRAPHS

**Art for GE'ers' sake.** The connecting tunnel between the East and West Buildings at the new GE Headquarters in Fairfield is no ordinary passageway. The designers chose to make it something more—an art gallery. To celebrate the General Electric Gallery's first exhibition, the Company held a reception for the five prominent Fairfield County artists whose paintings were selected for the display. The Gallery will change exhibits every two months in order to provide a pleasant diversion for Headquarters employees and guests.



Alexander Ross of Ridgefield, Conn. (at right in photo), an award-winning artist who gained national recognition as a magazine illustrator, interprets one of his works for guests at the reception.

**Superstar Steinmetz** has found new fame in the Second Electrical Century among students in the Electronics Department of Los Angeles Harbor Community College. An enterprising student, David C. Smith (standing, third from left in photo), is capitalizing on the interest generated by Prof. Kenneth A. Fiske (standing,



second from right) by going into the Steinmetz T-shirt and poster business. Prior to becoming a folk hero among electronics engineers, Charles Proteus Steinmetz was, of course, the GE mathematical wizard of the early electric industry.

**Leadership** was retained by GE with nine awards in the annual new products competition sponsored by Industrial Research, Inc. In the twelve years of the competition, which recognizes the "100 most significant new technical products of the year," GE has won a total of 87 awards, more than twice as many as any other company. The Research and Development Center in Schenectady participated in the development of technology associated with seven of the awards. GE winners included the Lamp Business Division, the Space Products Division, the Electronic Systems Products Division and the Electronic Components Business Division.

**Smithsonian honors GE system.** The Smithsonian Institution in Washington, D.C. has accorded GE a rare honor by exhibiting an Ordnance Systems development in its National Air and Space Museum. Heart of the display: components for the inertial guidance system developed by GE for the Navy's Poseidon missile program.



Among the distinguished guests at the dedication ceremony at the Smithsonian were Robert G. Herd, left, Marketing manager for Weapon Control Programs, and Dr. Charles Stark Draper, former head of MIT's C. S. Draper Laboratory, which has design responsibility for the Polaris and Poseidon submarine missile guidance systems.

**Tops in patents.** GE was awarded 1,050 patents in 1973—more than any other U.S. company, according to the latest tabulation published by the Association for the Advancement of Invention and Innovation. The Company holds a clear lead over second-place finisher AT&T, which received 668 patents, as well as General Motors with 663 and Westinghouse with 564. During the past five years, the Schenectady R&D Center has averaged nearly one patent every working day, collecting a record 256 last year for the largest bloc of GE patents. ■

## New designs for electrical living

When it comes to innovations in electrical consumer goods, the expectation is that General Electric will come up with technological "firsts." From GE scientists and engineers, for example, have come the self-cleaning oven and self-cleaning iron, the two-door refrigerator, the portable color TV set, the fluorescent lamp, the Toast-R-Oven and the electronic range—not to mention earlier major developments in incandescent lighting and other breakthroughs.

**But there's another source** of innovation that now and again comes to the fore: the product designers, who meld function with beauty and add convenience and new features through sheer creativity in arranging the elements that surround a product's technical innards.

In the world of GE consumer products, 1974 is clearly the Year of the Designer. A *Monogram* survey of new GE products pouring into consumer markets shows that most of the new thrusts are provided by GE design specialists—from a triple-duty new GE portable appliance to ways of bringing classic elegance to kitchens.

Arthur N. BecVar, manager of the Indus-

trial Design Operation, Major Appliance Business Group, says that "General Electric has been and will continue to be a leader in home appliances from both the technical and design standpoints. For many years, consumers expected, and we provided, major changes in appearance and technology on a regular basis. Today we have reached a certain maturity in major appliance design, and the focus is on providing a safe, reliable, efficient product—a product of high quality which we know will stay in our customer's home for a long time."

John S. Chamberlin, vice president and general manager of the Housewares Business Division, credits a changing American lifestyle for the increased emphasis on style and innovative design in portable appliances.

"The home is back," Chamberlin says. "More people than ever before are interested in decorating their homes, cooking gourmet meals, knowing more about at-home beauty and personal care. People are returning to the home for answers to needs that until recently found their fulfillment outside—leisure, recreation, beauty, hair care, dining and entertaining."



New style accents for the kitchen are available from Hotpoint: a black tempered glass front panel for the Dish-Potwasher, and a black Lexan<sup>®</sup> plastic front panel for the trash compactor. Hotpoint kitchen, above and on the front cover, also has two self-cleaning wall ovens, surface cooking units and grill, a sleek range hood, and a side-by-side refrigerator-freezer with exterior ice service.

## Creative Entertainer: a pot for all seasons



New from GE Housewares Business Division: a triple-duty Creative Entertainer that serves as a skillet, fondue pot and chafing dish.



Use of the Creative Entertainer as a fondue pot is demonstrated by Mrs. Barbara D. Tucker, manager of Home Economics for Housewares Division.



Although the Creative Entertainer is styled to appear small, it makes efficient use of its interior space. Mrs. Tucker shows its use as an eight-inch skillet for cooking a two-pound canned ham.



Third use of the Creative Entertainer, as a chafing dish, is demonstrated by Miss Fay C. Carpenter, a GE home economist, and Mrs. Tucker. The dish is fruit flambé dessert.

