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SPECTRUM

FOR THE EMPLOYEES OF GE INFORMATION SERVICES COMPANY

RAY MARSHALL AND BOB HENCH: BACK TO SCHOOL FOR GE



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PC MAILBOX FOR GE CIT

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INFORMATION
SERVICES

RAY MARSHALL AND BOB HENCH: BACK TO SCHOOL FOR GE

This [robot arm equipment for the Engineering Department] is another indication of the growing relationship between higher education and the private sector. Both GE and Michigan State University have long been regarded as leaders in this type of relationship. What this does is continue to reinforce the linkage between this university, industry, and government. Our destinies are intertwined. We believe in the development of new knowledge, but what is also important is the application of the knowledge to help society solve its problems...

—Michigan State University President
John DiBiaggio

We spent months calling GE...trying to bring a robot on campus. It was only when we interacted with Ray Marshall that things really happened. He read our proposal, thought it was reasonable, came on campus and talked to us, and within two months, we had the beast with us.

—Brian Thompson, Department of Mechanical Engineering, Michigan State University

The relationship between General Electric Company and the College Park campus is an outstanding example of the partnership that can exist between industry and higher education. The GE-University of Maryland partnership has been made possible in large part by the energy and commitment of Bob Hench. I am pleased...[to] recognize and honor his many contributions to the University of Maryland.

—University of Maryland Chancellor
John B. Slaughter

Ray Marshall (Technology Operations) and Bob Hench (Information Processing Technology) have been spending a lot of time in school lately. For the past four and six years, respectively, they have joined key operating managers in other GE components who serve in the Corporate-sponsored Key Engineering School Liaison Executive (KESLE) program.

Like their KESLE counterparts, Ray Marshall and Bob Hench lend their talents to cultivating close, ongoing ties with two of the best engineering schools in the U.S.—Michigan State University and the University of Maryland, respectively. As KESLEs, the two TechOps employees seek to bring the sharpest engineering minds to GE and to help link the universities into GE's educational support programs, such as scholarships, equipment, and professional development opportunities.

Jim D'Acosta (GE Program Manager, University Relations) reports, "The program is definitely a success. We have modernized and elevated our image among students. We now attract higher-caliber students to interviews, and we're hiring the better ones.

"For example, in 1986, the KESLE program generated 44 percent of all new college graduates hired by GE and 54 percent of all engineers hired." (MSU accounted for 13 hires in 1985 and 1986, while Maryland reported 25.)

"Moreover, we're now employing students who have had hands-on experience with GE equipment," Jim D'Acosta notes. "In several cases, students have been hired specifically because of that qualification."

On the cover: Bob Hench (left) and Ray Marshall are GE Information Services' resident KESLEs.

The Headquarters Program

The KESLE program is a multi-faceted attempt to establish and strengthen mutually beneficial relationships between GE and some of the best U.S. engineering schools. KESLE activities focus on enhancing GE engineering recruiting prospects and on encouraging discussions and contacts among faculty, students, and GE research and engineering professionals. Ray Marshall adds, "There also is some splash into other departments"—journalism, computer sciences, and communications.

Jim D'Acosta, who manages the KESLE program, summarizes the program's recent history by noting, "In the early 1980s, GE was not readily identified on U.S. college campuses as a company on the cutting edge of new technology. Yet, GE needed engineers well-versed in new technologies, and the competition for such people was—and still is—fierce.

"To support that ongoing personnel requirement, we set out to update our image on campus. Based on experience with other programs, we decided to elevate the importance of recruiting the best by assigning key operating managers to establish a regular presence on campuses with engineering schools."

Ray Marshall recalls, "Shortly after Jack Welch came on board, he decided that it was important to upgrade relations between GE and leading U.S. univer-

Shortly after Jack Welch came on board, he decided it was important to upgrade relations between GE and leading universities in the U.S. He gave a strong new direction—a real shot in the arm—to the KESLE program.

sities. He gave a strong new direction—a real shot in the arm—to the KESLE program. He also emphasized support in the form of equipment donations."

The GE Engineering School Equipment Assistance Program (also in Jim D'Acosta's group) channels state-of-the-art products and equipment to colleges, enhancing recruiting and contributing to the much-needed modernization of college engineering facilities. Such donations are based on the school's needs and their congruity with available GE equipment.

In the four years since the program's inception, GE has donated some \$11 million of equipment to over 50 colleges. In 1986, ten GE components supplied over 600 GE and Calma products that were donated to 45 universities. The robotics, automation controls, and Calma CAD/CAM equipment often constitutes the core of automation laboratories serving mechanical, industrial, and electrical engineering departments.



Jim D'Acosta (left), head of GE's KESLE program, was able to attend the University of Maryland luncheon honoring Bob Hench (see accompanying story) and chat with Maryland faculty, including Reese Cleghorn, Dean of the College of Journalism.

The Equipment Assistance Program is an important KESLE resource as well as a means for GE to help maintain the quality of graduates from U.S. engineering schools. A number of studies (by the National Research Council, National Science Foundation, and others) confirm the importance of such equipment to high-quality teaching institutions.

Moreover, some equipment donations yield higher payoffs than originally expected. Jim D'Acosta explains, "We've literally changed the way that engineering is taught by donating videotape equipment (for example, at the University of Colorado, Michigan State University, and the University of Maryland).

"The schools originally planned to use VCRs for playing lecture tapes, recording visiting professors, and taping experiments. Once the video equipment arrived, however, use exploded. The VCR capability has significantly improved teaching effectiveness in ways the schools never considered—for example, students using the equipment to create reports."

The KESLE program also takes advantage of the many GE scholarships that support engineering and science students overall or in specific subgroups (such as minorities, women, and graduate students). KESLEs also refer colleges to the independent GE Foundation, which manages several major grant and forgivable loan programs in support of higher education, including its Program for the '80s, which seeks to increase the number of students who pursue Ph.D.s and subsequently teach science or engineering (see accompanying story on Bob Hench).

The Front Line: KESLEs in Action

KESLEs are selected from the pool of GE corporate officers and operating general managers. Each is assigned to a specific college, taking into account factors such as the types of hires at the KESLE's

component, proximity of the component's offices to the college, and match between the technical foci of the component and the college. Only a few KESLEs are alumni of their assigned colleges; alma mater is not a prime consideration in KESLE assignments.

Each KESLE commits to spend a lot of time on campus, getting to know faculty (particularly deans and department heads), top-flight students, and the university itself. KESLEs are responsible for scheduling and conducting special events on campus. Plans vary according to the characteristics and style of the KESLE and of the college, but many KESLEs employ common approaches, such as:

- Seminars, which bring together faculty, GE technical professionals, other technical experts, and top students to exchange timely information
- Special speakers, often from GE, who share cutting-edge research and application data
- Job fairs and career days, which put students in contact with GE professionals and recruiters
- Group tours of GE facilities—often arranged for one or more KESLE schools—which include discussions with KESLEs, GE technicians, and managers
- Student leadership conferences—often cooperative events staged by several KESLEs—which bring together the student heads of campus groups (particularly engineering, computer science, and science organizations), other promising students, and GE experts in various technical and management fields

The turn-out and local press coverage at Ray Marshall's MSU dedication and the Maryland award to Bob Hench are powerful statements...that's the best recognition...

