

# For GE, breakthroughs in Egypt

**PLUS:**

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**'Year of  
the customer';**

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**The railroads  
are rallying;**

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**GE's long-distance  
runners**

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THE COMPANY

# 'Year of the customer'

GE sales people are traveling to the ends of the earth to help customers resist today's economic downturn.

"**W**e must help our customers cope with the problems of the times—inflation, energy, low productivity and tight credit."

With these words, delivered at the recent General Electric Marketing Management Conference at Hot Springs, Va., Board Chairman Reginald H. Jones reiterated his call to make 1980 "The Year of the Customer."

What can GE do to assist economy-worried customers—whose well-being is immensely important to the Company as well? Jones' answer: do everything first-class, increase customer service at all levels, demand more of the Company, and think first and last of the customer.

"Inevitably, as sales people, you are going to be the burr under the saddle," said Jones, "—fighting to see that customers get the service they expect. That's your duty!"

With Reg Jones' comments as an overview, the *Monogram* asked other Company people to add their perspectives on the role of the GE sales force in implementing this renewed emphasis on the customer:

- "Our customers perceive us to be more than just vendors. They need and want to look to us as problem solvers," says Stamford, Conn.'s Edward W. Springer, VP and general manager of Electric Utility Sales Division. "They expect us to be fully understanding of their business equation, their financial problems, their ecological objectives, their engineering problems—and then to become part of the solution."

- "Identifying customers' problems and developing technologies that address their product needs is a key mission at Corporate Research



Jean Junker: 200 investment calls a morning.



Richard Allen commutes by cable car.

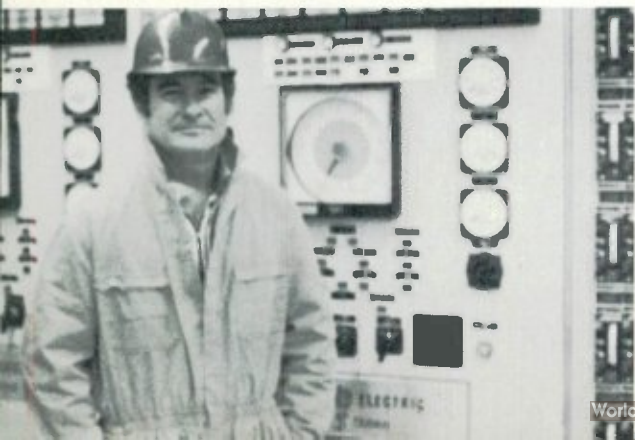
and Development—and the GE sales force is the critical link in that mission,” observes Dr. Roland W. Schmitt, VP of Corporate Research and Development. “By anticipating customers’ plans, the sales engineer often becomes the catalyst for innovation and growth.”

- “GE sales engineers are asked to absorb prodigious amounts of data. Periodic sales courses help update these Company men and women on the strategic way in which GE’s products fit in with the customer’s long-range plans,” notes Bridgeport, Conn.’s John P. Shewchuk, manager of Marketing Education and Training, Corporate Consulting Services. “Sales success is knowledge—knowledge of GE products, and the ability to use that knowledge to be smarter than your competitors.”

In the end, success in achieving the corporate goal rests with individual GE sales representatives. That “The Year of the Customer” is in good hands is attested by these examples.

Tulsa’s Thomas J. Harcastle sells to the oil industry. A sales engineer for Industrial Sales  
*(continued next page)*

Tom Harcastle: at work on North Sea oil rig.



William Rhodes’ home is his office, where wife Donna takes phone messages.

Division, he's been doing it for the past 17 years. "It is very important," he believes, "to intelligently convey the customer's needs to the proper group within General Electric."

Hardcastle shared in the world's largest offshore oil drilling project—*Ekofisk* in the turbulent North Sea. Developed by Hardcastle's customer, Phillips Petroleum, *Ekofisk* uses 44 GE gas turbines to pump one million barrels of oil a day to England, and two billion cubic feet of gas a day to West Germany.

A team from GE that included Hardcastle helped plan and construct the project almost from its inception nearly a decade ago. From meetings at Phillips' Oklahoma headquarters to consultations in the middle of the North Sea, Hardcastle practiced his philosophy of being a "good listener" so that the customer's needs were conveyed accurately back to GE.

San Francisco's Richard N. Allen deals in the volatile commodities market, selling such raw materials as copper. Making sure customers place the highest value on the Company's services is paramount to this Utah International manager of nonferrous metals, who spends most of his time negotiating long-term contracts.

To be effective, Allen must know the marketplace cold. Misinterpretation could mean monetary loss and a loss of the customer's respect.

Observes Allen: "The name of the game is anticipating the marketplace. You've got to know what's going on or you'll have a hard time being effective—especially where long-term agreements are concerned."

New York's Jean Junker lives by the telephone, selling short-term commercial paper. A financial representative for GE Credit Corporation's Treasury Department, she believes there is no such thing as a "small" customer.

In the hectic hum of telephone selling (she answers 200 calls a morning), being pleasant can provide the edge that makes the sale. "Besides," says Junker, "the customer may have only a small amount to invest today, and a sunshine smile over the phone may bring him back a week later with \$30 million or more."

This spring, a customer invested \$100,000 here and \$200,000 there. Then came a \$130-million investment! Notes Junker: "My hands got sweaty and I nearly dropped the phone!"

Statesboro, Ga.'s William L. Rhodes covers rural Georgia for Major Appliance Business Group. Working out of his home, he is a sales counselor for GE and Hotpoint products, sell-

ing to chain operators and independent dealers in 22 counties. He averages more than 50,000 miles a year in his car, and when he's on the road, his wife Donna, or a daughter, answers the phone and takes messages.

Rhodes helps dealers know fully the GE products they sell and assists them in developing effective advertising campaigns. "The key factor for me," he states, "is attitude. My customer must have confidence in the product."

In the evening, Rhodes doesn't have to worry about answering the phone. Usually one of his daughters beats him to it—hoping it's not a business call, but a friend.

Houston's Bart M. Law sells "everything from highly complicated switchgear down to the lowliest lock nut used on a piece of pipe." An outside salesman for General Electric Supply Company, Law handles Brown and Root, one of the world's largest contractors.

States Law: "I'm like the visible tip of a giant iceberg of GE people who are never seen by the customer—people who provide support, guidance and follow-up."

Law feels that salespeople should find life in general, and business in particular, fun. This outlook and his desire to help the customer solve problems have aided Law in selling 151 miles of 15-kilovolt cable used in the Alaskan pipeline project and, more recently, 20,000 cutouts for Mexico.

Abalen I. Abirached's territory is the vast, remote northeast region of Brazil. The Rio de Janeiro sales engineer works for the Electric Utility Commercial Operation for General Electric do Brasil S.A.

Recently he negotiated a contract with CHESF—the chief utility company in Brazil—for 67 megawatts of hydrogeneration along the isolated Paranaiba River. During an eight-month period, Abirached flew the 4,000-mile round trip from Rio to Recife 20 times.

Although he got married during this time and had to endure the teasing of his GE colleagues—who said he had spent the honeymoon in Recife while his wife spent it in Rio—Abirached is proud that the sales will help modernize his region.

Los Angeles' Neil N. Kirchner sells ideas for Lighting Business Group. A sales engineer, he develops unique applications for existing GE products and then sells them to original equipment manufacturers (OEMs).

It means that Kirchner must know what his




Abalen Abirached: near Rio's Sugar Loaf Mtn.

product departments are developing and what might trigger an OEM's fancy.

Among Kirchner's sales is a slice of the booming solar tanning market. GE has introduced a new fluorescent lamp which reduces the risk of sunburning in tanning booths manufactured by OEMs. Kirchner has also helped OEMs with tanning beds and, for the young executive on the go, units contained in brief-cases.

Lake Buena Vista, Fla.'s James J. Zipperer is never far away from fun. A project manager for Apparatus Distribution Sales Division, he is a Company representative to Disney Productions—the Disney parent organization.

"My job is to let the Disney people know what products we offer, the high quality which is there, and the reliability of the specific GE organization that backs up each product," he points out.

Time and time again, Disney has come back to GE for products in its Disney World facility as well as its upcoming Experimental Prototype City of Tomorrow (EPCOT), in which Zipperer has coordinated efforts to equip pavilions with electrical distribution equipment. 

Neil Kirchner steps inside a tanning booth.



James Zipperer's customer is Disney World.



GE's Bart Law (l.) here with Brown & Root's E.M. Hill, is an 'outside' salesman.

# Programs for people

Recent GE announcements of new Dental and Home Sale Plans show ongoing Company concern for employees' welfare.

## As of July 1— a new dental plan

General Electric's new Dental Assistance Plan—which becomes effective July 1 as part of the three-year job package improvements announced last summer and negotiated with unions—emphasizes preventive dental care, and provides extensive coverage for major dental expenses.

The plan will cover all employees who have at least one year of continuous service, and their eligible dependents. This coverage requires no employee contributions.

"GE's dental program will cover check-ups, cleanings, x-rays, fluoride treatments, fillings, inlays, crowns, bridges and dentures, root-canal work, treatment of gums, extractions—as well as injury-related dental work," states Fairfield's C. Stephen Tsorvas, insurance plans consultant in employee benefits operation. "Benefits for diagnostic and preventive work will pay the major portion of dentists' charges—thus encouraging employees and their families to maintain healthy teeth. Benefits for restorative and prosthodontic—bridge and denture—work cover about half the dentists' charges, and these combined payments can go as high as \$750 a calendar year for each individual."

Tsorvas points out that the plan takes into account the differing dental costs in various U.S. regions. Three different rate schedules have been prepared for the newly covered expenses, and these schedules—along with other details about the plan—will shortly be distributed to employees. "Dental care in certain states and regions is comparatively more expensive than elsewhere, and the plan recog-



nizes these differences," he explains.