*(continued on next page)*

**ELECTRICAL LIVING (continued)**



New designs from General Electric include (clockwise from top left): GE JET 83 counter-top microwave oven featuring new Defrost Plus setting, which reduces power to thaw frozen foods and prepare certain frozen dinners, and Rolling Recipe Guide on control panel, for frequently prepared foods; Superblow Hair Care Center, as demonstrated by GE home economist Sharon L. Kara, offering an ultra-light hand nozzle with 1000-watt, counter-top control center, three heat/speed settings and airflow control; new smaller FM/AM Digital Clock Radio, Model C4325, in "ermine white," with rounded-edge case reflecting the "soft look" trend in home furnishings; stylishly slender refrigerator-freezer, Model TBF 21RR, first GE top-mount model to feature Custom Dispenser for ice cubes and crushed ice; and new "compact" 50-watt light bulb combining rare element Krypton and Power-Coil filament for light output almost equal to 60-watt bulb.








## GE's Potscrubber<sup>®</sup> dishwasher meets the test

GE advertises its Potscrubber as the dishwasher with a Power Scrub<sup>®</sup> cycle that will clean the most stubbornly encrusted food from pots, pans and casseroles—even things like baked-on custard and beans. The *Monogram* asked homemakers who work in the Company's R&D graphics unit in Schenectady to make their own test of the Potscrubber. As Mrs. Nancy Blanchard demonstrates at left, it really does work.

And the new Potscrubber has another "plus" inside the appliance: a new PermaTuf<sup>®</sup> dishwasher tub and door which makes possible a bigger tub inside without increasing the outside size of the dishwasher, for easier handling of very large pots, pans and trays. PermaTuf won't chip, crack, peel or rust, and it makes the new Potscrubber quieter in operation than any other GE dishwasher.

The result of seven years of GE research and development, PermaTuf is made from a proprietary compound similar to the rugged polypropylene plastic used in football helmets and battery cases. And GE officials in Louisville are so convinced of its qualities that a new introductory warranty states that if the PermaTuf tub or door should fail to contain water due to a manufacturing defect within ten years from the date of original purchase, General Electric will repair or replace the tub or door without charge for either parts or labor.

The new Potscrubber also features a new random loading lower rack for easier handling of bulky items, and the option of natural drying (without heat) or power drying.

Of special interest to homeowners remodeling their kitchens is the installation module, which is connected to house plumbing and electrical systems at the dishwasher location. The Potscrubber is put into position, under the countertop and over the module, and two quick snap connections from the module to the dishwasher complete the hookup. 



---

New push behind the trend toward an electric economy is imparted by GE developments in industrial electrification. At right: the quest for oil is going increasingly electrical. Wagge-II semi-submersible oil drilling platform shown uses GE drive equipment to power its drilling beneath the surface of Europe's North Sea while (opposite page) GE industrial controls are used throughout the rig.

Below: prime area for greater electrification is process heating, illustrated by the electric elevator furnace to anneal silicon-steel transformer cores. Built by the Industrial Heating Business Department, the furnace is at work for GE's Distribution Transformer Products Department in Hickory, N.C.



## Toward the Electric Economy:

# 4. Electrifying industry—unfinished business

Electrical technology has pretty thoroughly achieved one of the prime goals of early pioneers: to replace the belts and pulleys of steam-powered factory processes with electric drive and controls. Today it's electricity that effortlessly handles huge hot slabs of steel, that rolls out paper faster than auto speed limits, that moves huge assembly lines on their stately productive gait. Truly, industry is electrified.

But is it?

A closer look turns up the fact that there are substantial pockets of industrial productivity that still lie largely outside electricity's reach. Even electric drive still has new worlds to conquer—witness the increasing electrification of the world's quest for oil.

Two major areas that remain, to a large degree, non-electrical are direct industrial process heat and process steam. As the result of new "energy economics," brought about by shortages of—and higher prices for—the "pumpable" fuels, electrical experts are eyeing these sectors of industry as new areas of opportunity, new ways to accelerate the swing to an electric economy.

Analysis of total energy usage in the U.S. shows the massive scale of industrial activity that could, potentially, be converted to electrical technology:

- Industry is a voracious consumer of some 39% of all energy used in the U.S.

- Electric drive accounts for about 10% of this percentage.

- Most of the other 29% goes into direct industrial heat and process steam.



- And less than 6% of this 29% of all energy usage is electrical.

The inescapable conclusion: industrial heating in all its various forms—melting, forming, drying, curing, softening, annealing, brazing, tempering, hardening—offers some of the greatest markets that electricity has yet to win.

Awareness of this opportunity animates a number of GE operations—particularly those of the Industrial Heating Business Department in Shelbyville, Indiana.

As Marion S. Richardson, IHBD's general manager, expresses it: "We expect electricity

to be an increasingly important factor in process heating and we are ready with the innovations to back up these expectations. For example, in cooperation with the Technical Resources Operation wire mill in Shelbyville, we are developing a new heat recovery system for wire annealing furnaces that saves up to 50% of the energy previously wasted."

Motivated by the current emphasis on energy efficiency, a change in thinking among IHBD's customers and prospects is already apparent, says Marketing Manager Barry R. Narcisse. "Since 1965 the complex custom-

*(continued on next page)*

## ELECTRIFYING INDUSTRY (continued)

ordered business of industrial furnaces had been slowly drifting toward gas applications. Heat treating processes, such as annealing, hardening or tempering of materials, form one prominent example. The basic reason why electricity did not dominate in the past was simple: a six-to-one cost difference favoring gas. For that reason we make gas as well as electric furnaces. Now in the last two years the trend has reversed. The cost differential has narrowed and there is no question in our minds that many industry managers don't want to gamble on potentially uncertain direct-combustion fuel supplies for their new orders. They have been ordering more electric furnaces."

Heat for steel production is also going electric. Last year electric furnaces accounted for 19% of steelmaking capacity. While not producing electric arc furnaces, General Electric benefits from the trend by supplying transformer, switchgear and control equipment. And at McLouth Steel near Detroit, Industrial Sales Division has a showcase application it points to as an alternative to fuel furnaces in rolling mills: the use of electric induction equipment to heat giant steel slabs.