- Summer jobs and co-op assignments for students who are serious candidates for positions at GE
- Participation on collegiate advisory boards, which generates "immeasurable but important and positive opportunities to supply relevant input to college decisionmakers," according to Jim D'Acosta.

KESLEs place heavy emphasis each year on recruiting one or two of the very best graduates from their schools. KESLEs often take the role of mentor—which can include identifying a high-potential student, interacting one-on-one, contacting other KESLEs and components when necessary to make sure the student is hired for an appropriate position, and following up on hiring-process progress.

"Staying in contact with other components—understanding their hiring needs—is an increasingly high KESLE priority," Ray Marshall says. "Such cross-fertilization is particularly important when some components are hiring and some are not."

Each year, KESLEs gather to exchange information, assess the success of new and ongoing projects at individual colleges, and discuss the next year's overall plan. GE Chairman of the Board Jack Welch addresses the KESLEs and challenges them, for example, to hire one or two of the best at their schools (sparklers) or to work on improving the quality of recruiting teams that visit their campuses.

Annual meeting activities often generate useful working documents such as guidelines to identifying

Ray and Bob have the special challenge of getting two messages across...that GE is a leader in high-tech services and that such services will become increasingly important...

and working with sparklers and a resource book that includes a review of KESLE accomplishments, key issues, recruiting results, and tips on accelerating the hiring process.

The Importance of Being KESLEs

The GE-wide KESLE team makes an important contribution to the professional and recruiting proficiency of the company—and Ray Marshall and Bob Hench are both typical and exceptional KESLEs.

Jim D'Acosta says, "The turn-out and local press coverage at Ray Marshall's MSU dedication and the Maryland award to Bob Hench are powerful statements. When the schools that KESLEs work with recognize and appreciate their work—that's the best recognition. And it helps us build momentum.

"Ray Marshall and Bob Hench also stand in a unique position as two of the few KESLEs who represent GE's high-tech service business. GE Information Services is a premier example of GE's high-tech service—one of the forerunners of a whole new arena in which engineers will have non-traditional careers.

"Ray and Bob have the special challenge of getting two messages across to engineering faculty and students: that GE is a leader in high-tech services and that such services will become increasingly important as the U.S. shifts away from manufacturing and focuses more on services." ▲

RAY MARSHALL: GE'S MAN IN EAST LANSING

When Ray Marshall presented a P50 robot arm and associated video teaching equipment to Michigan State University on behalf of GE, he observed, "This ...P50 represents GE's continuing commitment to engineering education. GE has a great interest in and dedication to the instruction that is shaping our industry's future leaders. We believe in education. We believe in students. And we believe in providing tangible assistance to enable both to realize their dreams."

The formal presentation—attended by 250 faculty, students, and members of the press—was the culmination of a year of liaison work between MSU, Ray Marshall, and GE's Equipment Assistance Program. To demonstrate the robot arm—which calls a very small laboratory home—MSU and GE Information Services produced and presented a short videotape of the P50 in use by MSU students and faculty.

Brian Thompson, one of the two principal researchers who will work with the arm, noted that "it will serve several objectives: as a marketing tool, it will help us attract better students to MSU, especially in mechanical engineering—we've already demonstrated it to several potential students and their parents. The robot arm also will help us teach both graduate and undergraduate students and will allow us to do some exciting research we previously couldn't do.

"The P50 will help a new generation of engineers to develop a new generation of robots. We'll be monitoring the robot's movements relative to the density of the materials used to fabricate the arm. Our study of composite materials could help develop lighter, faster, and more productive robots for use in industry."

John R. Lloyd, Chairman of the MSU Mechanical Engineering Department, noted that the P50 would enable the Department to continue providing students with "the most current facilities for both theoretical and hands-on instruction."

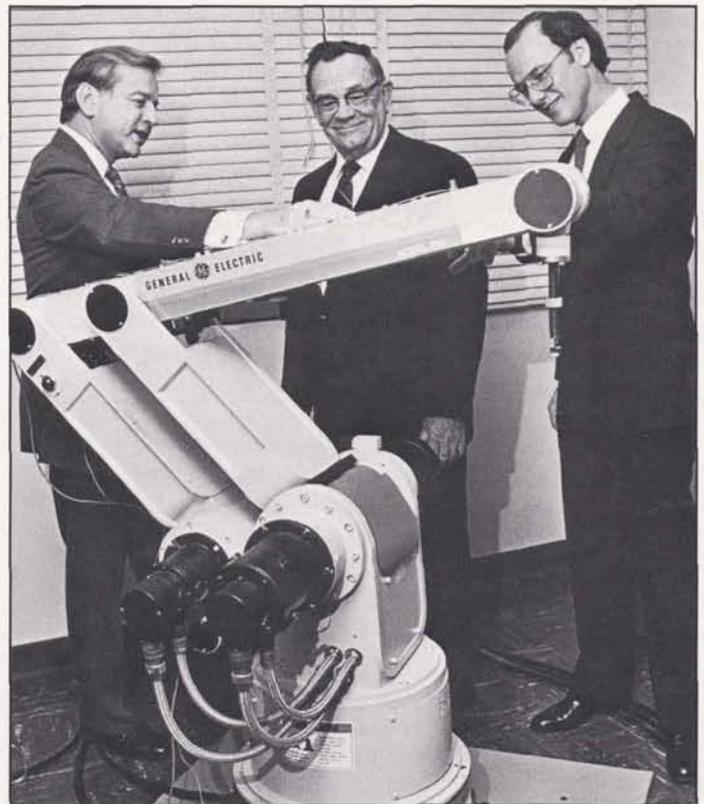
As GE's MSU KESLE, Ray Marshall crafts multi-year plans to facilitate program objectives through a variety of projects and support activities, such as:

- A 1986 Student Leaders Conference (hosted jointly by KESLEs at MSU, Michigan Tech, and the University of Wisconsin), which enabled eight MSU students to visit Medical Systems Group headquarters in Milwaukee and to attend technical and managerial seminars
- Equipment such as: GE videotape equipment and television monitors (three set-ups) for use in

teaching and research; and computers and associated equipment

- Scholarships for minority students in engineering and computer science and for undergraduates in those disciplines (six scholarships in 1986)
- A technical conference for Engineering Department heads and GE technical managers on "Factory Automation Issues" and technical seminars for students (four in 1984 and 1985)
- A co-op and summer intern program (three interns in the summer of 1986) that makes on-the-spot offers to students during campus interview sessions
- Support for a Guided Learning Center that offers tutoring services, educational resource facilities, and peer counseling
- Booths, representatives, and "Meet GE Night" functions at career-related gatherings such as the Engineering Information Fair and the Michigan State Engineering Career Conference
- A tracking system that follows MSU alumni who work for GE and a recruiting brochure that highlights the GE careers of nine MSU graduates
- Ongoing communications with and support for faculty advisers and members of organizations such as the Society of Women Engineers (SWE), the

(continued on page 6, top)



Ray Marshall (left), Lawrence VonTersch (MSU Dean of Engineering), and primary researcher Professor Brian Thompson check out the P-50 robot presented to MSU by GE.