For such dental services as root-canal therapy, treatment of gum disease and oral surgery, each covered person has benefits of 100% for reasonable and customary charges up to \$500 in a calendar year—and 85% of reasonable and customary charges over \$500.

Accidental dental injuries also are covered by the plan, with payments based on the rates for the dental procedures cited above. In no event will the plan pay less than 85% of reasonable and customary charges—after an annual deductible of \$50 per person (\$125 per family).

Some 750,000 GE beneficiaries—Company employees and their eligible dependents—will be covered by the new program, making it one of the larger dental contracts ever awarded to a single insurance carrier. Tsorvas observes that "Connecticut General Life Insurance Co. of Hartford, Conn., the country's third-largest dental insurance firm, is the dental insurer. Connecticut General is opening a new 100-person dental claims office in Avon, Conn., that will process only GE claims."

He continues: "General Electric's new dental program is one of the finest plans in industry today. For example, no payment ceiling is placed on such major expenses as root canals, gum treatments and extractions. What's more, the plan encourages preventive care—by providing for two oral exams and cleanings in a calendar year."

One added service provided by Connecticut General involves *predetermination* of benefits. When expenses are expected to exceed \$150, the individual is encouraged to ask the dentist to file, *in advance of treatment*, for a "predetermination of benefits." Connecticut General will provide the dentist with a listing of the benefits to be paid. This takes the guesswork out of knowing what benefits are payable under the plan *prior* to the work being started.

## As of April 1— a new home sale program

A job transfer can be a trying experience for employees and their families under normal circumstances. But it can be especially traumatic if individuals are selling their homes in a slow housing market and arranging for new mortgages when interest rates are high.

Reducing obstacles to a rapid, smooth relocation for transferred employees and their families is the objective of General Electric's new Home Sale Assistance Program, which took effect

April 1. Under this expanded plan, transferees can now receive immediate assistance in marketing their homes. A nationwide relocation service company, Homequity, located in Wilton, Conn., is administering the program.

The new arrangement provides for Homequity's purchase of GE transferees' homes at appraised market value—or for a higher amount if a transferee succeeds in bettering Homequity's offer. It also provides home-finding assistance for transferees at their new location, in keeping with their personal preferences and financial capabilities.

"It's in both the relocating employee's and the Company's best interests to complete a move as soon as possible," states Fairfield's H. Edward Michl, an exempt compensation consultant with Personnel Accounting Operation. "The family is reunited more rapidly, and the members can more quickly acclimate themselves to their new community. An expedited move also improves employee productivity."

Below are some highlights of the new home sale program offered to GE employees.

- As soon as an employee agrees to transfer, he or she fills out an appraisal request application and submits it to his or her new GE component for forwarding to Homequity. Individuals also are encouraged to list their homes with real estate agents to seek a higher price. Homequity usually calls employees within 24 hours of receipt of the request and asks the individuals to choose two appraisers and an alternate from a list of qualified independent appraisers.

- The appraisers give estimates on the market value of the employee's home, and Homequity then offers to purchase at the average price of the two estimates. If appraisals are more than 7.5% apart, a third appraiser is asked to value the home, and the disparate estimate of the three is dropped.

- The employee has 45 days either to accept or reject Homequity's offer. If a higher offer is secured from a bona fide buyer during the 45-day period, Homequity will raise its offer to that amount and assume responsibility for the sale.

Because of the recent sharp increase in mortgage interest rates, which has contributed to a slow house resale market, GE has arranged to have Homequity extend its offer period to 60 days through 1980.

- Also as an interim measure during 1980: on the day that Homequity's offer expires, the employee can elect to "gamble" and continue looking for a third-party buyer for an additional 30 days. Homequity will re-open and match



any bona fide offer, whether higher or lower than the appraised value, for a total of 90 days from its original offer date.

- When the transferring employee sells to Homequity, he or she receives a check in full for the home on the day it's vacated—or, if the transferee is purchasing a home at the new location, ten days before the house closing. All closing and carrying charges are paid by GE.

"We encourage GE people to use Homequity's service when moving," remarks Michl, "but they aren't required to. If someone elects not to use the program, the Company still will reimburse brokers' commissions and closing costs. However," he adds, "nonparticipating employees will *not* be eligible for a federal income tax allowance on the reimbursements."

One of the more important benefits under GE's expanded relocation program is the "mortgage interest differential allowance" paid to transferred employees, when their new mortgage interest rate is higher than the old one.

Michl explains how this provision works, by citing a hypothetical example:

"Let's say John and Mary Smith have an 8% mortgage on a home with a balance due of \$30,000. They buy a new home, acquiring a 12% mortgage with a balance due of \$40,000.

"Under GE's expanded plan, the Company will partially 'subsidize' the Smiths' move for three years, by providing a mortgage interest differential allowance based on the difference between the old and new mortgage rates and the lower of the two mortgages." □

Hypothetical case: John and Mary Smith	
Balance due on 8% mortgage at old location—	\$30,000
Balance due on 12% mortgage at new location—	\$40,000
Allowance = $3 \times (.12 - .08) \times \$30,000 =$	\$3,600
Payable in 3 annual installments of	\$1,200



◀ The timeless lotus-shaped columns of Karnak temple in Luxor, dating back to 2000 B.C., contrast with the rapidly changing skyline of modern buildings flanking the Nile at Cairo.

## INTERNATIONAL

# For GE, breakthroughs in Egypt



GE helps Egypt renovate its economic infrastructure. At Helwan, south of Cairo, five GE MS5001 gas turbine package power plants feed electricity into the Egyptian Electric Authority's grid.



In the land of the Pharaohs, GE people and products are contributing to a new era of change and growth.

**T**axiing from Cairo's airport into the city's outskirts, the visitor is suddenly faced by a huge, smiling poster portrait of Anwar el-Sadat, with the word "Welcome" as its entire message. It's a fitting symbol of the new, more open-minded spirit that Sadat has breathed into the Arab Republic of Egypt during his first decade as its President.

Taking over the country's leadership following the death of Gamal Nasser, Sadat initiated a series of changes that have infused new life into this ancient land's stagnating economy:

- He sent home the thousands of Russian advisers Nasser had relied on.
- He began to ease the rigid socialism that had characterized Nasser's regime, to encourage the country's private sector, and to invite the influx of Western countries' investments and technologies.

• Through his leadership, the Egyptian people have reinvigorated their sense of national pride, reopened the Suez Canal, and positioned the country to negotiate a peace settlement.

• Ultimately, he led Egypt to the Camp David accords with Israel, enabling his country to turn from its perennial wartime footing to a greater preoccupation with the economic welfare of its people.

Sadat's new open-door policy toward Western nations received a quick response from General Electric: the Company opened its Cairo Liaison Office in 1974.

Of this move, Paolo Fresco, VP and General Manager—Europe and Africa Operations, says: "We established a GE presence in Egypt very early. During those first years, we received little business. Expenses for the Cairo office had to be paid out of market-

development funds. But with this 'seed investment' in '74, followed by three-to-four years of patient homework, we built the base for the veritable explosion of new orders and new business that began to come in 1978 and 1979 for GE products and services that could strengthen Egypt's infrastructure. The Cairo office now employs 16 people under its American manager, and is serving as an effective training ground for professionals who can serve elsewhere in the Arab world."

During this period of change, another development was unfolding that was favorable to U.S. business: Egypt was receiving increasing amounts of financial help from the U.S. government. Fresco recalls: "Funds of the Agency for International Development (A.I.D.) were allocated to Egypt, growing from \$370 million in 1975 to about a billion dollars in 1979. These amounts repre-

*(continued next page)*



Reviewing GE plans at the Helwan turnkey project (left to right): John T. Meola, manager of the Cairo Liaison Office; Paolo Fresco, VP and GM—Europe and Africa Operations; Edward F. Roache, VP and GM—International Construction Business Division; and John F. Burlingame, GE Vice Chairman and Executive Officer.



In support of its boom in tourism, Egypt is investing in new GE-powered aircraft, as indicated by A300 Airbus now leased by Egyptair. On order are seven Airbus jetliners with General Electric engines, while orders for eight GE-equipped DC-10 passenger planes continue to be negotiated.

sented loans and grants that specifically excluded military allocations. In recent years, the Export-Import Bank has also shown an increasing willingness to finance exports to Egypt.”

These developments have opened up opportunities for General Electric to contribute to Egypt’s growth. In Egypt, as in many other countries, the first orders received by GE were for power generation equipment, led by gas turbines.

“The Russian-built Aswan High Dam is still the backbone of the Egyptian electrical system,” a *Monogram* reporter was told in Cairo by John T. Meola, manager of GE’s Liaison Office there. “But the development of the Egyptian economy has uncovered special power needs. For instance, the growth of the industrial complex at Helwan needs additional generating capacity, as does the growth of the great Misr Spinning and Weaving mills at Mehallah—the people here call their country ‘Misr’ rather than ‘Egypt’. Also, each year there is a period when the flow at Aswan is cut back in order

to facilitate the dredging and cleaning of canals supplied by the Nile, and GE gas turbines help fill the power generation gap.”

**Number one in power:** The result has been a substantial flow of orders that has made General Electric “the number-one supplier of power generation equipment to Egypt,” according to Fresco. A total of 19 GE gas turbines are at work at Helwan and a half-dozen other locations. On order for the Misr textile complex, largest in Egypt, are two 20-megawatt steam turbines, plus a variety of GE electrical distribution products. To supply power for the planned growth of the area around Ismailia, on the Suez Canal, two 150-megawatt steam turbine-generators are being installed. And the Cairo office is humming with proposition activity on other power additions planned by the Egyptian Electric Authority.