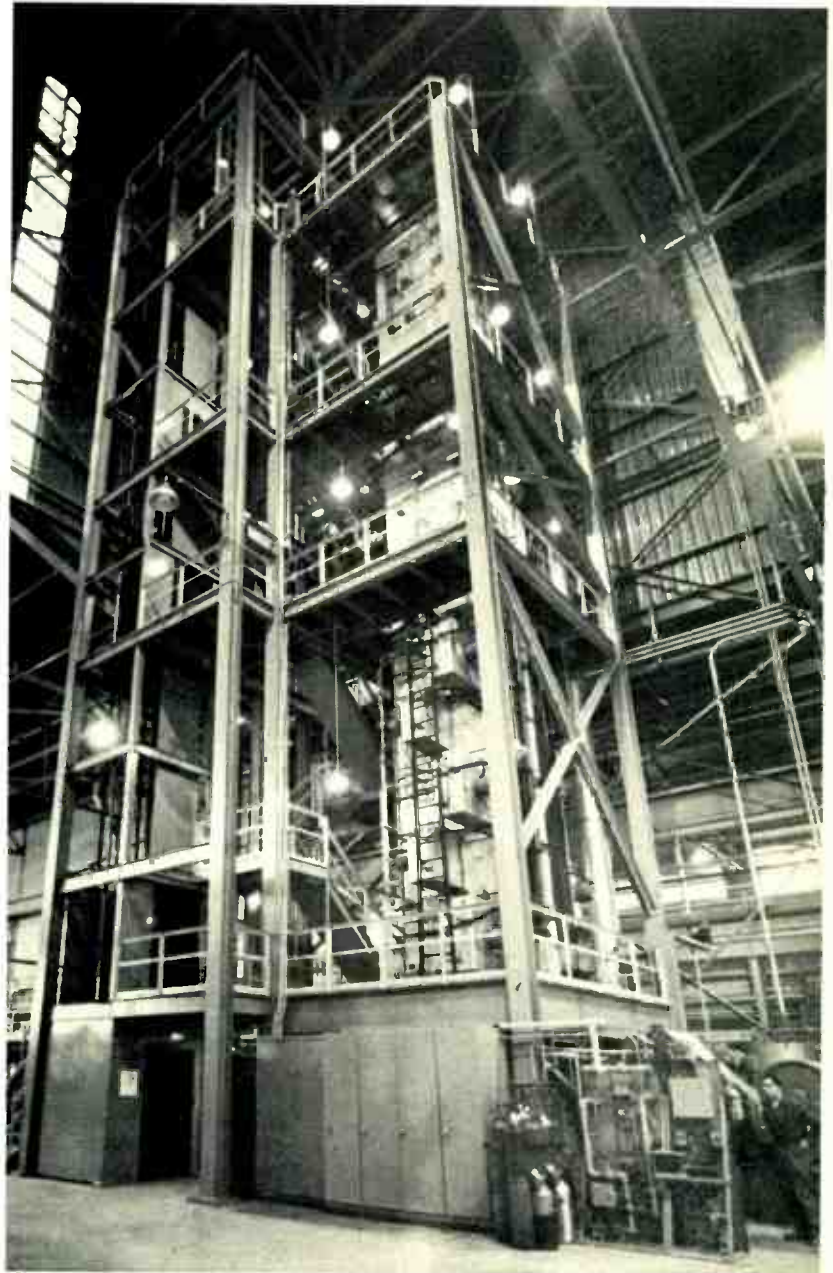
There are newer areas of industrial heating where electricity is the only practical choice. Says Narcisse: "We're seeing a growing number of high temperature applications, where only electric heating has enough efficiency to produce the correct temperature economically. Sintering of stainless steel parts or uranium oxide pellets for nuclear fuel rods is done at temperatures in excess of 3000°F. In these areas, electric furnace producers compete only against each other."

GE's Shelbyville operation has succeeded in penetrating other

markets through innovation. IHBD specializes, for instance, in furnaces which use protective atmospheres for the materials passing through them. The modern method of annealing stainless steel automobile decorative strips in an atmosphere of pure hydro-

gen was an IHBD development.

Narcisse comments: "Although we are witnessing a trend toward electric furnaces, we will continue to make gas-fired furnaces because there still is some cost differential, and some of our customers are not faced with gas



Industrial heating on a seven-story scale is represented by an electric furnace built by GE's Industrial Heating Business Department for Universal Cyclops in Coshocton, Ohio. It anneals stainless steel decorative stripping at 2350°F. in a pure hydrogen atmosphere.

shortages. There is no doubt, however, that the trend toward electric furnaces will continue through the next decade."


Process steam is a second vast category of heat for continuous industrial production processes that represents a much longer

term potential for electrification. Says George W. Knapp, manager of Industry Sales and Engineering Operation for the Industrial Sales Division: "Those industrial plants that do have a significant need for process steam are conserving energy by integrating

turbines into the plant's process steam system to supply both power and process heat. The fuel requirements for the power generated in that way can be less than half the fuel required for the same amount of power from a separate plant generating electric power only. So process steam is still a tough market in which to make inroads with electrical methods."

In the meantime, ISD continues to watch for process changes which increase the opportunity for electric equipment sales. In paper making, for instance, Knapp points to a recent installation by Masonite Corporation in Mississippi that uses thermo-mechanical pulping, rather than the usual chemical plus heat process—with the result that more electricity and electrical equipment are needed.