BOB HENCH: TERRAPIN AT LARGE

When Bob Hench recently presented a \$50,000 graduate Teaching Incentive Grant to the University of Maryland on behalf of the GE Foundation, the College of Engineering took advantage of the opportunity to recognize his many contributions to the University. At a luncheon for several dozen University of Maryland faculty and students and GE employees, Engineering Dean George Dieter made Bob Hench the first recipient of the College's Distinguished Service Award. It was hard to tell whether Bob Hench was more pleased about presenting the scholarship or receiving the award.

The Teaching Incentive Grant (TIG) is one of only 11 awarded last year by the GE Foundation to outstanding engineering schools. This graduate scholarship will support a Ph.D. candidate; moreover, for each year that the recipient teaches at a U.S. university after earning the Ph.D., the Foundation will forgive 25 percent of the grant.

The TIG responds to the shortage of full engineering professors—a shortage attributable in no small part to the lucrative starting salaries that industry as a whole is offering to engineering graduates.

As the National Research Council reported in 1985, "The lack of sufficient faculty is the most important factor currently limiting attempts to increase the quality, scope, and number of engineering programs....The future supply of faculty has been diminished, because stipends for graduate students are low compared with starting salaries in industry, and this discrepancy discourages new engineers from pursuing advanced degrees....Engineering colleges and universities must find ways to make academic careers more attractive."

Bob Hench acknowledges GE's commitment to advanced engineering education, explaining, "By supporting the next generation of outstanding professors, we help ensure that the next generation of graduates will be the best they can be. We're committed to providing incentives today for the leaders in higher education tomorrow."

The Distinguished Service Award recognized Bob Hench's wide-ranging interest and active participation in University activities. His multi-faceted role as Maryland KESLE includes serving as:

- One of roughly two dozen University Trustees appointed by the President and used as a sounding board for revisions in University policies



Prior to the University of Maryland luncheon, Bob Hench (center) took the opportunity to quaff hot cider and visit with students and faculty, including the Dean of the College of Engineering, George Dieter (right).

- An honorary member of the Industrial Associates Program, which offers access to University research results and assesses the relevance of University research plans to members' research concerns
- A member of both the Engineering and Computer Science Advisory Councils, which biannually bring together the Deans of Engineering and Computer Science, respectively, with industrial leaders to discuss central issues and trends affecting educational institutions and commercial operations.

In addition, because Bob Hench works and lives so close to the University of Maryland, he can meet informally on a regular basis with faculty, advisers, and various campus organizations (such as the Society for Women Engineers).

In sum, Bob Hench has acquired a considerable understanding of the University of Maryland and its needs—which makes him a valued adviser as well as an active KESLE. In the latter role, he has participated in or arranged:

- Visits by groups of engineering and computer science students to GE facilities, where they tour the plant and view presentations by GE employees. In 1985, approximately 30 students and faculty visited GE's Factory Automation Products Division in Charlottesville, Virginia, and about the same number of students and faculty visited GE's Space Systems facility in Philadelphia, Pennsylvania, last fall. As Bob Hench notes, "The geography here is great—there are a lot of big GE facilities nearby."
- A recent Student Leaders Conference. Bob Hench hosted an all-day meeting and dinner for officers of all engineering and computer science

(continued on page 6, bottom)

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Institute of Electronic and Electrical Engineers (IEEE), and Minority Students in Engineering; in 1985, GE made four grants to student organizations for community development and high school outreach programs and provided a travel grant for the SWE president to attend the national conference.

"All this effort over many years is definitely having an impact," Ray Marshall reports. "I'm always trying to leverage our cumulative accomplishments and convey the feeling that GE is very much interested in MSU. Now, awareness of and respect for GE is starting to permeate the East Lansing campus."

Explaining his personal reaction to participating in the KESLE program, Ray Marshall says, "In our high-tech side of the world, the rate of change is so fast that our future is dependent on a continuing flow of talent from universities. If you believe that, like I do, then involvement in something like KESLE is very rewarding.

"I can see the object of the program, become involved in university activities, interact with educational leaders. It's not a chore—it's really a dynamic and energizing experience. I feel like I get a ten-fold return on my time investment—and GE and GE Information Services have hired some very talented people because of that investment." ▲

(continued from page 5)



Above, Bob Hench (third from left) receives his Distinguished Service Award from Engineering Dean George Dieter (second from left), as University of Maryland Chancellor John B. Slaughter (far right) and KESLE manager Jim D'Acosta (far left) observe the proceedings.

Below, Bob Hench reciprocates by presenting Chancellor John B. Slaughter with a desk set bearing the GE and Maryland seals.

student activities. Mike Kostrzewa, Diana Lawrence, and Dennis Yee organized the Student Leaders Conference, which featured speakers from a number of GE components, including: Tom Lowrie, GE Lighting Business; Tracy Cypher, GE Space Systems; Daniel Kerpelman, GE Corporate R&D; John Hannabach, GE Professional Recruiting and University Relations; consultant Geri McArdle; and, from GE Information Services, speaker Mel Szot and panel discussion participants Jeff Heinbaugh, John Wittenberg, Gary MacPhee, and Dan Dearing.

- Scholarships for minority engineering students, undergraduates, and graduate students (a total of nine in 1986).
- Equipment, such as GE VCR classroom set-ups (five in 1985 to the Departments of Engineering, Computer Science, and Journalism), GE laboratory robotic equipment, and computers and associated equipment.
- Grants to the Electric Power Education Program and to the Educators in Industry Program.
- GE booths for campus career days and career fairs.
- A seminar on "The State of Computer Technology," conducted by two Maryland faculty members for a number of GE employees; a follow-up seminar is under consideration.

"GE is dedicated to cultivating the finest engineering and computer talent," Bob Hench emphasizes. "We recognize the University of Maryland as a rich source of both. In fact, over the past five years, well over 110 Maryland alumni have joined GE, and their quality has been outstanding—both in terms of GPAs coming in and performance here at GE. It is our pleasure—and our intent—to continue to support this outstanding institution in the future." ▲

PRODUCT LINE MANAGEMENT: A NEW TOOL

[GE Information Services is implementing several new management tools that continue the process of focusing the business on programs that make sense and generate revenues. This issue highlights product line management, the responsibility of Joe Marchese's new group. Next month, the new profit-and-loss measurement system will be reviewed.

These articles are part of a series describing recent changes in business strategy and organization. The first two articles, which appeared last issue, over-viewed Gary Mueller's Technical Development effort and Ruann Pengov's Implementation Services team.]

You may not have noticed yet, but there's a new in-house team casting a sharp eye on marketing and sales requirements, investment objectives, and our overall technological competitive advantage.

The new Product Line Management group functions more or less as a technical ombudsman with a market-driven, return-on-investment focus. Its primary responsibilities include overseeing and evaluating requests for new product line capabilities, monitoring product line quality and security (with clients' needs in mind), and establishing product line transfer rates (a concept explained below).