“We’re pleased to have very healthy relations with the EEA,” Meola says. “They’re responsive to our proposals—such as the idea of developing

the eight gas turbines at Talkha into a combined-cycle STAG” (steam and gas turbine) plant by adding a steam unit. We’re in active discussion of this possibility with the EEA people.”

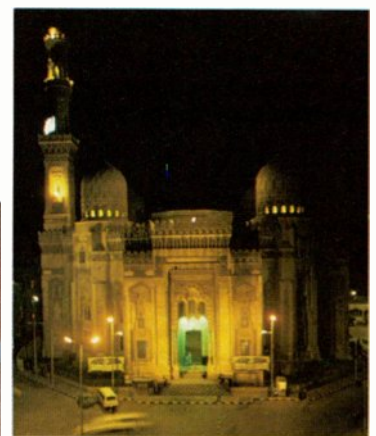
Here, as elsewhere, a key factor in securing these larger apparatus orders has been the special capabilities offered by GE’s International Construction Business Division. Basil W. Nikas, Manager of GE’s Cairo Operations Office for the Division’s International Projects Department, points out that the Helwan, Talkha and Ismailia installations are turn-key projects. “IPD is the project leader on these installations, which include as consortium members the Division’s construction affiliate, Sadelmi/Cogepi of Milan, Italy, and two capable Egyptian firms, Arab Contractors and HIDEICO, to carry these projects from groundbreaking to the point of turnover to the EEA.”

From this base in electric power generation, GE people have been steadily widening the span of General Electric



GE mobile radio is being specified for major Egyptian communications projects. Above: ambulances of the Egyptian Ministry of Health use GE units to maintain two-way links with five hospitals in Cairo and Alexandria.

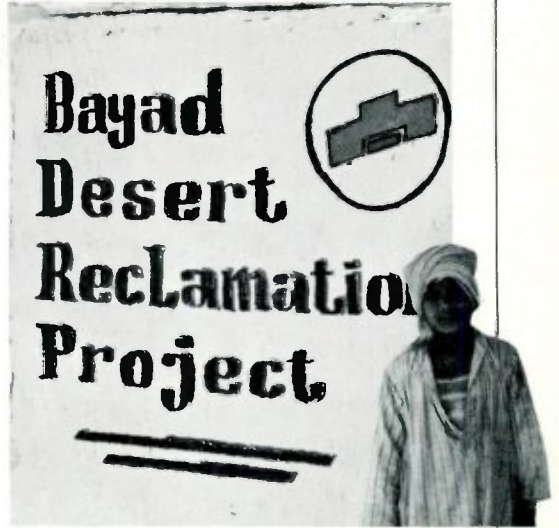
Below: use of GE “PE” two-way radios to coordinate Suez Canal communications is tested by Nabil H. M. Hassib, Telecoms Divisional Head of the Suez Canal Authority.



GE Lucalox® lighting has won a foothold in Egypt, as represented by illumination of this mosque in Alexandria.



Immemorial patterns of life in Bayad are undergoing sudden change as the result of a new GE-supported project to "make the desert bloom."



Garden plot at Bayad, watered by trickle irrigation, may not look all that flourishing to Western eyes, but for the natives to see squash growing in their desert soil seems a miracle.



Bayad's economic self-sufficiency is also being promoted by (right) a tiny factory producing jars of marmalade and (above) a fish farm in nearby waters of the Nile.



# Monographs



**Reducing delinquencies.** One dangerous effect of inflation on U.S. business is that it encourages some customers to delay payment in order to conserve their cash and avoid high interest rates. This unauthorized use of General Electric's funds, for instance, means that money in delinquent accounts receivable is not available for other uses—such as purchases of new productive equipment.

Last spring, GE's 124 credit and collection organizations were challenged to reduce the amounts tied up in delinquent customer accounts during the March 31-December 31, 1979, period.

Despite the unsettled economic conditions in 1979, 32 organizations met or exceeded the challenges—and their reductions totaled \$27.5 million. In appreciation, each of the organizations received a Challenge Award, an engraved plaque recognizing their accomplishments. Thomas O. Thorsen, Senior VP-Finance, presented the awards.

Moreover, five "Challenge Toppers" achieved reductions ranging from 38% to 75%, and these individuals were honored in Fairfield this March at a luncheon attended by Board Chairman Reginald H. Jones. Here, VP Thorsen (l) congratu-

lates São Paulo's Armando Moreira, GE do Brasil.

Other winners: Antonio Garibbo, COGENEL-Italian Operations, Milan; Ray Giroux, Major Appliance Distribution Finance and Services, Cleveland; Robert Irwin, General Electric Supply Company Distribution Finance Operation, Dallas; and Wolf Schindler, Advanced Reactor Systems Department, Sunnysvale, Calif.



**Skating through life.** Glen and Gary Davis went to the same college and graduated the same year with the same degree. They joined Schenectady GE the same day, have been employed there more than six years, and are both senior draftsmen in Large Steam Turbine-Generator Division.

Their lives have been virtual mirror images of each other—they're identical twins—and this duplication can even be seen reflected in their favorite pastime, roller-skating.

Actually, roller-skating is

more than just a pastime with the Davis brothers. They're both champions in the sport, having won more than 140 trophies and 30 medals in individual and pairs amateur competition. Here, Glen (left) and Gary display their gold medals, the highest degree of accomplishment in proficiency roller-skating.

**Replicates ancient art.** His training was as a metals machinist, but Schenectady's Dr. Richard J. Charles at the R&D Center finds wood more interesting to work with. As an off-hours hobbyist, he loves to reproduce ancient *objets d'art*, such as the carved wood replica of a Mayan stone sarcophagus lying on the table below.

Charles considers himself more a machine builder than a craftsman. "It's not the carving—it's the making of a special machine for a special job that I enjoy," he reflects. For example, when he saw a photograph of the Mayan sarcophagus and decided he wanted a copy, Charles began envisioning a powerful machine to carve the design on the hard wood he had chosen—an African rosewood called bubinga.

In the 50 to 100 hours he worked on constructing the tools and tracing the design,





Photo courtesy Akron Beacon Journal

using a large black-and-white print, Charles went through 50 tool bits!

**Honors.** Battery Business Department has received the Award for Excellence in wastewater treatment, presented by the Environmental Industry Council of the President's Council on Environmental Quality. It was one of only four awards made as part of the annual National Industry Awards program.

- Housewares and Audio Business Division's Coffeematic® Brew Starter advertisement has been cited as one of *Advertising Age's* "100 Best" TV commercials of 1979-80.
- Daniel J. Fink, Senior VP of Corporate Planning and Development, has been elected an Honorary Fellow by the American Institute of Aeronautics and Astronautics.
- For promoting an "ever more amicable relationship between Italy and the U.S.A.," Aircraft Engine Business Group's Reginald "Al" Grandmaison in Turin, Italy, has been appointed Knight of the Republic of Italy and awarded the insignia Cavaliere—a civilian honor rarely given to non-Italians.
- Elected to membership in the National Academy of Engineering were Arthur P. Adamson and Martin C. Hemsworth, with Aircraft Engine.

**That's why it's a CAT scanner?** When the animal trainer for the Ringling Brothers, Barnum & Bailey Circus noticed that Radjah, a five-year-old Bengal tiger, had a wobble in his walk, he contacted GE's Medical Systems Business Division to ask what precautions were necessary to do a body scan on a 400-pound cat. GE engineers in Akron, Ohio, quickly diagnosed the problem.

Since GE only recommends scanning patients up to 300 pounds, the engineers eventually advised using planks to add extra support, and extending the table about 1½ feet. As a result, Radjah, a tiger who had been sliding off his stool in the ring, became the first tiger to receive a computerized axial tomography (CAT) scan, with the use of a GE CT/T scanner.

A series of 22 head scans revealed a mass in Radjah's brain, tentatively identified as an inoperable brain tumor. Alas! His condition worsened, and he finally was put to sleep.

Nonetheless, the circus veterinarian said he was grateful for the opportunity to have the tiger scanned, since it cleared up the mystery of Radjah's disorientation.

**Plastics' prowess.** At trade shows and in applications, GE plastics have earned a reputa-

tion for ruggedness and reliability. According to *Industrial Marketing* magazine, which recently compiled its list of the "best trade expositions of 1979," General Electric's Plastics Business Division exhibit at Chicago's National Plastics Exposition last year "literally stole the show. It was undoubtedly the best overall live, formal technical presentation of any exhibit among the shows we surveyed during the year."



At the show, where attendees voted GE as having the "most remembered" exhibit, Company representatives punished a plastic bus seat with a jackhammer, to no effect. Plastic parts withstood open flame and boiling oil. And, in the most dramatic demonstration of all, a two-ton boulder smashed into a test car's plastic bumper with no damage.

All demonstrations emphasized GE Plastics' theme, "Tomorrow's Answers Today."

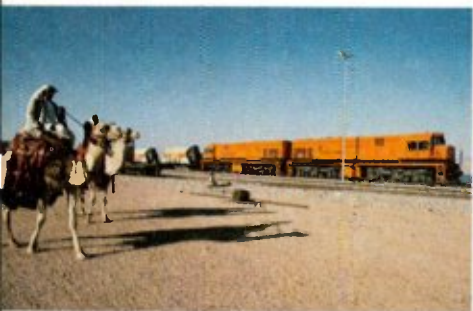


Helping meet the nation's transportation upswing in freight tonnage demand, a General Electric New Series diesel-electric locomotive in Erie is readied for shipment to Santa Fe.