Similarly, in industrial processes needing moderate amounts of steam, IHBD has another kind of electrical answer: the electrode boiler. As simple as three current-carrying prongs inserted in a boiler full of water, the electrode boiler is enjoying a revival supplying auxiliary steam for utilities and in some industrial applications.

IHBD also keeps its eye on other industrial operations that use process steam. Says Marion Richardson "Many drying and curing ovens, pickling and plating tanks and petrochemical processes are big users of process steam. In our view, many of these processes could be efficiently converted to use heat generated from electrical component heaters—the immersion heaters, circulation heaters, duct heaters and radiant heaters we produce in Shelbyville. Every time we tap more deeply into one of those markets we know we're giving an extra push to the momentum toward an electric economy." 



Electric production of process steam is an area of potential growth. Electrode boilers developed by Industrial Heating provide pollution-free, reliable steam production for industrial and utility applications. Shown: boiler at Brunot Island STAG plant of Duquesne Light Company.

# King Customer goes to school

**The customer is always right—especially if he's attended a GE customer training school**

A new school opened its doors in Roanoke, Virginia, this year—so unobtrusively as to go completely unnoticed by young students in the Old Dominion. The reason? The new classrooms are those of GE's Drive Systems Product Department customer service training school, newest of a growing number of Company facilities devoted to the continuing education of "King Customer."

Explains Robert Hody, DSPD's manager of Product Service who heads the school, "Today, much GE equipment is complex, sophisticated and very technologically advanced. Maintenance training is no longer an afterthought, but rather a part of the basic equipment order."

Until this year, DSPD had no formal educational facility to train customers. It had been done informally on a piecemeal basis by the same engineering personnel who designed the paper or steel mill control and drive systems sold by the Department. "This was obviously an inefficient way to go," remarks Hody. "The best way to do the job is in a facility designed for the coursework, which is why we opened our school in January of this year."

Space was rented in a local Holiday Inn and the school opened its doors with a four-week course for student-customers from Bethlehem Steel, ALCAN, CGE and elsewhere. Hody says that the courses give students the groundwork needed to make them "experts on both the hardware and software of DSPD products."

In contrast, the grand-daddy of all GE schools—and unique in the world—is the Lighting Institute at Nela Park, housed in a campus-like setting. Since 1930, the Institute has matriculated about 9,000 lighting students each year, including contractors, distributors, electrical engineers and electric utility personnel.

James Jensen, manager of Lighting Education for the Lamp Marketing Department, explains that a primary reason for the Institute is to serve as a specific selling tool for sales



districts: "Individual customers or groups of customers are brought by our salesmen to Nela Park where we put on programs tailored to their problems. This special treatment tends to help produce a better than average lighting job while securing lamp business for General Electric."

The energy crunch has brought a shift of emphasis to the Institute: "We're focusing on the need for wise use of energy and dollars in lighting," says Jensen, "so our courses in 1974 have been restructured around the theme 'The New World of Light.'"

At Hickory, N.C., the need to demonstrate the installation of underground distribution transformers led to the construction in 1970 of GE's unique four-acre UD Distribution Center. "It demonstrates to utility customers all types of UD transformers in a live, operating system that actually simulates the conditions they may experience in the field," says Frederick Larkin, manager of marketing communications for the Distribution Transformer Products Department.

Both customers and GE benefit from the Center, in Larkin's view. "Customers benefit



*Clockwise from far left: doors open to DSPD school at Roanoke; new lighting display at Nela Park; Borazon's mobile classroom; controlling outdoor lighting displays at Hendersonville; and DSPD instructor Hody explaining Silcomatic<sup>®</sup> Plus power converter tune-up procedure.*



by seeing available GE equipment in various configurations, watching demonstrations on 'hot' equipment, learning techniques for locating underground cable faults and restoring service. GE benefits by learning utilities' needs, and designs new products accordingly, stressing more stringent efficiency and reliability requirements."


Less than 100 miles away, at Hendersonville, N.C., Lighting Systems Business Department is welcoming 2,000 to 3,000 customers a year to a 10-acre outdoor lighting demonstration area and to classrooms in "Lamplighter's Hall." Over 300 luminaires of almost every type and application are installed in a variety of systems that are controlled by the touch of a button.

"Seeing is believing," comments Ted Kramer, manager of Communications and Market Development for the Department. "Most buying decisions involving our products are the result of visual evaluation of a given lighting system; without a display area such as that at Hendersonville, a person would have to spend days or weeks traveling to see all the combinations we have here, including

over 100 in street lighting alone."

**Is it worth the investment** to maintain such a facility? Kramer: "We can measure the investment on the basis of the kind of business we do with customers who visit us, and sometimes we see the effect within hours of attendance at our sessions."

For customers too busy to attend a GE school, Specialty Materials Department does a turnaround by putting its schools on wheels.

This year, a pair of vans fully equipped with training aids hit the road, bringing training on GE Borazon<sup>®</sup> cubic boron nitride—used in production grinding—to 1,400 direct customer salesmen and over 5,000 of their distributor salesmen. According to Bruce Krause, manager of the Borazon CBN venture, the vans house 27 on-site Borazon seminars a month, with total attendance of 450 to 500 persons. In ten months the vans have clocked 25,000 miles. Krause stresses that they are working vehicles—not simply product showcases. "They're getting a good reception, and right now we have our hands full trying to schedule and fairly allocate the van time to cover the country." 

# A talk with Marion Kellogg

**Election of Marion Kellogg as GE's first woman Vice President signals fresh recognition that ability comes first at General Electric—and recalls other GE women whose past careers pointed the way. Here is a report by the *Monogram* Editorial Assistant, Carol Olcha.**

In the manufacturing milieu of GE's venerable Bridgeport, Conn., facility, there's a homey, feminine island: the office of Marion S. Kellogg, newly-elected Vice President of Corporate Consulting Services.