"Basically, we're working from an outside-in perspective rather than the previous inside-out view," says Joe Marchese. "We'll act as a devil's advocate, challenging proposed projects to ensure that they make sense and produce an acceptable return on investment, consistent with our business objectives. If this sounds like a contentious process, it is—and by design—but in the justifiably worthy pursuits of working smarter, resolving conflicts, and making the most productive use of our investment money."

Return on Investment

The Product Line Management group takes an action- and task-oriented approach to overseeing the enhancement, return on investment, and competitive technological advantage of our three product lines, defined as those products used to deliver our services, i.e., MARK III®, MARK 3000™, and the network.

The Product Line Management team first collects and collates sales and marketing business

requirements by product line, assessing projected return on investment from the various products that would use the new product line capabilities and prioritizing projects. The team can make a no-go recommendation for investment projects that aren't cost-effective and also can expedite projects that are bogged down and are on critical paths.

The Product Line Management team looks at technology investment plans from the bottom up to ensure a match between sales requirements, expected revenues, and necessary investment. The team often

We'll act as a devil's advocate, challenging proposed projects to ensure that they make sense and produce an acceptable return on investment...

compares cost and schedule advantages of "make" versus "buy" solutions (respectively, those undertaken in house and those contracted out to vendors).

One of the team's initial tasks is reviewing X.25 and the SNA network, assessing issues such as adequacy of return on investment and alternative approaches (on-net versus buy).

Transfer Rates

The Product Line Management team has a significant task: to establish internal transfer rates—i.e., the rates for specific technological resource units

THE TEAM

The Product Line Management team and their responsibilities are noted below.

- Lance Pelter, MARK 3000 Product Line
- Jim Keough, Network Product Line
- Donna Valtri, Applications Platforms
- Horst Teschke, Custom Systems (formerly with GE Information Services Germany)
- Bob Carpenter, Product Assurance
- Chuck Stevens, Product Assurance
- Jim Morgan, Security
- Carolyn Conn, Security
- (open), MARK III Product Line

such as CRUs, KCs, or EDI transactions—for services delivered by product lines to Sales. Sales then sells the service to the client at a price that also will include factors such as profit margin and distribution costs. In addition, transfer rates can take into account geography, time of day, quality level (e.g., required redundancy), and function (where degree of richness is directly related to cost).

Transfer rates are an internal cost-tracking tool that should provide greater management-decision flexibility to Sales while still recovering the full cost of Technology Operations in support of our product lines. Transfer rates are based on the market but attempt at the same time to allocate full product costs to product lines. The transfer rate system enables Sales to better understand its profit-and-loss situation, Accounting to better track costs, and the company to better measure the state of the business.

The Product Line Management team also evaluates costs of unique functionalities required for some special bids. Here, the team helps ensure that complete cost allocations are made to Sales for pricing and that no relevant technological investments are overlooked.

Product Assurance and Security

The Product Line Management team oversees the quality of product line services delivered to the field, focusing on quality as a requirement driven by clients, Marketing, and Sales. Here again, an outside-in perspective is used.

The team also helps to establish required levels of security and to deliver that security consistent with marketing and competitive objectives.

The Challenge

"We're here to strengthen our company by making sure we have necessary technology when we need it with an expectation of a reasonable return on investment," says Joe Marchese. "When our field and technology resources are effectively teamed, we can prosper in the sales-driven environment we confront.

"If anyone begins to think of us as a bottleneck or another layer of bureaucracy, I want to sit down, talk about it, and streamline our operations where needed." ▲

BOTTOM LINE

First-quarter sales totaled \$94 million, 4 percent below last year but 3 percent above Operating Plan, with improvement in U.S. Sales, Europe, and Northern Operations and Distributors.

Operating earnings were on Plan, as higher sales, favorable exchange, and improved productivity were offset by additional Division reserves and accruals. The Corporate decision to fund our 1987 restructuring costs, included in the Operating Plan, added another \$2.5 million to first-quarter net income.

- U.S. volume was 4 percent over Plan, mainly reflecting slower HCA (Hospital Corporation of

America) in-house migration, additional SDC revenue, heavier Bell client usage, and higher new product license sales.

- European sales were 2 percent above Plan, as favorable exchange was partially offset by lower volume in Germany and Austria.
- Northern Operations and Distributors revenue was up 3 percent from Operating Plan because of favorable exchange, with volume essentially equal to Plan. ▲

GE RELEASES FIRST-QUARTER RESULTS

On a company-wide basis, GE's profits during the first quarter of 1987 were about 7.5 cents on the sales dollar. Sales in January, February, and March totaled \$8.32 billion—41 percent ahead of the \$5.88 billion for last year's first quarter. Net earnings were \$624 million (or \$1.37 per share), 16 percent over the \$537 million (or \$1.18 per share) for the first quarter of 1986.

These results were announced on April 8. On that day, the closing price of a share of GE common stock, as reported in the New York Stock Exchange composite transactions, was \$109.

In late April, GE shareowners of record on March 6 will receive a dividend of 63 cents on each share of their stock.

Commenting on the results, GE Chairman of the Board John F. Welch Jr. said, "Operating highlights in the first quarter were the significantly higher sales volume and earnings realized by aircraft engines and medical systems; continued strong performances in plastics, major appliances, and Employers Reinsurance Corporation; and the positive impact of NBC on GE's results.

"There were a number of important developments in the first quarter. GE's Board of Directors recommended that shareowners approve a two-for-one common stock split to be voted on at the Annual Meeting on April 22, 1987. RCA's David Sarnoff Research Center was donated to SRI International, a non-profit applied research and consulting firm.



And, with the selection by American Airlines of GE engines to power 40 new twin-engine wide-body aircraft to be delivered starting next year, the company received its largest single commitment ever for commercial aircraft engines.

"During the quarter, we took additional important steps to improve short- and long-range competitiveness. We are continuing to pursue economic opportunities available from rationalizing RCA and GE operations, and we have identified a number of strategic improvement projects in other businesses.

"Among actions taken were rationalization of GE- and RCA-brand television production; consolidation and downsizing of GE and RCA semiconductor operations; arrangements to sell the Carboly business; further functionalization and rationalization of lamp manufacturing; and additional streamlining of domestic and foreign power-systems operations. Restructuring provisions of \$308 million before taxes to implement these and other strategic moves taken were charged against operations in the first quarter of 1987. Also, during the quarter, there was a one-time positive effect of \$281 million after taxes, as our inventory accounting was aligned more closely with the capitalization practices included in the Tax Reform Act of 1986."

Jack Welch reiterated the company's December 1986 outlook for 1987 of "modest worldwide economic growth, a scenario in which we expect double-digit GE earnings growth for the year. First-quarter results are in line with this outlook." ▲



AMERICA'S CUP WRAP-UP

Ray Marshall (Senior Vice President, Technology Operations) and Glenn Veltman (Account Manager, Eastern Sales Area, Commercial Region) both traveled to Australia to attend the final races of the America's Cup Challenge '87, won by **Stars & Stripes**, the team that we supported with Stars and Stripes NET—a network featuring QUIK-COMM™ and QUIK-GRAM™ services (see SPECTRUM, October 1986).