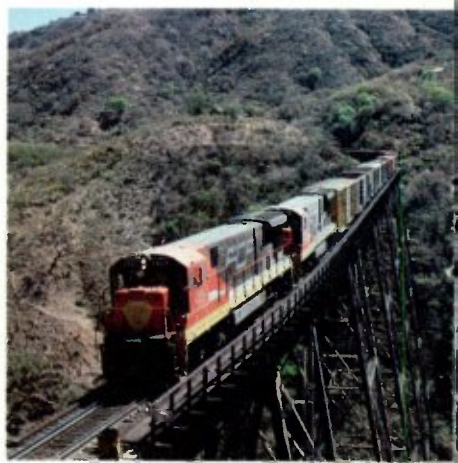
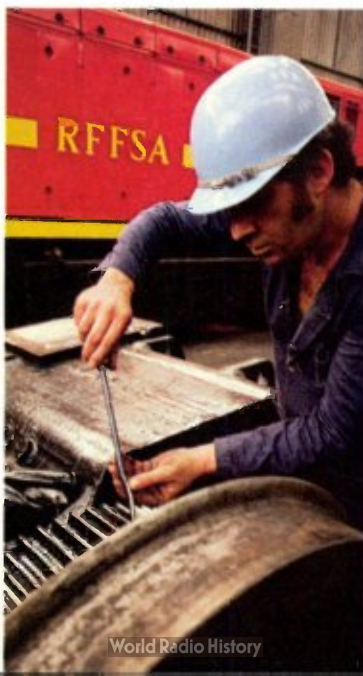
The U.S. railroad industry in recent decades has had its business ups and downs, but with coal hauling becoming increasingly important to electric utilities as they convert to coal-fired power generation, freight traffic is reaching record levels. Popularity of piggyback loads is soaring as well, as advocates say that trailer loads of general merchandise moving long distances by train use much less fuel than trucks.

What effect this rail transportation renaissance has had on General Electric's Transportation Systems Business Division can be readily seen. Sales of GE locomotives reached an all-time high in 1979—up 40% from 1978, counting both domestic and international orders.

This April, the Company announced that it had nego-



In Jordan (top), GE locomotives are used to haul phosphates from El Hasa region to port city of Aqaba on Red Sea. Right: GE locomotive repair at Belo Horizonte service shop in Brazil.



# The railroads are rallying

Increased coal business and fuel-saving 'piggybacking' have started a U.S. rail resurgence.

tiated *the largest contract for locomotives in its history*, with the National Railways of Mexico. The agreement calls for GE to deliver a minimum of 60 and up to 100 locomotives or locomotive component sets each year for ten years.

"This Mexico contract is a testimonial to the quality and dependability of GE locomotives already in service in Mexico and elsewhere," states Carl J. Schlemmer, VP and general manager of the Division. He notes that GE, with 319 locomotives already in Mexican service, has been the primary locomotive supplier there in recent years. An additional 42 units, over and above the new contract, will be delivered this year.

At work in his Erie, Pa., office, Schlemmer says: "The sharply higher earnings recently achieved by our trans-

portation systems businesses, including diesel-electric and electric locomotives, transit propulsion equipment and motorized wheels for large off-highway vehicles, point up the increasing demand for transportation expansion and replacement equipment worldwide. Our success continues to be pegged to innovation. More than 70 technical advances, for example, are incorporated in the New Series diesel-electric locomotives. These models lower railroad operating costs through improved performance, reliability and fuel efficiency."

Mexico's record order for General Electric locomotives, continued strong U.S. rail volume, and the transportation infrastructure development in other parts of the world have Erie people expecting a strong

1980 in sales as well.

U.S. rail traffic now carries 36% of the nation's freight tonnage—more than any other mode of transportation, and a record volume for the railroad industry. Substantial investment expenditures by railroads are predicted over the next five years to handle increased traffic flows. For the first time since the mid-1950s, track and roadbeds are being repaired on a timely basis.

Capital outlays for locomotives and freight cars are responding to rising freight volume, observes Marion S. "Rick" Richardson, Locomotive Operations general manager. "Railroads are turning to more fuel-efficient locomotives to increase profit margins. Some 40% of the U.S. locomotive fleet is more than 17 years old and represents a major replacement market. The tim-

*(continued next page)*



Mexico has long been a major market for GE locomotives (l)—and now has awarded GE the Company's largest locomotive order. Above: GE electric locomotive helping link Taiwan's cities.



In Erie computer room (l), Dr. John Wu (c), manager of materials and processes lab, works with engineers Chris Panitzke and Cathy Sunderlin. Top: GE-rebuilt Metroliner car now in use.

ing of replacement may be accelerated as users begin to realize that fuel-efficient locomotives are a good way of offsetting rising fuel costs."

Washington has spent \$11 billion over the last five years to improve passenger and freight service, Richardson notes. Amtrak, the government-subsidized company that runs America's passenger trains, is benefiting from an unprecedented surge in riders—largely the result of higher gasoline prices and spot fuel shortages.

"U.S. energy needs have provided the single greatest boost to today's railroad resurgence," he says. "Coal hauling—by far the largest activity of the railroads—promises to become even more important if utilities convert to coal burning at the rate envisaged by the Administration. Everywhere, the coal carriers are gearing up for growth."

In addition to this energy-related boost to railroading, intermodal service—which uses a combination of shipping methods—has accelerated with a second generation of piggy-back loads. Today, a container may move by ship, rail and truck to its destination.

The Association of American Railroads says that "today's freight railroads are up to four times more fuel-efficient than big trucks."

Further innovations in services and equipment can be expected in the 1980s, Richardson maintains. "For example, a Japanese shipper may now send containerized cargo from Japan to Europe via a 'rail bridge' across the U.S. A single bill of lading is issued in Japan, and U.S. railroads guarantee deliveries on time from the west to east coasts."

Perhaps one of the brighter spots in the railroads' future is the new government regulatory atmosphere. For nearly a century, the Interstate Commerce Commission has told railroads what their freight rates and routes must be. To abandon track or get a merger approved took years. Now, an Administration-backed push for industry deregulation is making the abandonment of unprofitable track and the raising of rates easier. More mergers, which are seen as strengthening the industry, are taking place.

**GE high-technology designs in its New Series locomotives**

are seen by Erie's transportation people as complementing railroads' current efforts to cut costs and recover market share from the trucking industry.

Of special note is the "technology transfer" work done by Erie in cooperation with Evenedale's Aircraft Engine Business Group, which has led to a GE locomotive turbocharger that significantly improves fuel efficiency. Operating temperatures have been reduced, component durability has been heightened and full horsepower maintained.

GE's four-stroke-cycle diesel engine, such as on the B36-7 locomotive, a 3,600-hp, four-axle unit, is now the world's most advanced railroad-type diesel engine in fuel efficiency.

"This engine and turbocharger, combined with other improvements such as increased traction horsepower, have boosted fuel efficiency by 7.5% over similarly sized earlier models," observes Walter S. Bertaux, general manager of Locomotive Engineering Department. "Over the life of a typical high-mileage locomotive, the present value of that 7.5% fuel savings is nearly a quarter of a million dollars."

Impressive examples of technological infusion can also be found in manufacturing. The transportation renaissance has created a demand for solid-state electronics, microprocessor applications and sophisticated heat-transfer and fluid-flow technologies.

"We recently installed our first robot welder at the Erie plant—the first of its kind in the Company," comments Roy L. Beaver, Locomotive Manufacturing Department general manager. "It automatically welds locomotive gear cases, and is helping provide a 65% productivity improvement



Engineering trainees Hal Hostettler and Soraya Anvar receive microcomputer experience. Right: GE locomotives in operation on Burlington Northern line in Midwest.



## Another Erie bright spot: electric wheels

Today's energy crisis is spawning innovation in Erie's off-highway vehicle business as well. Sales of GE motorized-wheel drives were up in 1979, reflecting growing customer demand worldwide for haulage vehicles for open-pit coal, copper and iron mines.



In 1963, when the Company introduced motorized wheels, the impact on the surface mining industry was immense," recalls Erie general manager Jack Kirker. "Sixty-ton trucks were the optimum size at that time. GE motorized-wheel drives enabled the use of 85-

ton trucks, and 170-ton trucks are now common. To date, we've supplied more than 4,000 off-highway vehicles with GE drives at 173 mines in 29 countries throughout the world."

He points out that GE now is offering electrified trolley-assist systems for improving diesel-electric haulage. "By year's end, GE will have systems operating in South Africa, in iron and copper mining. Other opportunities exist in Australia, Brazil, Yugoslavia and the U.S."

When a truck operates from an electrified catenary, the diesel engine runs at 'high idle' rather than at maximum horsepower, and 75% of the diesel fuel can be saved. In 1970, GE helped develop a trolley-assist system for the Québec Cartier Mining Company in Québec. A full-scale production system was operated for seven years, until the mine was depleted and mining ceased.

while curbing material costs and improving the working environment of the operator."

**Upgrading rail transportation** is a prime GE activity worldwide as well, and has been an important trade "entry mechanism" for the Company. In several situations, GE locomotives were the first major Company products purchased by developing countries' governments, and their excellent reputation furnished a "pull through" for other apparatus bearing the GE monogram.


In Mexico, for example, General Electric has sold locomotives since before the turn of the century and has continued to be a major supplier, VP Schlemmer observes. "Today, the National Railways of Mexico is gaining the reputation as a well-equipped, progressive carrier."

Despite the already heavy purchases of equipment, Mexico's petroleum-fueled economy is expected to place increased demands on its rail system, and GE is making special efforts to expedite shipments to Mexico, he continues. "To speed delivery, some GE locomotives are being manufactured in Campinas, Brazil, by GE do Brasil S.A. The Campinas plant has given GE increased flexibility in meeting customer needs worldwide."

**High-performance propulsion** equipment for the rail transit industry—another profitable business of Transportation Systems Business Division—is benefiting from the same upswing that is boosting GE locomotive operations.