Is she surprised at being a VP? "Yes, thoroughly," Miss Kellogg says. "The title and position were far from my thoughts about my career. But I'm not surprised that GE has a woman Vice President. This is the direction in which the Company has been trending for years. I'm proud to have been the first to be elected."

Her election as a Company officer caps a 30-year GE career that began right after college. Armed with a Manhattanville College A.B. degree in mathematics and physics and an M.S. in physics from Brown University, Miss Kellogg started as an engineering assistant at Schenectady's General Engineering Laboratory.

"I realized quickly that it wasn't what I really wanted," she says. "What interested



## ...and other GE women career leaders

### In GE research: Dr. Blodgett

One of General Electric's outstanding contributors in the area of scientific research is Dr. Katherine Burr Blodgett. The first woman scientist to join the staff of GE's Research Laboratory (now part of the R&D Center in Schenectady), in 1918, Dr. Blodgett is one of few who share the distinction of working with Dr. Irving Langmuir, a Nobel laureate in Chemistry.

In 1926, she became the first woman to receive a Ph.D. in physics from Cambridge University in England.

Her scientific studies, inventions and discoveries, conducted until her retirement from GE in 1963, earned her numerous accolades, including the achievement award of the American Association of University Women in 1945





me was people! And I had a lot of ideas about how to develop better management-employee communications and how to get the right people into the right jobs."

Management thought the ideas were good ones—and so began a succession of operating department personnel assignments in several Company locations.

In 1953, Miss Kellogg scored her first "first," when she was named manager of Employee Relations for the Flight Propulsion Laboratory Department in Evendale—the first woman in GE history to hold a section-level managerial post. Directing the recruiting of more than 1200 engineers and scientists at Evendale, she also created and installed there the basic performance appraisal system which served as a Company model for almost 10 years.

As manager of Individual Development Methods in Corporate Employee Relations, from 1958-1968, she achieved international recognition for contributions to employee appraisal programs and for creating "Management by Objectives" programs for industry.

It was in her post-1968 capacity as Consultant-Marketing Management Development on the Corporate Consulting staff that Miss Kellogg produced GE's Modern Marketing Course I (MMCI), offered several times a year at various locations in this country and taken

to London this past June for overseas GE personnel.

"I could see a need for strengthening management skills and for an improved understanding of basic marketing and financial concepts," she says. "A panel of GE marketing, sales and employee relations managers concurred—and MMCI was the result."

It was Miss Kellogg's awareness of the need for better coordination and understanding between field sales representatives and product marketing managers that led, four years later, to the launching of MMCI, a course in which participants study GE interaction with actual customers.

And somehow, along the way, she found time to be the author of a number of articles and books on the subjects of marketing and management practices.

In her new post, Miss Kellogg is responsible for marketing, engineering and manufacturing consulting services offered to GE components and to outside clients.

Her advice to anyone climbing the corporate ladder? "Don't just do what others tell you to do. Study your manager's responsibilities; learn to take on as many of them as you can. If you're not happy with your job, sit down and figure out what you want to do, get the necessary skills—and then do it!

"In other words, take the initiative."

---

and the Garvan Medal of the American Chemical Society in 1951—one of the most coveted honors in chemistry. She was the only scientist honored by Boston's First Assembly of American Women of Achievement and has received many honorary doctorates from universities.

"I was very fortunate to work with Dr. Langmuir," recalls Dr. Blodgett, now living in retirement in Schenectady. "He helped me grow in scientific ability. He and his associates, I'm sure, never gave thought to anything but my devotion and capability."

### **In engineering, Bea Hocking**

What do some 10,000 General Electric engineers, many now managers and general managers, have in common aside from their tech-

nical training? They were all helped by Beatrice E. Hocking—whose job as assistant to the manager of Technical Recruiting in Schenectady enabled her to meet almost everyone recruited for GE engineering jobs.

Miss Hocking began her 45-year career with the Company, which ended in retirement in 1971, as a secretary in the technical recruiting field—part of the then-called Engineering Services.

"I was in the type of work I enjoyed," reminisces Miss Hocking, "and when it became evident that I was going to make a career with GE, I did the best job I could." In ten years she attained exempt status and was given a large responsibility: recruiting women from colleges and technical schools for posts in engineering departments, and handling

*(continued on next page)*



the myriad details of guiding engineers, newly hired from college, through the Test program and then choosing the engineering area in which they would base their careers.

Having had only one year of business college, Miss Hocking explains that "sometimes one tries to overcome the lack of an education with extra effort and ability. That was my situation. I remember thinking this when I was recruiting college women and I didn't even have a college education myself. But I believe that if women do their very best in the job they are filling, show patience and do their job capably, they can reach something better. I believe that where abilities are equal, the opportunities should be equal."



### In public relations, Fran Concordia

"Men during my time did not expect women to be in the higher echelon in business," explains Frances B. Concordia. "I found, however, that if a woman did make it, men were very respectful of her accomplishments."


Mrs. Concordia relates this from personal experience: she was hired by GE in 1942 as a marketing research analyst in public relations. She traveled to colleges and other areas performing studies, conducting interviews and developing plans—such as investi-



gating the best location for a new GE manufacturing plant. When she transferred to the economic research field, four years later, the job also included analyzing and forecasting the country's growth and economic changes and their effect on various aspects of GE's business. "It was exciting and challenging," Mrs. Concordia recalls, "to see how these forecasts turned out years later." Her last position with the Company was as a consultant, working on salary evaluation programs.

With an M.A. in Business Administration and years of experience in the financial research area, Mrs. Concordia became involved in many volunteer activities after she left GE.