[It is worth noting as an aside that our electronic support has been noted in news articles in publications such as PC Week, Communications Week, and EMMS.]

Upon returning, Ray Marshall and Glenn Veltman agreed to share some impressions of the competition and the country.

On Australia...

"The country is absolutely gorgeous," Glenn Veltman reports. "The people are friendly, the cities are clean, the beaches are fine white sand, and the climate is perfect."



Glenn Veltman—winner of the "Quest for America's Best" PC Mailbox 3.0 sales contest—and his fiancée Cathy Bauer paused for a "photo opportunity" before climbing aboard the **Big Cat**, one of the observation yachts that sailed along the fringes of the America's Cup course every race day.

"I think everyone ought to visit Australia," Ray Marshall says. "It reminds me of how I remember the U.S. when I was growing up. In Sydney, one of the most modern cities in the world, you can stroll around downtown at night—or join the sidewalk party spilling out of an unfamiliar pub—and not really give your safety a second thought.

"And I've never in my life seen the kind of support the Australian people gave their crew. On the last race day—when it was clear that **Kookaburra III** probably wouldn't win—her public was still full of emotion—pride, encouragement, patriotism, nostalgia. Conner had sailed **Stars & Stripes** out to the course early—a really class move—and when **Kookaburra III** and her stablemate appeared with large Australian flags flying, the quay and the channel to the sea were lined 8-12 people deep. They

Maybe, to some extent, winning depends on the same elements no matter what the contest.

were standing on each other's shoulders, clamboring over rocks, climbing onto the roofs of harborside restaurants—cheering, singing 'Waltzing Matilda' with such great enthusiasm and strength of feeling. Pride and loyalty are not dead in Australia, even in times of adversity."

On Competition, Winning, and the Role of Technology...

"I was struck by the similarity between my own recent experience and the America's Cup match," Glenn Veltman notes. "Maybe, to some extent, winning depends on the same elements no matter what the contest.

"I think I won the 'Quest for America's Best' because of commitment, a positive attitude, hard work, a superior product, and the motivation generated by close competitors—in my case, Dennis Steffe and John Daub, among others. I saw a lot of the same factors pushing Dennis Conner to victory."

Ray Marshall, a sailing fan who also saw Dennis Conner lose the Cup in Newport in 1983, observes, "Conner was perhaps the most devastated man in sports history. After sailing brilliantly in a clearly inferior boat, he was the first skipper in 132 years to lose the Cup, and the New York Yacht Club drummed him out. But he didn't quit. He was absolutely 100-percent dedicated to one objective: winning back the



Glenn Veltman met Dennis Conner, **Stars & Stripes** skipper, after the Americans' third victory in the best-of-seven finals. "We quickly drew a crowd," Glenn Veltman recalls. "The photographers kept asking who I was, while Dennis joked with his crew and the covey of press that seemed to follow him everywhere."

Cup. So he created a whole new infrastructure of strategists, designers, crew, financiers, test procedures, Hawaiian training—a total team effort.

"Conner also recognized that the Australian victory in 1983 depended on superior technology. Up to that point, many sailors had thought that the technology simply wasn't significant—but Conner realized that boat speed was critical to his 1983 loss and might again be critical in 1987. And I think he was right—there's a very reasonable chance that Conner would have lost again without the advantage conferred by **Stars & Stripes'** edge in speed."

A Closing Thought...

Taking a step back from the America's Cup races, Ray Marshall shares some interesting extrapolations. "There are some very important messages

here that might have some application to our business or to us as individuals. One clear lesson is that you can accomplish a long-term objective with class, even under adverse conditions. If you set your sights on your goal, assemble an expert team with insightful leaders, and thoroughly execute your game plan, you can be successful, no matter how grim prospects may look when you start.

"Another lesson is that the role of technology in success cannot be underestimated. If you're playing a game that is in any way dependent on technology, the range of potential innovations is limitless. You can't rest on your technological laurels, or someone will ambush you. The premium is on investing in moving technology forward while simultaneously ensuring a proper balance among all the elements of your business. It's a very delicate balance that Dennis Conner achieved. Creating a comparably balanced approach to our own business is one of the most difficult challenges that we face." ▲

NEW U.S. ELECTRONIC COMMUNICATIONS PRIVACY LAW

The new Electronic Communications Privacy Act of 1986 became law on January 20, recognizing for the first time in the U.S. that subscribers have a legal right to the privacy of data that they transmit to and from electronic mail and other commercial tele-processing vendors.

"Without getting into the nitty-gritty details of the new statute, the important thing to know is simply that there now is a federal law that appropriately recognizes customers' reasonable expectations in the privacy and confidentiality of their electronically transmitted data," notes Dave Sherman (Associate General Counsel). The law carefully and reasonably balances those customer interests against legitimate law enforcement needs. For the first time, we can assure our network service clients that U.S. law provides meaningful protection for the privacy of data transmitted to us for storage, processing, and/or subsequent transmission."

Before enactment of the new law, the unauthorized interception of data transmissions was not unlawful. The federal wiretap law very narrowly protected only the privacy of voice transmissions over telephone lines and did not apply to other forms of transmission (e.g., radio, microwave) or to data transmissions (even if the data were transmitted over telephone lines). Moreover, prior to the new law, electronic mail and RCS vendors could voluntarily disclose customer data and had no legal basis to refuse civil or grand jury subpoenas for customer data.

Under the new law, all electronic transmission of data is protected against unauthorized interception. Moreover—and perhaps even more importantly from the view of our clients—electronically transmitted customer data are now also protected against unauthorized access and unauthorized disclosure by the vendor, even after the data transmission has been completed.

Convincing Congress to broaden its original bill to protect the privacy of stored customer data as well as the privacy of communications "was an extremely delicate task, because we didn't want to unduly alarm current and prospective clients," reports Dave Sherman.

Dave Sherman was heavily involved in the legislative effort from the outset, along with Telecommunications Affairs Specialist Dick Fazzino and Bill McManus of General Electric Company's Federal Legislative Relations Operation.

Senator Patrick J. Leahy (D-Vermont), Senator Charles McC. "Mac" Mathias Jr. (D-Maryland), and Congressman Robert W. Kastenmeier (D-Wisconsin) were committed to extending the federal wiretap law to cover all forms of electronic communication. But the Department of Justice at first opposed such legislation, because any extension of the wiretap law would make criminal law enforcement activities more difficult. As a political matter, a broad base of support in the business and civil rights communities was necessary to overcome such opposition.

ADAPSO, the computer software and services industry trade association, actively supported the legislative effort, participating in an informal lobbying coalition that included diverse groups, such as the American Civil Liberties Union, the National Association of Manufacturers, the Electronic Mail Association, the Electronic Funds Transfer Association, the Information Industry Association, the Direct Marketing Association, the Videotex Industry Association, and the National Association of Broadcasters.