In 1979, Erie's transit car operations completed the overhaul of 34 Metroliner rail cars

for use along the Northeast corridor, notes Jack M. Kirker, general manager of Transportation Equipment Products Department. "Last year as well, an order for 190 propulsion and control sets was completed for the Massachusetts Bay Transportation Authority, and an order for 300 similar sets was received from the Chicago Transit Authority."

"Today, diverse GE technologies are being applied to customers' transportation needs, and our Division businesses are well-positioned to play a strong role in modernizing the world's transportation systems," concludes Schlemmer. "We are intent upon continuing to supply highly reliable and fuel-conscious transportation equipment—backed up by unparalleled component repair and renewal-parts service worldwide." 

**W**ant a “Sherlock Holmes” to track down a specialized report that details, say, the latest General Electric research on plasma physics? Need to learn how the Company’s Monitor Top refrigerators were manufactured? What are the latest findings on GE’s electric-vehicle research?

Chances are, the Company’s Technical Information Exchange (TIE) can turn up the answer. Located at Schenectady’s Research and Development Center, TIE is a repository for more than 167,000 technical reports—some dating back to before 1900. The reports include ones prepared and written by GE people, including technology updates by foreign liaison scientists, as well as those issued by selected universities.

Notes TIE Manager Patricia A. Oliver: “We have the most complete file of GE documents in the Company. Last year, for example, we provided 65,119 reports and added 1,266 new ones.”

Reports are indexed by author, subject and Technical Information Series number, and photographed on microfiche. New acquisitions are listed weekly for intra-Company distribution. Reports not listed may be found by computer search.

“If TIE doesn’t have a certain report,” points out Oliver, “we help by offering a referral service. Our ‘sleuthing’ can usually turn up any information.”

**Computers and microfilm capabilities** that assist TIE’s notification and search services have brought this organization a long way from its birth in 1949 as the Technical Data Center. In TIE’s early years, only paper copies of reports were kept, and searches were conducted manually—a long and painstaking method. Today, TIE’s workforce has grown



◀ Investigations of many business-related technical questions are conducted by TIE’s Patricia Oliver (l) and Mary Jane Baird.

to 14 persons, headed by Manager Pat Oliver and Documentalist Mary Jane Baird.

“GE is such a technically diversified company that the gamut of material we index ranges from microelectronics to ‘silly putty’ applications,” Baird observes.

There are two ways to use TIE’s detective services, which are available to anyone in the Company:

- request reports by mail, telephone or personal visit; or
- become a Selective Notification and Dissemination System subscriber.

The system draws a “technical profile” of individual subscribers based on their fields of interest, and weekly sends them abstracts of reports they may find

useful in their current work.

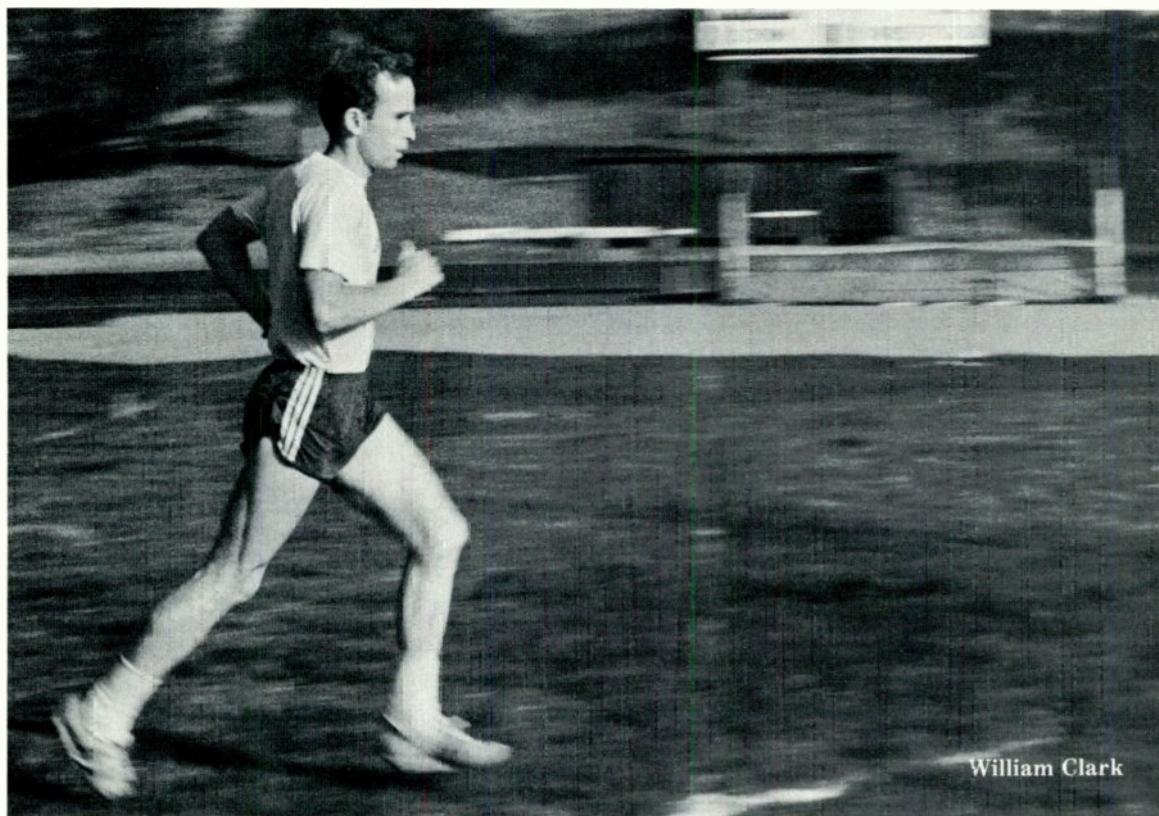
While TIE’s investigative efforts are focused almost exclusively on technical-related problems, other requests occasionally come in.

Recently, some high-school students approached GE, asking if the Company had conducted any research on antigravity devices. A Company spokesman replied that GE was a pioneer in many areas—but antigravity machines surely weren’t among them.

However, the students’ enthusiasm prompted a TIE search that uncovered a paper on gravity that proved of interest to them—“The Stochastic Approach to the Laws of Motion,” written in 1963 by GE’s Dr. Hermann von Schelling.

While the students were no doubt disappointed to learn that antigravity devices do not exist, they were able to learn something about gravity, and to write a school report based, in part, on TIE’s ferreting quest. ■

# GE's long-distance runners



William Clark

Joggers abound, but the true marathoner—the person who runs 26 miles at a clip—is a breed apart.

**W**hen morning is just a ribbon of light across the horizon and a cold rain is rattling down the eaves spout, do you fling open the front door of your home and start a 10-mile run along quiet and deserted neighborhood streets? Chances are you don't. But in General Electric, from Schenectady to San Jose, there's a pack of runners who hardly flinch at that distance

or such weather. They're marathoners—and 10 miles a day is about what they need to stay fit for the races that have become famous in Boston, New York, Ottawa and a dozen or so other cities in North America.

What keeps them out there pounding the pavement day after day and mile after mile? Here's a sampling from marathoners around the Company.

"There's a sense of satisfaction when you set goals for yourself," comments San Jose's William J. Clark, who in 1968 placed second in the Boston Marathon and just missed making the U.S. Olympic Team. "I physically enjoy running and being outside and jogging

across the hills of my hometown of Los Altos."

The operations analysis manager in the Nuclear Energy Business Group has not only set goals—he has broken records. A two-time All-American for Notre Dame, Clark once held six U.S. running records. He points out that to be Olympic caliber today, a marathoner must average well over 100 miles a week running. Some people, including himself, he says, cannot do this because of their physiology.

"And because of my job responsibilities and my family, I can only put in about 70 miles a week," he adds.

*(continued next page)*

Chicago's Daniel Beckum, an assembler for Major Appliance Business Group, has the right body chemistry, and stringing together 110 miles in six days in something he has done, but he tries to average closer to 90.

"You keep pushing yourself," explains Beckum, who recently placed second in the De Kalb, Ill., Marathon with a personal record of 2:56 hours.

Beckum, who was overweight and chronically ill, took up running a few years ago when some friends failed to show up for a basketball game. He started running laps in the gym and had gone nearly nine miles when he stopped. He's been running ever since and has 13 marathons to his credit. His health is excellent now. Incidentally, when his own doctor complained of a pain, Beckum advised running. The doctor is a marathoner today!

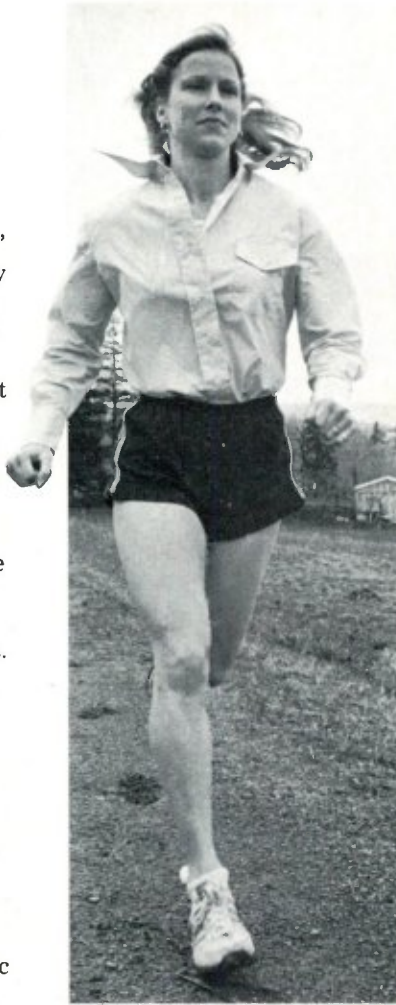
**A horrendous appetite** is one reason Utica's Carol Waters is a marathoner.