"I've always attempted to carry out my training," she says. "I believe a woman should take on certain social responsibilities." She has been national treasurer of the American Association of University Women, a vice president on the Board of the Council for National Organizations, a member of the Advisory Board of UNICEF and a member of numerous other civic organizations.

Mrs. Concordia and her husband, Dr. Charles Concordia, a retired Schenectady GE power systems engineer, like to travel and have just returned from a trip to England and France where they attended an electric utility conference. 

# BONUS BABIES COME OF AGE

Wall Street brokers may be bewailing the current state of the market, but many just-turning-21-year-olds are happily celebrating their common birthday this October as legal recipients of 30 free shares of General Electric stock.

How do these "bonus babies" come by their shares? It all goes back to about nine months before its 75th anniversary on October 15, 1953, when the Company began plans to celebrate the occasion with an announcement that any baby born to an employee on the anniversary date would receive five shares of GE stock for the parents to hold in trust until the youngster turned 21. An unsuspecting statistician predicted that no more than 20 babies would be forthcoming across

the Company on October 15. He reckoned without the foresight of GE employees. When the eventful day arrived, as amazed Company officials maintained a New York vigil, 190 births were recorded.

Since then, the initial gifts of five shares of GE stock have become 30 because of stock splits in 1954 and 1971 and have appreciated by 188% even at today's market values. In addition, these young adults have also received about \$715 in dividends through July of this year. On October 15, the stock will be legally transferred to clear ownership by the "bonus babies" themselves.

Here and on the following page are what three "winners" of the 1953 Baby Derby look like today:



"These 30 shares of stock are going to make a great birthday present," says Mary Beth Smith, a Louisville bonus baby. Currently a senior elementary education major at Eastern Kentucky University, Mary Beth plans to work in special education after graduation.

Her father, William R. Smith, started his GE career in Erie, Pa. in 1941. He transferred to Louisville in 1953 and presently works as an analyst in the International Refrigerator Sales Operation. Mary Beth's parents were really not aware of the baby derby until Mary Beth was born. "When we were told our daughter would receive five shares of stock,

my wife and I were elated," Smith says.

Mary Beth thinks she will apply the stock to a down payment on a home when she gets married. "But," she adds, "even if I don't use it, it will be a great nest egg for a rainy day."

Patricia McGinnis comes from a long-line of General Electric employees, including her grandfather, five uncles and an aunt. Her father, Albert L. Buzzo, is employed by the Gas Turbine Department, and both she and her mother work in Schenectady Utilities Operation.

*(continued on next page)*

## BONUS BABIES (continued)



Patricia is married now and living in Schenectady. When she was six months old, she was formally introduced to Ralph Cordiner, then GE's President, at the 1954 Statutory Meeting. "Of course, I don't recall meeting him," Patricia says, "but I can remember the time when I was finally old enough to understand the significance of my birth date and of meeting Mr. Cordiner. That's why I plan to keep the accumulated stock and buy more whenever I can."



"The stocks were a break that not too many boys get," says Matthew Renner, a planning and scheduling specialist for Maintenance and Construction in GE's Erie, Pa. plant and father of bonus baby Robert Renner. "I really think that having the stock and watching it grow prompted Bob to think about GE when he was ready to go to work."

Son Bob has been with GE for three years now in Erie's Transit Systems Products Department. He agrees the stock motivated him to start his career with GE and adds that "since my dad is starting his 29th year with the Company, I sort of grew up with GE."

Bob plans to attend the Technical Night School course to improve his skills. "I'm also thinking of getting married next year," he explains, "and the stock might come in handy then." □

## ORGANIZATION CHANGES

### CORPORATE

Marion S. Kellogg *elected a Vice President—Corporate Consulting Services.*

### INTERNATIONAL AND CANADIAN GROUP

Robert E. Johnson, *Manager—Far East Strategic Planning Operation.*

Thomas W. Tucker, *President and General Manager, South African General Electric Company (Pty.) Limited.*

George F. Litchert, *General Manager, International General Electric Company (India) Private Limited.*

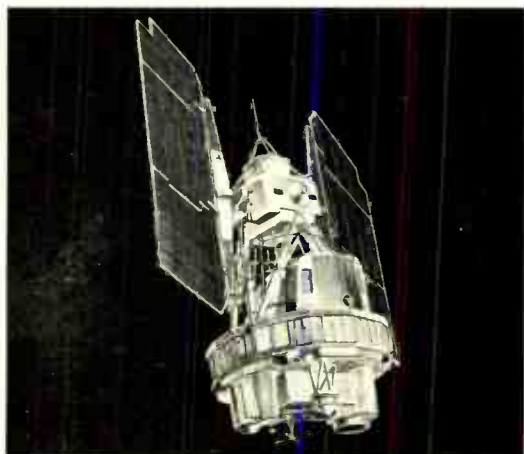
### SPECIAL SYSTEMS AND PRODUCTS GROUP

Louis V. Tomasetti, *Vice President—Special Assignments.*

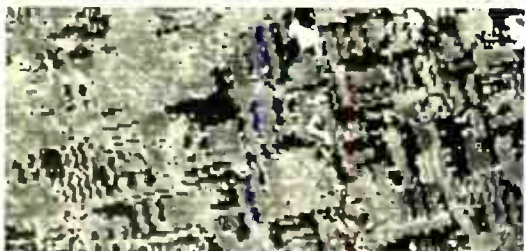
Carl J. Schlemmer, *General Manager—Transportation Systems Business Division.*

Donald S. Bates, *General Manager—Mobile Radio Products Department.*

## PRODUCTS



### MAKING ERTS WORK HARDER



A sliver of Williams County, North Dakota farmland, upper photo, becomes dark wheat farms and fallow ground, lower photo, after IMAGE 100 analysis.