By reconciling and coordinating their separate positions and activities, coalition members became a unified, powerful, and consequently very effective political force. In exchange for the coalition's support of provisions covering the interception of communications during transmission, the bill's sponsors expanded it to protect the privacy of customer data held by vendors in the course of providing commercial electronic mail and teleprocessing services. The sponsors ultimately were convinced that such extended coverage was desirable as a matter of public policy, in part because it encourages the use of commercial network services, particularly by smaller businesses that cannot afford private networks or large-scale in-house computer systems.

In exchange for the coalition's support of changes in certain provisions of the pre-existing wiretap law—which the Department of Justice had always found burdensome and unduly restrictive—and of other changes in the new bill's procedural provisions, the Department of Justice not only withdrew its initial opposition to the legislation but actually became a strong advocate of the bill, thus ensuring its final passage. ▲

GE CIT DELIVERS LARGEST PC MAILBOX ORDER

The Corporate Information Technology (CIT) group at General Electric Company recently signed a contract with GE Information Services for the QUIK-COMM System Personal Computer Mailbox, which will support a major data and information exchange project that will link the financial units of all GE components by the end of 1987.

This contract represents a significant milestone for GE Accounts (see cover story, November/December 1986 SPECTRUM), constituting the largest PC Mailbox order to date and the most comprehensive QUIK-COMM application (sold within the company under the private label of QUIK*NET™) undertaken within the GE family. The blanket agreement for 2,000 copies of PC Mailbox includes roughly 500 copies in support of the financial data network project.

In announcing the project, James J. Costello (Vice President, Comptroller) and Edward J. Skiko (Vice President, Corporate Information Technology) concluded that "this system will allow us to distribute information days or weeks earlier than systems relying on U.S. Mail. It will also assure that each component has immediate access to the most current information."

High-level executive support from people such as Jim Costello and Ed Skiko is exactly the type of commitment that we must have to introduce QUIK-COMM across-the-board in a corporate environment.

By this summer, the electronic financial data network will be complete, with copies of PC Mailbox in the hands of GE financial personnel, who also will have access to several specially-designed training courses and to supporting documentation. By the end of the third quarter, finance personnel—who virtually all have PCs now—should be fully converted to electronic distribution and receipt of messages and



QUIK*NET reaches GE employees throughout the world.

financial reporting data (such as data requests from Tax Compliance and Accounting Consolidations).

CIT evaluated potential vendors for required electronic mail and bulletin board services for over eight months. Because the system will be used by high-level finance executives, CIT insisted on a user-friendly system. Steve Canale, the Corporate Account Manager, reports that CIT settled on the PC Mailbox/QUIK-COMM system because of its strong features and capabilities and the breadth and reliability of our teleprocessing network.

"Wherever there's a need for frequent and widespread distribution of information, the QUIK*NET system can accomplish it at significant cost savings," reports Bob Donnestad (Manager, Business Communications Services) in the February 23, 1987, issue of HEADQUARTERS NEWS. "[Internationally,] QUIK*NET compensates for time-zone and language differences and is less costly than information transfer over long-distance telephone lines."

"This contract also highlights a key factor in successful sales—particularly company-wide sales—of products such as QUIK-COMM and PC Mailbox," says Steve Canale. "High-level executive support from people such as Jim Costello and Ed Skiko is exactly the type of commitment that we must have to introduce QUIK-COMM across-the-board in a corporate environment. Such executive support generates the leverage necessary for a successful implementation."

GE Information Services personnel who contributed to winning this corporate contract include: Steve Canale; Bob DiLeo (Business Communications Application Consultant); Bob Donnestad; and numerous support personnel in groups such as Training and Documentation.

The publicity generated by the financial data network project and by the HEADQUARTERS NEWS article already is producing additional inquiries about the QUIK*NET system, which continues to make noteworthy inroads into the GE market. ▲

2-FOR-1 GE STOCK SPLIT APPROVED

GE's stock will soon split 2-for-1 (as it did in June 1983), following approval by shareowners at the April 22 meeting—making this an appropriate time to review the stock's recent performance.

The accompanying chart shows growth in value of one share of GE stock—with dividends reinvested—over the past five years. The top line of the chart displays growth in value for S&SP investors who bought GE stock with both their own contributions and GE's 50-percent match. Since February 1982, the stock increased in value by close to 230 percent (based on closing price, February 19, 1987).

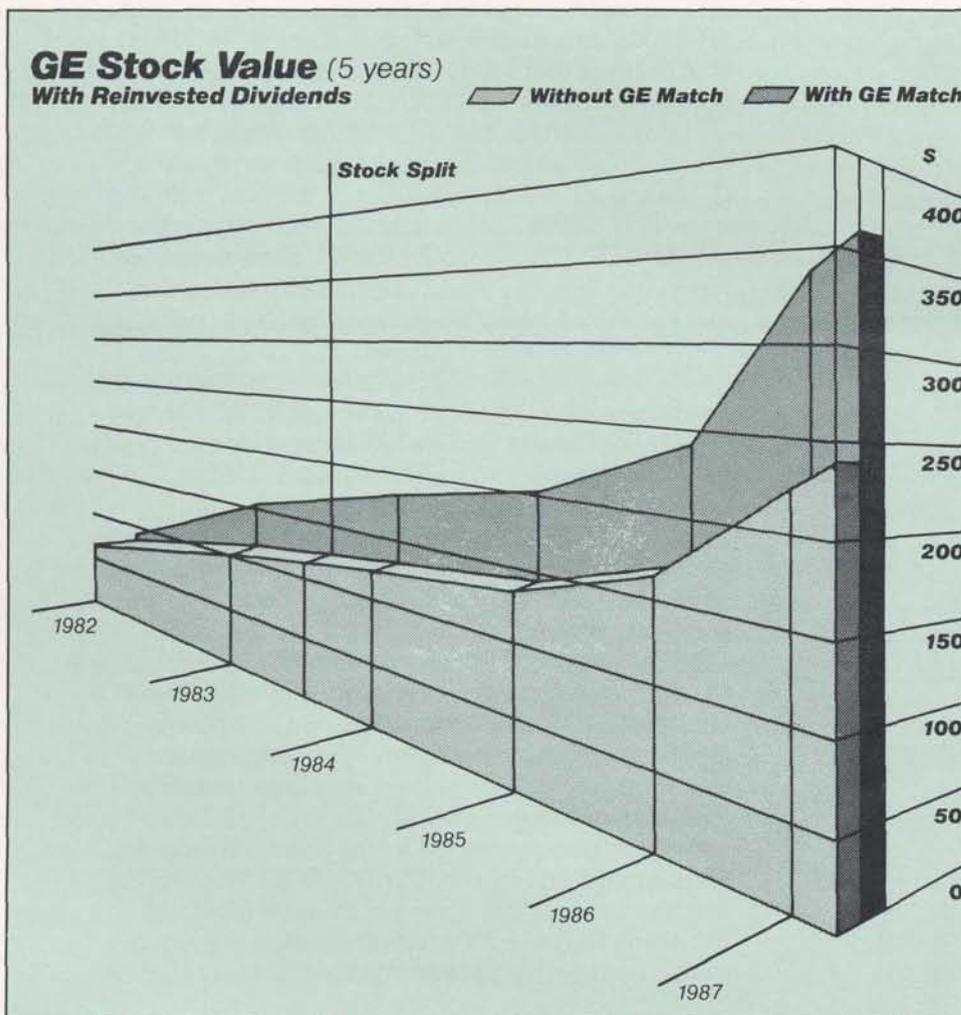
During this period, GE paid a total of \$10.20 per share in quarterly dividends. An employee who bought one share of GE stock at \$61.43 through S&SP

in February 1982, invested the GE match in stock, and reinvested all dividends during the five years would now own \$360 of GE stock.