An employee relations specialist for Aerospace Electronic Systems Department (AESD), Waters, who has run a pair of marathons with a first-place finish for women in the hilly Finger Lakes off 800 calories a day with her training.

"That lets me eat pretty much what I want," says the 5'-4", 110-pounder. Waters runs 50 miles a week. "Running also gets me outside and gives me time to daydream. I just let my mind wander."

A marathoning colleague of Waters at AESD, Dr. James C. McDade, a unit manager, calls marathon running "accelerated hiking."

McDade, 46, has competed



Carol Waters



Leonard Grubbs



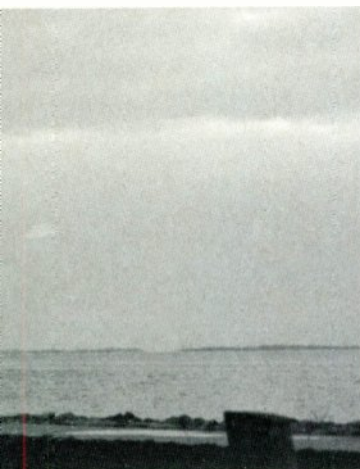
Dawn along Lake Erie's Presque Isle Bay finds Barbara and Michael



Daniel Beckum



Russell Niemi



Filutze training for a marathon.

in the Boston run 14 times. He stays fit by “working out when I can and varying running habits to keep my training from becoming monotonous.”

Unlike most other runners, Kansas City’s Russell E. Niemi doesn’t enjoy marathons. But the systems engineer for Apparatus Distribution Sales Division is perhaps the key marathoner in his part of the country because of his unselfishness. Niemi not only recognizes that long-distance running is healthy, but also promotes the activity each year by organizing the Hospital Hill Run, which he founded in 1973, and administering the Mid-America Masters Track and Field Association. Writes a Kansas City *Star* sports reporter: “Russ Niemi is to Hospital Hill what director Will Cloney is to the Boston Marathon. Everything.”

Observes Niemi, who spends over 200 hours a year planning the Hospital Hill Run, and uncounted other hours organizing two more road races and editing a magazine for his track association: “Running was the easy way for me to get into shape. All I had to do was open the door and run around the block. Before I knew it I was a marathoner.”

“There’s a personal feeling of well-being in running,” says Pittsfield’s Winston C. Taylor, a circuit test engineer for Ordnance Systems Department. “It’s good to go out on the road after a long hard day behind the desk. You can unwind.”

Last year Taylor was among the top finishers in the New York City Marathon and this spring added Boston to his list, shaving two minutes off his personal record.

“I run in all kinds of weather,” he says, “and I haven’t had a cold in two years.”

Schenectady’s Leonard H. Grubbs also runs in all kinds of weather, and adds that when it’s “cold and windy, you ask yourself if it’s worth getting out of bed at 5 a.m. But you get up and go.”

Grubbs, an accounting manager for Turbine Business Group, began running two years ago in the GE Centennial Run and is now training for the Ottawa Marathon to be held later this summer. On the streets of Charlton, N.Y., he alternates his weekly schedule—jogging 10 miles on his “easy” days and 20 miles on “hard” days. Since he started, he has shed 55 pounds and has recorded a 2:59-hour marathon.

“It’s a lifestyle I enjoy,” comments Grubbs. “On some days I feel I could run forever.”

Every two months Erie’s Michael M. Filutze competes in a marathon.

“The reward for all my running is Boston,” says the numerical control specialist for Locomotive Operations. “It’s the elite marathon.”

But this year, Boston, which he has run twice, held a special reward for him. His wife, Barbara, who took up running last year because Filutze seemed to be spending less time with the family and more time training for races, was in the Boston Marathon with him.

“I was a little worried about her,” recalls Filutze. “She started 250th among women, but when she crossed the finish line I was feeling pretty proud, and a little nervous. She not only placed 180th—she finished just 12 minutes behind me.”

**The Seehafer family:  
restoring carousel animals**

Enter the Richard L. Seehafer home in Waukesha, Wis., and you might be reminded of a childhood trip to an amusement park. In the living room are a six-foot-tall giraffe, a camel and a deer—all antique wooden carousel animals. The Seehafers' hobby is the collecting, restoration and painting of these carnival critters, some dating back to the late 1800s.

"Carousels employ just about every real and imaginary animal—horses, bears, elephants, lions, dragons and unicorns," remarks Rich Seehafer, an equipment specialist with Milwaukee's Medical Systems Business Group. "My wife Peggy and I acquire the animals from dealers, and then refinish them for ourselves or for private collectors. Our son



Brent helps, too—he has a workbench next to mine and brings me the right tools. We're just three kids."

Rich continues: "A horse we're working on now will sell for about \$2,500. One of our giraffes recently sold for \$13,000."

# What will they collect next?

As these GE employees will tell you, one person's indifference is another's ticket to after-hours joy and profit.

**Roger Chase:**

**lifelong love affair with cars**  
At age six, he drove a Model T Ford around his father's farm. It was his favorite "toy," and he grew up loving cars. "Once I got the fever, everyone who knew me would put me on to cars and, after 30 years, I find myself with a fleet."

The speaker is Schenectady's Roger S. Chase, manager—Advanced Manufacturing Engineering with Large Steam Turbine-Generator Department. Here, he poses with eight of his oldest cars (1 to r): a 1926 Model T speedster; 1925 Model T station wagon; 1930 Model A rumble-seat deluxe coupe; 1911 Model T touring car; 1929 Model A four-door sedan; 1925 Model T "doctor's coupe"; 1924 Model T roadster (his first car); and 1927 Model T roadster.

Why collect cars? "They're some-



thing the whole family can enjoy," explains Chase. "Our family often joins other antique car buffs for Sunday drives and picnics. Besides

—in my GE career, I've moved around a bit. The cars," he adds with a wry grin, "have served as a vehicle to establish new friendships."

### Anthony Turk likes to hunt, fish—and collect dolls

How does a man get interested in dolls? “I became interested as a matter of self-protection,” recalls Anthony “Tony” Turk, a Lamp Equipment Operation inspector in Mentor, Ohio. “One evening my wife Beth came home, wanting \$200 for an antique doll she’d seen. Not believing any doll could be worth that, I got some books out of the library. Much to my surprise, the doll was a bargain!”

Now, 20 years later, with 300 rare dolls worth a small fortune, Tony and Beth Turk are experts on the subject. Their home library contains some 100 books on doll-makers and period costuming.

With their three children, they frequently travel throughout the U.S. to attend doll shows.

Some of the time-honored dolls in the Turks’ collection were never children’s playthings. “Many of them,” Tony says, “were carried by tailors or dressmakers to show in miniature what they could do.” He adds, “The world’s rarest such doll is called a Marque. It’s a French doll, and the last known one sold for more than \$20,000. I’ve narrowly missed the chance to buy two in recent years, and if I ever hear of one for sale—even as far away as Paris—I’ll probably get on a plane and go bid on it!”



### Bruce Meyer: examining America through comic books

“Comics provide a good tip-off to where a nation’s people are at a given time,” maintains Louisville’s C. Bruce Meyer, an employee communications specialist with Major Appliance Business Group. “Superman, for example, was ‘born’ in the Depression and filled a need in a country where people were questioning both the nation’s and their own endurance. World War II heroes such as The Flash took up patriotic causes.”

As avid comic-book collectors who on weekends haunt flea markets, antique shows and book fairs, Bruce and his wife Brenda now own some 1,500-2,000 comics. They’re proudest of their Classics

Illustrated series, and need only the Sherlock Holmes issue to have a complete collection.

He continues: “If comics are the ultimate nostalgia trip for some adults today, it should be remembered that many comics were ahead of their time, predicting future inventions and technology. Above all, they’ve been a social bellwether. The Atomic Age in the 1950s spawned numerous sci-fi comics. The 1960s produced ‘anti’ heroes such as Spiderman. Now, with feminism a timely topic, Wonder Woman has changed into a more universal woman symbol. And The Hulk is a superhero, but with feelings and limitations.”



### Gary Snyder: ‘the worst beer may come in pretty cans’

“Beer companies are starting to cater to can collectors—one brewery offers 77 different cans,” says Gary L. Snyder, a plating leader with Allentown, Pa.’s Housewares Manufacturing Department. “As a connoisseur of beer, though, a person mustn’t be taken in by beautiful containers. Some of the most acidic beer comes in pretty cans.”

Snyder began accumulating his specimens filled with the Braumeister’s craft five years ago, saving the cans as souvenirs of vacations. Now, he attends conventions organized by the Beer Can Collectors Assn. of America, and

often buys cases of rare foreign beer—keeping one for his collection and trading the others. He notes: “Some cans sell for hundreds of dollars. My prizewinners include special labels printed up for conventions, picnics and holidays, and a set of cans commemorating 12 defunct Pennsylvania breweries.”

Though he displays the cans empty, Snyder recalls that his earlier practice of displaying full cans once paid off during a snowstorm: “I had a guest over at the time, there was plenty of food in the refrigerator, and we just started in on my collection.”



(continued next page)

WHAT WILL THEY COLLECT NEXT?  
(continued)

**Robert Royer:**  
an interest in the Iron Horse

All aboard! with Schenectady miniature railroader Robert G. Royer, an after-hours Cannonballer who here whistle-stops a few of his many trains past sons Dean and Dana. A nuclear engineer at Knolls Atomic Power Laboratory, Royer started collecting toy trains in 1975 after visiting the grand opening of Schenectady's Railroad Hall of Fame.

"No matter what era of toy locomotives people collect, they all mention 'realism' as the most important factor about their trains," Royer observes. "Smokestacks that belch smoke, steam engines that hiss steam, horns that hoot—true collectors appreciate these details."