For two years—double its original design life—the GE-built Earth Resources Technology Satellite has been sending back photos from 570 miles out in space. These ERTS earth portraits have been studied by nearly 100 research teams from 48 nations, interested in their revealing patterns of pollution, land use, flood control and crop conditions.

Now a further development from General Electric is increasing the “take” from ERTS transmissions. The IMAGE 100 multi-spectral image interpretation system developed by GE’s Space Division has been added to ERTS to make swift, highly sophisticated use of data which previously had to be laboriously extracted.

IMAGE 100 does its job by taking advantage of the fact that the data ERTS sends back is “several layers deep”—the ERTS sensors scan the light from earth on four different wavelengths, two in the visible light spectrum and two infrared. Different objects or materials on the earth’s surface have unique “spectral signatures” in these wavelengths. By analyzing the signatures from ERTS’ computer tape pictures, IMAGE 100 opens potential new vistas in crop surveys, land use planning, environmental impact studies and other critical earth resource projects.

A *Monogram* visitor to GE’s facilities near the NASA Goddard Space Flight Center in Maryland saw the standard picture—then saw the hidden data extracted from other informational layers. IMAGE 100 quickly identified on a color television screen features of significance: polluted water, diseased crops and man-made objects in different parts of the world. It was designed as a highly interactive system combining the best of man’s ability to perceive and the computer’s ability to store.

Despite the fact that IMAGE 100 makes ERTS work harder than was ever conceived in the original plan, the science is still in its infancy. The most significant benefits of earth resource satellite technology are still waiting in the wings, say GE experts.

IMAGE 100 has been judged among the nation’s top 100 significant technical products in the IR-100 competition sponsored by *Industrial Research* magazine. ☐

## Should a company be required to disclose forecasts of results?

On the surface it may sound logical and reasonable: a company develops its own internal forecasts of how its operations will fare and what results will be achieved—why shouldn't these intramural projections be turned outward and supplied as guides to investors?

GE perspective on this question is provided in a paper prepared by Maurice H. Mayo, VP and Comptroller, for presentation November 22 at the prestigious Seaview Symposium, whose sponsors include the American Institute of Certified Public Accountants, Financial Analysts Federation and Financial Executives Institute.

Mayo's view: public disclosure of corporate forecasts, either permissively or mandatorily, "is a step which would appear to be both unworkable for preparers and contrary to the best interests of investors."

Most companies, it is true, have internal budgeting and forecasting procedures to assist management in its conduct of the business. But the GE Comptroller feels "there is substantial doubt that the inherent difficulties of working with such forecasts could ever be communicated in a meaningful way to even the sophisticated investor."

He explains: "There are two comments that can be made with assurance about almost any forecast of corporate results: it will not be accurate, and it will change. Proponents of disclosing the results of internal forecasts apparently misunderstand their purpose as a management tool and underestimate the real, practical complexities of their preparation. In this I believe they would do well to heed words of advice attributed to Will Rogers: 'It ain't what you don't know that hurts you most—it's what you know that ain't so.'"

The corporate forecast, says Mayo, is an aid to management. "It is an expression in financial terms of all the assumptions, conditions and alternatives foreseeable at every level of the organization. Assembly, review, documentation and constant honing of forecasts is an essential and time-consuming job. The process can involve hundreds of persons on literally a daily basis and the results at many levels are constantly tempered by judgment. Principal benefits of this process are a probing of business plans and objectives and the discipline imposed



**Comptroller Mayo: "disclosing corporate forecasts is contrary to the best interests of investors."**

on the organization, irrespective of the accuracy of the final result achieved. In addition, the system of forecasting is an inherent part of management's control, especially in the sense of setting our targets or goals to be achieved. Inherent in this internal forecasting process is a continuing necessity for change. In a large company, changes in assumptions, tactics or results expected may realistically be daily occurrences. To communicate to the investor clearly and without possibility of misunderstanding the nuances, shadings, judgments and changes involved is simply not possible."

In addition, Mayo points out, there is "a very real possibility, even probability, that permission to publish forecasts would be taken advantage of by the relatively few who may not be inclined to exercise sufficient care to avoid being misleading. Those who have manipulated historical data for unscrupulous ends will likely be aided considerably by the ability to use the inherent flexibility involved in forecasting future results to further their purposes."

What about the argument that such disclosure would give away information of aid to competition? Says Mayo: "Responsible businessmen really do feel strongly that disclosure of fore-

cast information may put them at a competitive or tactical disadvantage" and may result in premature disclosure of a significant corporate plan. "Three examples that come to mind involve assumptions as to (1) the outcome of pending labor negotiations, (2) planned introduction of a significant new product and (3) a planned, major change in research or advertising plans. Depending on the circumstances, we can easily see that these types of assumptions could be material to a forecast and that premature disclosure would be to the disadvantage of the company's share owners."

Further, the GE Comptroller foresees that if forecast data is disclosed, "prudent management probably will tend to forecast safely or, perhaps worse, may feel it desirable to take unwise short-term actions to realize a forecast, even in a way detrimental to the long-term best interests of share owners. I believe this to be a realistic assessment based on surveys of potential reactions by various representatives of management. In addition, it is our experience that there is a constant effort by lower levels of management to have 'safe forecasts' accepted, as contrasted with the more ambitious goals desired by higher management. This tendency might well develop in forecasts to be made public."

Mayo also dealt with the charge that forecasts in various forms are already circulating and that uniform disclosure rules would make them available to all. "It seems important that this condition be established first as being generally harmful to investors before any changes in present practices are made. If the argument is concerned only with the normal work done by investment analysts in studying and evaluating individual businesses or industries, then adoption of formal requirements for issuers would not seem appropriate because issuers are not the ones at the root of the problem. If the argument is that analysts are perhaps in some way misleading investors, it would seem more logical to consider some form of rules applicable to information gathered and disseminated by analysts."