In the past five years, GE has acquired numerous businesses—including RCA—and has sold many others. GE earnings have grown at a compounded rate of 9 percent per year. GE employees who invested S&SP savings in GE stock have been first-hand participants in this growth—which reflects investor confidence in GE's health and competitiveness.

Addressing the meeting, GE Chairman of the Board Jack Welch noted, among other points, that:

- GE has an exciting array of businesses: the Number One appliance business, the top lighting manufacturer, the leader in medical systems and plastics, the innovator in financial services, the Number One broadcasting network, the leader in aircraft engines, and a strong and diversified aerospace business.
- The company's current success has been achieved through the willingness of GE people to look to the future rather than to dwell in the past, to see the world as it is rather than as we'd like it, and to move toward our goals boldly.



- The pace and quality of RCA's integration into GE has exceeded expectations. It's been done with sensitivity for people as well as efficiency....

- GE's core manufacturing businesses face troubled times. They are forced to swim upstream against strong currents of declining markets and increasing foreign competition. While the earnings of the entire company grew by more than 50 percent between 1982 and 1986, the combined earnings in four of these core businesses (Transportation, Motors, Construction Equipment, and Power Systems) declined by 25 percent.

- In some cases, the once huge markets of these core manufacturing businesses are gone for good. The organizations that grew to serve these markets must be sized to conform with reality and for their survival. This is a "people story," and for many GE people...it's an unhappy one. While restructuring these businesses, GE will continue to be generous in helping those who are displaced. ▲

EDI*EXPRESS USERS MEET AND MOBILIZE

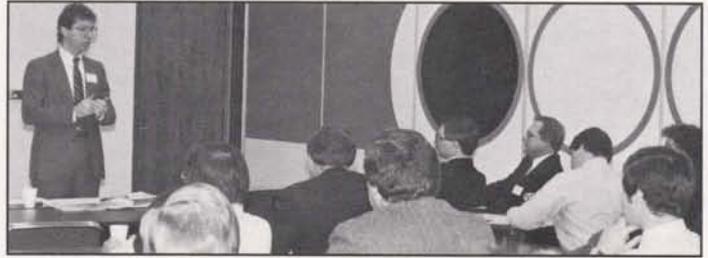
Last February, the Worldwide Intercompany & Logistics Business Group hosted its first EDI*EXPRESS™ Users' Group meeting at the International Training Center in Rockville. The two-day meeting brought together 55 EDI clients for a series of presentations and workshops designed to facilitate communications at all levels: between GE Information Services and clients, among clients and their trading partners, and among clients from the wide range of industries that are pioneering EDI applications.

The meeting, organized and coordinated by Joyce Alexander (EDI Communications Specialist), focused on formal and informal client feedback and evaluations, which clearly demonstrated demand for additional users meetings. Jack Morrissey—an Eastman Kodak executive who spoke about their implementation experience at the client dinner hosted by GE—will serve as EDI Users' Group Chairperson, organizing future activities and communications. Other clients volunteered to help organize and interconnect industry-specific segments of the Users' Group.

The EDI*EXPRESS users meeting attracted representatives from a wide range of industries and companies, such as AT&T Technologies, American



Jack Morrissey, Eastman Kodak Company, listens intently to one of the presentations; this senior Kodak executive chairs the EDI Users' Group.



Steve Korn explains "Bringing Up New Trade Partners," a linchpin in EDI implementations.

Hoechst, Avery International, Baxter-Travenol, Ciba-Geigy, Eastman Kodak, GE, LTV, Montgomery Ward, North American Philips, PPG Industries Inc., Shell Oil Company, and Xerox.

The first day of the meeting included:

- Introductory remarks by Dave Foster (Vice President, Worldwide Intercompany & Logistics Business), who emphasized GE's commitment to EDI, the pioneer status of our clients, and the close working relationship that we and our clients must maintain to successfully implement EDI applications
 - A status report on our EDI product line and future plans by Brian Dearing, Eileen Hargadine, Andi Hoover, and Lincoln Yarbrough
 - An update on available documentation and training materials by Ren Stimart
 - A review of Client Services support by Dick Amato
 - An explanation by Rochelle Cohen of the role of the EDI Service Group in implementing and administering EDI capabilities.

The second day of the meeting featured workshops on:

- Bringing up new trading partners (conducted by Bob Garbowitz and Steve Korn)
- Implementing standards (run by Bill Cafiero)
- Using EDI*PC™ (conducted by Bob Hadel, Paul Hodgdon, and Joe Webster)
- Understanding applications integration issues (presented by Bill Cafiero)
 - Deriving maximum benefits from EDI (conducted by a client, Robert Crosby of American Hoechst). ▲

GOOD NEWS

Boise Cascade Office Products

Boise Cascade Office Products (BCOP) Division, one of the largest wholesale and retail distributors of office furniture and supplies in the U.S., recently signed a contract with GE Information Services to upgrade BCOP's order transmission and acknowledgment system.

The new EDI*EXPRESS link, which should be up and running shortly, will use the same SNA host-to-host link that the current MARK 3000 application uses. The final leg of the application—a VAN connection for direct on-line order entries—should be completed by mid-year.

"BCOP chose GE Information Services after a rigorous selection process," reports Dan Wecker, BCOP Account Manager (Midwest Region). "Our success in winning this contract depended on our ability to do the total job, from EDI to VAN with protocol conversion to custom applications for the SNA link."

The many GE Information Services personnel who contributed to winning the BCOP contract include Art Heald and Curt Linneman, who worked on the VAN link; Benham Malcom and Rich Loesch, who, with the help of other SDC staff, designed the system; Brian Dearing, who worked on the EDI link; and the then-Focused Business Operation sales staff.

Fiat

GE Information Services recently augmented Fiat's electronic ordering system for some 1,600 dealers by adding a spare parts order management component. The 500 spare parts dealers were connected to MARK III and to their distribution center in Volvera (Turin) early last year. The system is similar to the dealer order system: orders are transmitted to the distribution center, and the spare part is delivered within 48 hours.

Fiat selected GE Information Services over a former vendor in large part because of the proven reliability of MARK III and of a similar application that we had developed for use by Fiat Auto's foreign affiliates.

Each month, Fiat—a privately owned Italian company that manufactures cars, industrial vehicles,

tractors, and other moving equipment—generates approximately 50,000 data-base inquiries and transfers roughly 100,000 files (or about 100 million characters) over the entire ordering system.