Royer's own roundhouse services



an extensive fleet of post-World War II Lionel trains and accessories. "Post-war plastic locomotives are more intricately detailed than the earlier ones. In the late '50s, Lionel introduced its Space Age

trains, including rocket- and satellite-launching cars. Then there's the hobo-and-cop car; when the train starts, a tiny motor powers a policeman who actually chases a hobo."



**Anthony Misiano's musical antiques could fill a museum**

His collection is so vast that family and friends keep large parts of it in their homes for him. The musical antiques include player pianos, calliopes, pump organs, automatic-player saxophones, Edison cylinder phonographs, melodeons, monkey organs and music boxes. There's even a tournaphone, used as a church organ in the 1880s, and an automaton with movable mechanical figures that make music.

"Life years ago was bursting with wonderful music," insists Anthony S. Misiano, a senior designer with Lynn's Aircraft Engine Business

Group. "My hobby enables me to reconstruct for my son Eric the heydays of circuses with their cacophony of calliopes—those bygone days when park gazebos were filled with band music and families gathered around the piano for sing-alongs."

Misiano began his musical menagerie in 1960 and has refurbished many of his artifacts. How does he find his memorabilia? "I've bought some of my nicest items at 4 a.m. The best time to buy at an auction or flea market is when people are unloading trucks."

**The Zastrows: mementos of Wisconsin's dairying legacy**

Both their grandparents were dairy farmers and Lyn's dad was a dairyman. Two years ago, to preserve a bit of their heritage, Milwaukee's Lyn and Barbara Zastrow began collecting quart-size glass milk bottles from Wisconsin's dairying community. They now have bottles from 260 different dairies—no two alike—and hope to obtain the oldest bottle of each of the 1,000-plus dairies that Wisconsin has had since the turn of the century.

"Barbara and I visit flea markets, antique stores and rummage sales for bottles," says Lyn, a senior

computer programmer with Medical Systems Business Group. "We constantly build more shelves for our growing 'collectomania.'"

The most valuable bottles are ones with a special top that came filled with thick, rich cream that that could be whipped, comments Barbara. "These sell for between \$3 and \$20. Embossed and painted bottles also are rare and average \$2 to \$5. But prices vary and we dicker." She adds, "I have to be the only Wisconsin mother who got seven milk bottles from her children last year for Mother's Day!"





### Joseph Shaw: expert on froes, slicks, adzes and augurs

It all started 16 years ago when he decided to buy an antique slant-top desk. "I finally found one for a mere \$10,000," remembers Joseph W. Shaw, a sales engineer for Philadelphia's Motor Business Group. "Needless to say, I didn't buy. But while in the store I noticed some old, beautiful maple and beech tools and bought them for \$1 apiece. I was enchanted that such crude tools made furniture that is unsurpassed even today."

That was just the beginning. Now, Shaw collects antique tools of the carpenter's, cooper's and blacksmith's trades. In his recre-

ation room, he displays some 150 pieces, a reminder of the era when everything was handmade, including the tools themselves.

Shaw's oldest tool is a froe that dates back to the mid-1700s. He explains that workmen used it to make shingles. Shaw's collection includes dogs—used to hold a log down while a broad axe cleaves the edge—and slicks, to clean out mortises. He continues: "Often, the plane used for moldings in colonial homes was left with the owner—since no two molding planes were alike, and a particular plane was essential for repairs."




### 'Rocky' Rockefeller: a quality check on British stamps

There's much irony in a comparison of Allan W. "Rocky" Rockefeller's work for GE's Re-entry Systems Division and his leisuretime activity. As acting Division quality auditor in Valley Forge, Pa., he works to assure the integrity of Company products. In his den at home, however, he yearns to find flaws in stamps which will make them worth \$350 instead of 35 cents.

A 30-year philatelist who now specializes in British stamps, Rockefeller notes that he was attracted to Britain's postal service for two reasons: "Britain was the

first country to issue a stamp—the famous Penny Black depicting Queen Victoria, on May 6, 1840—so 140 years of British stamp history exist. Second, in 1968, the country switched to a new complex stamp-printing system. Britain now uses graphite lines, phosphor bands, photogravure engraving and different perforations."

Why does all this excite a stamp collector? "It's a challenge to take ten stamps which appear the same and examine them for errors," he comments. "British postal authorities don't make many mistakes." 

## Organization Changes

### CONSUMER PRODUCTS AND SERVICES SECTOR

David O. Gifford elected a Vice President  
William L. Grim elected a Vice President  
Walter W. Williams elected a Vice President  
Jacques A. Robinson, VP and Manager—  
GECC Strategic Planning & Dev. Operation  
Richard E. James, General Manager—  
Dishwasher & Disposal Marketing Dept.  
John M. Trani, General Manager—Audio  
Electronics Products Department

### INDUSTRIAL PRODUCTS AND COMPONENTS SECTOR

William J. Heerlein, General Manager—  
Distribution Equipment Division Eng. Dept.  
Marcel P. Joseph, General Manager—  
Specialty Motor Department

### POWER SYSTEMS SECTOR

James A. Long, General Manager—  
Wilmington Manufacturing Department,  
Nuclear Products Division

### TECHNICAL SYSTEMS AND MATERIALS SECTOR

Orville R. Bonner elected a Vice President  
Neil Burgess elected a Vice President  
William J. Crawford III elected a Vice  
President  
Donald J. Meyers elected a Vice President  
Frank E. Pickering elected a Vice President  
Harry C. Stonecipher elected a Vice  
President  
Delbert L. Williamson, General Manager—  
Battery Business Department

### UTAH INTERNATIONAL INC.

John T. Atkins elected a Vice President  
Donn K. Furgerson elected a Vice President  
Robert N. Hickman elected a Vice President



## To reduce oil imports, substitute electricity

Underutilized electrical capacity provides base for significantly reducing U.S. use of imported oil.

**S**ubstitution of electricity for other energy sources, particularly for costly oil imports—it's a theme that authorities in General Electric's Power Systems Sector have been hammering home with renewed vigor.

Addressing such audiences as the Southwest Electric Conference and the Southeast Electrical Exchange, Herman R. Hill, Executive VP and Sector Executive, Power Systems Sector, told listeners that this country already has an enormous but underutilized energy system that could help conserve the nation's energy supply, cut expensive oil imports and avoid the dangers associated with a sudden interruption in oil deliveries—*starting almost immediately.*

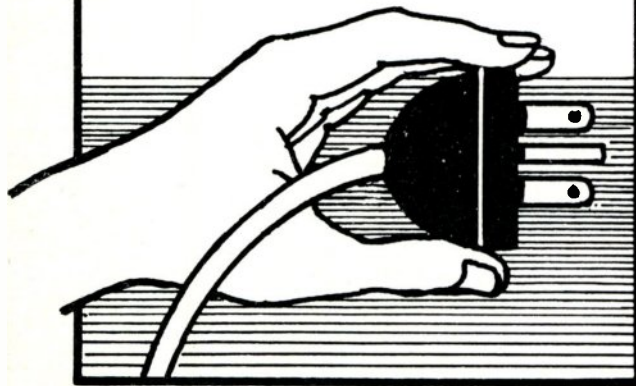
That system? The nation's utilities, which supply the electricity needed to keep the economy running, through interstate power pools and regional interties. The U.S. has the world's most sophisticated power generation, transmission and distribution network—and it's capable of providing increased electrical power.

Hill observes that, with realistic incentives and government support, America's utilities could start using their existing power-generating capacity to provide electric power as a substitute for other energy sources, especially oil.

Today's energy crisis is, more accurately, a *liquid-fuel* crisis, he notes. The magnitude of U.S. oil imports staggers the imagination. This nation in 1979 imported 8.3 million barrels of oil daily. Multiply by 365 and you have the annual imported oil consumption, *more than three billion barrels.*

"Present estimates by some economists are that by 1990 the price of oil in current dollars will be more than \$100 a barrel and will go up to almost \$250 per barrel by the year 2000," Hill says. "Unless we're willing to throw in the towel and concede we're headed for national bankruptcy, this massive transfer of wealth simply cannot continue indefinitely."

A convincing case can be built that, using today's technology, the substitution of electricity for other energy sources could reduce U.S. use of imported oil significantly, Hill maintains. "In dollars, that would be much more than President Carter is looking for to balance the federal budget, and more than the nation's



serious balance-of-trade deficit, caused largely by the flow of U.S. dollars to OPEC.”

GE’s Power Systems executive continues: “The greatest potential exists in commercial and residential space and water heating. This would free up substantial amounts of oil and gas for other sectors of the economy that are more dependent on liquid fuels — such as industry, in heat and process steam; transportation; and petrochemical feedstocks.

“Steps in this direction are already under way. Half of the U.S. homes built over the last five years use electric heat. More than one-fourth of those now under construction are equipped with heat pumps.”

Opportunities also exist for utilizing electricity directly in businesses and industry, in such uses as microwave cooking in restaurants, ultraviolet drying, induction heating and recycling of primary metals with electric furnaces. Longer term, industrial heat pumps may give some industrial users the efficiencies now enjoyed by residential users.

To date, the major deterrent to greater electrical substitution has been economic. Today, though, the gap in price between electricity and oil has changed dramatically. By 1990, electricity will be the economical choice for many more energy users.

Addressing electric utility executives, Hill posed the crucial energy question facing Americans by noting that, even if electricity is now viewed as “less efficient” in some applications, a bigger problem remains: “What would the nation do if the ‘more efficient’ foreign oil were suddenly turned off? Fifty percent of *nothing* is still *nothing!*”

He emphasized that an all-out effort is needed to reduce national dependence on expensive foreign oil by employing every means available—including electricity substitution, digging new coal mines, expanding railroad transportation, using nuclear power, testing solar technologies, developing shale oil and creating synfuels in an effort that would match the job done in World War II to create synthetic rubber.