In summary, he sees such disclosures as "unworkable... contrary to the best interests of investors... fraught with dangers for all."

(Note: As well as presenting further views on forecasting, Comptroller Mayo's paper includes perspectives on two other controversial areas of present-day accounting: price level accounting and segmented reporting. For the full text, write to the *Monogram* Editor.)

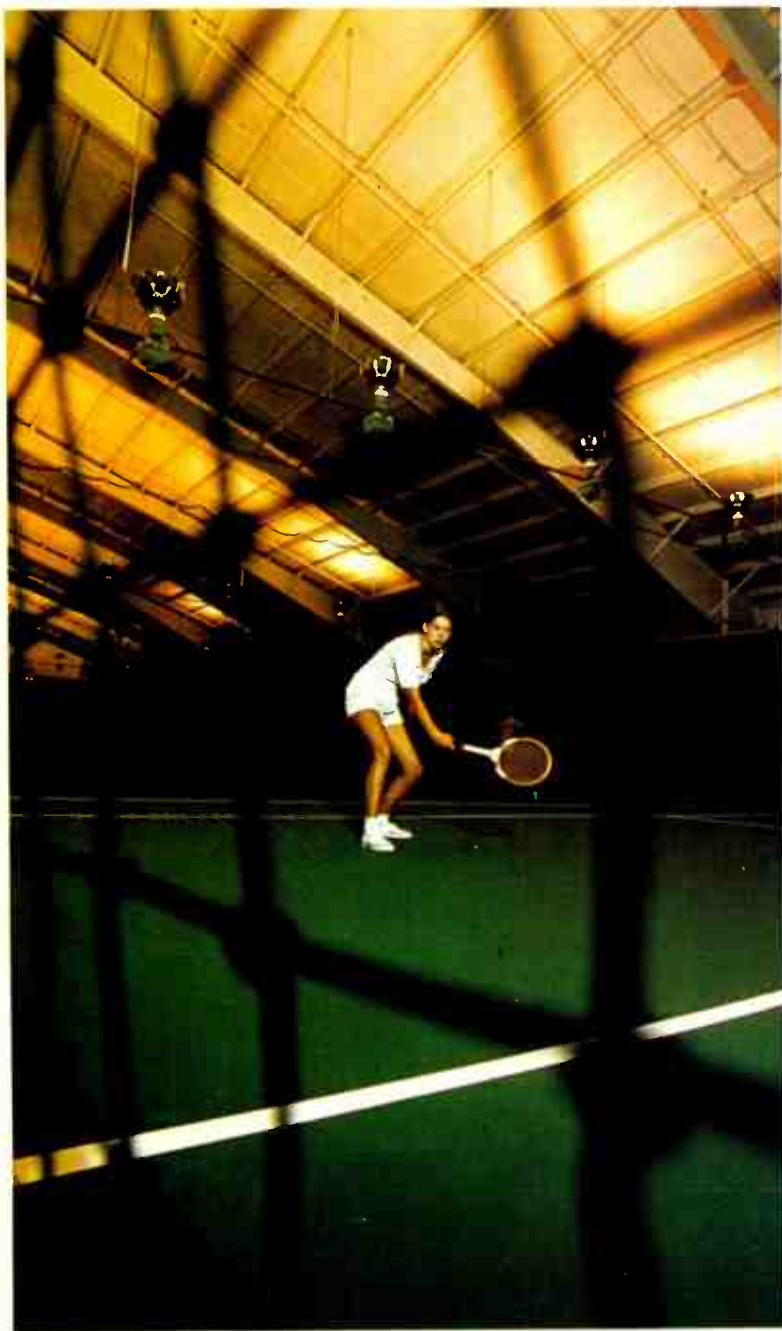
### Neither snow nor sleet...



Our treasure in the Pacific Northwest Sales Region of Lamp Sales Department is an original 1921 Edison MAZDA "Primitive Man" calendar by Maxfield Parrish. (The July-August *Monogram* featured a retrospective on the early calendar painter.—ed.).

This calendar was mailed to an electrical contractor in Northern Montana in 1920, but in the late 1950's it was returned to the Butte, Montana General Electric office marked "unable to deliver." It seems the calendar had fallen through the pigeon holes at the post office in 1920 and wasn't discovered until a new post office was built on the site in the 1950's. An attempt was then made to deliver it to the contractor—more than 30 years later—but he was no longer in business.

LEONARD E. PRATT  
Oakland, California



## TENNIS, EVERYONE?

Tennis, once the summertime sunshine sport of a few professionals and a handful of affluent amateurs, has blossomed into a game for all seasons, all hours of the day, and all levels of both skill and income. A key factor in freeing the sport both from the clock and the weather is efficient electric lighting, such as the General Electric Lucalox® high-pressure sodium lamps installed at the Blue Hills Tennis Club in Braintree, Massachusetts.

Now recognized as one of the fastest-growing sports in America, if not the world, tennis has seen great expansion indoors in recent years. There are some 1800 indoor tennis clubs in the U.S. today, nearly ten times as many as existed five years ago.

Artificially illuminated indoor facilities like this one make participation possible for millions of people whose work schedules or family commitments would otherwise have prevented them from playing tennis regularly.

At Blue Hills, the latest and most economical design uses 96 Lucalox 1000-watt lamps mounted upward to reflect light off the bright ceiling. This technique creates a uniform lighting pattern that has been described as sky-like in appearance, and results in optimum playing conditions free of annoying glare.