“In this day of instant coffee, instant soup and ‘instant’ almost everything, it’s a great temptation to suggest there is an instant solution to the energy dilemma,” says Hill. “But it takes 25-to-50 years to scale up a new energy source from the lab to commercial application. For the foreseeable future, coal and nuclear remain our primary options for electric power.”

As one partial solution to this country’s petroleum vulnerability, he believes, the U.S.

needs to use and expand electric utilities’ existing reserve capacity to reduce its oil imports. “There has been a good deal of talk about building a national petroleum reserve. We would be well advised also to start building a *national electricity reserve* for the day when the flow of imported oil might be cut off.”

Such an energy proposal flies in the face of conventional wisdom with regard to how utilities have traditionally approached their power-generation needs, Hill agrees. In recent years, U.S. utilities have found it necessary to cancel orders for \$100-billion worth of new plants. With load growth *down* and reserve margins *up*, those decisions were understandable.

But now, with the benefit of 20/20 hindsight, many utility owners, suppliers and others see that this country should have been moving in the opposite direction, he points out.

“The ‘efficiency ethic,’” Hill notes, “is deeply ingrained in everyone’s thinking, and should continue with respect to the operating efficiency of power generation, transmission and distribution equipment.

“But I must stress that with the rapid changes we’ve experienced in the availability, cost and interruptibility of various energy sources, *all BTUs are not created equal*. Conventional economics, based on current relationships, become absurd in a survival situation,” he adds.

A good deal of homework still is to be done to validate the electrical-substitution theory. Hill encourages both the public and private sectors to closely examine the substitution idea, as “we’re going to need everything we’ve got to get us through the ’80s and ’90s before new energy sources can be brought on line.”

By the year 2000, he says, the U.S. could become a much less energy-dependent nation, if there is a major shift to domestically generated electricity. Estimates are that the electricity portion of the U.S.’s primary fuel input might jump from the current 29% to 50%—an increase of almost six trillion kilowatt-hours—*three times* the present U.S. electricity consumption.

Hill concludes: “Americans must stop believing in instant solutions and get on with the doable options that are available. The key to our future is how far and how fast we can move toward greater use of coal and nuclear power. Other countries such as France, Sweden and Japan already are doing this—and better than we. The oil-saving potential for the U.S. is too great to be ignored, and the benefits that could accrue to America’s economic welfare and national defense are enormous.”

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# 'Mini' perspectives

Intriguing news tips and viewpoints keep turning up in the *Monogram's* 'in' basket. Here are some discoveries.



## The cheaper light—candle or bulb?

That's what Cleveland *GE News* editor Robert Van Der Velde sought to discover recently, when he stumbled across a statement by Thomas Edison that quoted the GE pioneer as saying: "I shall make electric light so cheap that only the rich will be able to burn candles."

Edison said those words a few months after inventing the world's first practical incandescent lamp. To test whether the Wizard of Menlo Park had achieved his goal, Van Der Velde went to a discount store and purchased the cheapest candle there—a plain white one, eight inches tall, for 35 cents. In the same store he bought a soft white GE 100-watt light bulb for 60 cents (actually two for \$1.19).

The candle provided 12.75 lumens of light and the light bulb 1,750 lumens. He found that to get the same amount of light from candles that he got from the one light bulb, he would have to buy 139 candles at a cost of \$48.65.

Wait—there's more. He burned the candle down to the point where it went out, and found that it lasted about six hours. The light bulb has an average rated life of 750 hours.

This means a customer would have to buy 125 batches of candles at \$48.65 for a total of \$6,081.25. To obtain the equivalent of the life span of 10 lamps—far fewer than found in the average home—one would have to purchase \$60,812.50 worth of 35-cent candles!

The electricity cost in the Cleveland area to burn ten 100-watt lamps for 750 hours each is \$41.25, plus the \$6 initial cost of the bulbs, for a total of \$47.25. This is \$60,765.25 cheaper than burning candles.

Concludes Van Der Velde: "Edison fulfilled his promise. He made electric light so cheap that only the rich *can* afford to burn candles."

## Rebirth for surplus buildings

New life is being given to old General Electric buildings in various U.S. communities, as the Company continues its commitment to local charitable and health organizations.

For example, in Utica, N.Y., GE last year donated its 77,000-sq.-ft. Kent Street building to the Central Association for the Blind (CAB). The fortunate coincidence of an aging GE facility, the need for additional space by the CAB, and the availability of federal funds for renovation and conversion of the facility have placed CAB in a new home.

The location of the Utica facility is especially suitable to the needs of the blind, since it is on a main city bus line; is adjacent to three large housing projects for senior citizens, some of whom are blind; and has a large park directly



In a "retired" GE facility in Cleveland, Woodland Job Center students learn automotive repair.

across the street from its front door.

GE acquired the 56-year-old building in 1942 for electronic component manufacturing, and converted the space to storage when manufacturing phased out. Since 1969, United Way and Junior Achievement have leased offices in the building, and both agencies will continue to maintain offices there.

Another instance where a "retired" GE building has been put to useful work for a city's residents is Cleveland's Woodland Job Center.

In 1968, the Company donated its former 207,000-sq.-ft. Woodland Avenue warehouse to

the Cleveland Board of Education, suggesting at the time that it be used for specialized vocational training.

Now, 12 years later, the job training center has graduated some 6,500 trainees, who have been hired by dozens of area employers. Woodland's success lies in its job-retention rate. At nearly 65%, as measured after six months on a plant payroll, it's been cited as exceptionally high by manpower training and development experts from federal agencies.

Woodland has the largest full-time adult vocational education program in Ohio.

Five GE surplus buildings in Bridgeport, Conn., were donated to the city government in 1977 in yet another example of the Company's desire to assist local development.

In the agreement, GE sold Bridgeport about ten acres of land upon which the five donated buildings, totaling about 280,000 square feet, rest. Together with some 18 acres of property purchased by the city from the Remington Arms Co., the property will create a 28-acre industrial park on Boston Avenue. It's hoped that the industrial park will attract new tenants and provide additional jobs in the area.

## Computerized biorhythms

The company is called Consumer Data Services, sells human-body-cycle, or biorhythm, charts and mailing labels, and uses GE Credit Corporation's computer facilities to produce its products. But there is no clash of purpose.

So observes third-year Junior Achievement counselor Kathy A. Stacy (left) who, as a systems software supervisor with Stamford's GECC, advises this JA company. Shown with her: JA participants Kenneth Deutsch and Kimberly Fullilove.

"The company's JAers can't wait to get into the computer room," remarks Stacy. "Many have had a computer course in high school and want to apply their knowledge. Besides learn-



ing about free enterprise, they're being taught about the computer industry, which affects everyone's life."

## Yesterday's Air Force fights sclerosis

Ever thought about throwing an air force into the battle against multiple sclerosis? James E. Holan of St. Petersburg, Fla., doesn't think the idea is farfetched at all. In fact, for three consecutive years, he and a group of antique airplane enthusiasts have sponsored the largest public air show held along the west coast of Florida—and all proceeds have gone to the Multiple Sclerosis Society.

Holan, an office service coordinator for General Electric's Neutron Devices Department, is a charter member and "colonel" in the Florida Wing of Yesterday's Air Force (YAF)—a non-profit, educational organization dedicated to re-creating and preserving the aircraft of all wars and of all nations, and to educating today's generation in the air power of yesteryear.

Recent YAF-sponsored air shows have featured the U.S. Navy Blue Angels aerobatics team, U.S. Army Golden Knights jump team and a U.S.

Marine Harrier vertical take-off fighter. Spitfires, Fokkers and Flying Fortresses have taken to the air for the air-circus benefit, and barnstorming pilots have performed vertical snap-rolls and

precision-formation flybys. The YAF's growing collection of "war birds" also has flown, including a World War II P-47 fighter plane and a B-25 Mitchell medium bomber.

"Five GE people, including three women, are members of the YAF's Florida Wing," notes Holan. "Most of our six aircraft are equipped with 35-year-old GE turbosuperchargers pioneered by the Company's Dr. Sanford A. Moss. In addition, GE products used in restoration work aboard these aircraft include landing and instrument-panel lights, relays and switches."

At this spring's flying-circus show (l-r): Blue Angel pilot Lt. Randy Clark; Fred Owens, who is afflicted with multiple sclerosis; Holan; and Donald Pilini, Neutron Devices Department finance manager.



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**A MILLION PHOTOGRAPHS.**

In developing such modern General Electric business tools as engineering drawings and relations materials, employees frequently encounter questions as to what the Company's previous efforts looked like. For GE, which celebrated its 100th birthday two years ago, that glimpse back often requires a strong telescope. Where would one go to find a photo of a 1909 GE solar collector? Of GE's immigrant workers attending an Americanization class?

By year's end, a new answer to these questions will be available in the Corporate Historical Photo File, to be relocated to Schenectady's R&D Center—the culmination of a massive photo-cataloguing effort jointly initiated by Fairfield's Corporate Public Relations Operation and Corporate Research and Development. One million pictures—most dating from the 1890s to the mid-1960s—now are being organized.

"These GE photos were deteriorating under poor storage conditions, and an irreplaceable Company resource would soon be lost forever," states David W. Burke, manager of Corporate Communications. "Many photos represent the last known records of GE products and events."

Union College's Dr. David E. Nye (left) and students Michele Beaulieu and Edward Horstmann have been commissioned to help CRD's Graphics Operation index the photos. Their first project: produce a catalogue of 5,000 of the most important pictures. Plans call for the Historical File to be available to GE components on a self-supporting basis.