The original ordering system application began in mid-1983 and connected Fiat and Lancia dealers' Olivetti M24 PCs to MARK III and to their in-house centers (via dedicated lines). The system includes a protocol developed for Fiat that controls data transmission errors and optimizes M24 PC resources as well as procedures for orders and stock management and file inquiries. The system enables Fiat dealers to modify orders and to analyze files that are updated daily by Fiat Headquarters (covering topics such as status of orders and availability of specific cars).

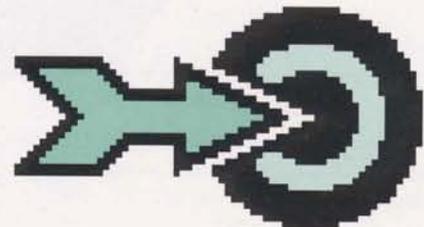
Key personnel who contributed to winning and servicing the Fiat contract include Silvio Cangiano, District Manager; Achille Lajolo, Branch Manager, Fiat; Giovanni Rocca, Account Representative; and Roberto Piatto, SDC project leader).

National Yellow Pages Service Association

The National Yellow Pages Service Association (NYPSA) is rapidly moving toward extensive use of its electronic Order Transmission System (OTS), implemented last fall after many months of software development authorized by the December 1985 contract. Additional enhancements are planned for later this year.

NYPSA, founded in 1975, works with yellow pages publishers and Authorized Selling Representatives (ASRs) to afford national advertisers the opportunity to purchase ads in any number of telephone directories by making one contact, negotiating one contract, and receiving one bill. NYPSA provides training and support—including promotion of national yellow pages advertising—to roughly 400 ASRs and publishers throughout the U.S. who are associated with over 6,000 telephone directories. Such national yellow pages advertising is currently growing at a rate of 15 to 20 percent per year.

"Because of NYPSA's rapid growth and the geographic dispersion of its members, it sought an accurate, timely, and cost-efficient system to send orders to and from ASRs and publishers," notes Jim Greulich



(Senior Marketing Representative, Western Communications Region). NYPSA selected GE Information Services after a 1-1/2 year proposal process because of factors such as:

- Our worldwide network and proven MARK III Service
- Our strong SDC group, which has a reputation in the telephone industry for delivering customized systems on time
- Our ability to interface with a variety of mainframes and PCs
- Our consistent approach and professional expertise over the course of the extended proposal process.

GE Information Services personnel who contributed to winning and implementing the NYPSA contract include: Mary Ingalls, Technical Director, SDC; Peggy Jarolin, Project Manager, SDC; Christine Syzonenko, Technical Representative, SDC; Jackie Daehler, Senior Technical Representative, Chicago; and Alice Roberts, Client Services.

Unicorn

The International Development Center (see "Speaking of Technical Centers," p. 8, January/February SPECTRUM) recently signed a distribution agreement with Unicorn, the owner and manufacturer of Micro-CICS, a tool for building IBM CICS (Customer Information Control System) applications on mini/small mainframe computers (e.g., IBM 9370s) and on micro computers.

IDC used Micro-CICS during the GEM development effort (see June 1986 SPECTRUM), developing a product enhancement for GEM purposes that allows DL1 access through Micro-CICS.

The relationship between Unicorn and GE Information Services provides for:

- Unicorn sales worldwide of the enhanced product, Micro-DL1 (GE Information Services receives a percentage of each sale)
- GE Information Services distribution and technical support of Micro-CICS outside the U.S.
- GE Information Services distribution of VM-CICS for multi-user execution of CICS applications within VM environments.

The new relationship was announced in the January 15 issue of COMPUTER WORLD. ▲

INDUSTRY BRIEFS

Western Union interconnected its mailgram service with a similar hard-copy service (Telemessage) run by the PTT in the Netherlands. The Dutch PTT also runs an electronic mail service, Memocom, based on Dialcom software and Prime mini-computers.

Telebase Systems, Inc., developers of Western Union's Infomaster service and Compuserve's I-Quest service, provided the PTT in Finland and a Finnish publishing house with customized links to Telebase's vast collection of data gateways. The PTT's custom version of EasyNet will appear as a menu item on its recently announced videotex network and as a service on its packet network.

Telenet Communications Corporation recently announced PC Telemail, an electronic messaging software package for IBM and IBM-compatible personal computers. The product features word processing facilities, electronic document filing, forms creation, file transfer, and communications capabilities. PC Telemail uses pop-up menus and function keys. The product also has an in-box and out-box to simulate a desktop. Documents created on PC Telemail can be sent via Telemail Telex, an electronic messaging service, and via Telemail Xpress, which generates hard-copy laser-printed letters delivered by the U.S. Postal Service.

Control Data Corporation added a new EDI-related microcomputer software package to its family of EDI products. The product, Redi-Micro, is designed for use in electronically preparing, transmitting, and receiving business communications (such as purchase orders and invoices). The package comprises three individual modules: Redi-Com, Redi-3780, and Redi-Micro. The first two products are communications programs designed to connect to the network automatically. The Redi-Micro application program runs on a PC, creates ANSI X12 formatted documents, and interprets ANSI X12 documents into printed output by using fill-in-the-blank screens.

McDonnell Douglas is offering a new remote computing service, Star-Trec 90 Business Systems, as an alternative to an in-house IBM 4341 Model 1 or a higher computer system running under DOS/VSE and CICS. Star-Trec 90 operates on IBM's 3090 family of mainframes and features five of MSA's integrated

business systems programs, including general ledger, accounts payable and receivable, payroll, and personnel. The company apparently provides end-user application and information center support, including maintenance, tape backup, and other functions that an in-house data processing staff would handle. Typical customers will be companies with revenues in the \$25-50 million range that cannot afford or do not want to maintain an in-house data processing department.

Electronic Data Systems (EDS), in a continuing effort to increase its business overseas, recently formed a joint venture with the Lucky-Goldstar Group of Korea to provide systems integration and data processing services to the electronics conglomerate and to other Korean companies. The new firm, Systems Technology Management (STM), will assume responsibility for all data processing and communications within Lucky-Goldstar Group's 20 affiliated companies. EDS estimates the 1987 Korean market for computer services at around \$600 million.

Telenet announced that it has joined forces with British Telecom International to establish a 56-kbps, data-communication undersea cable between the two companies' international packet switch networks. The link is scheduled to be operational by March and will allow U.S. Telenet users to exchange information with British Telecom users in England. According to the company, Telenet and British Telecom already have two 9600-bps satellite links installed, and another is planned.

Telerate Inc. will introduce a service for institutional traders that will combine analytical capabilities with Telerate data. Telerate service users will be able to draw yield curves, perform rapid analysis, and arbitrage on both domestic and international bond markets. Similar services are planned for London and Japanese markets in late 1987.

The **S.W.I.F.T. II** network has been delayed to Fall 1987. The network, an update of S.W.I.F.T. I, was tested last August, and technical problems with the software were discovered. A second problem involves Burroughs, the hardware supplier. New products and services will not be available on the new network until 1989 or 1990, when all members are up on S.W.I.F.T. II. S.W.I.F.T. use continues to grow nevertheless, with about 800,000 messages processed each day. A sixth switching center is planned that will increase the network's capacity to over 1.1 million messages per day.

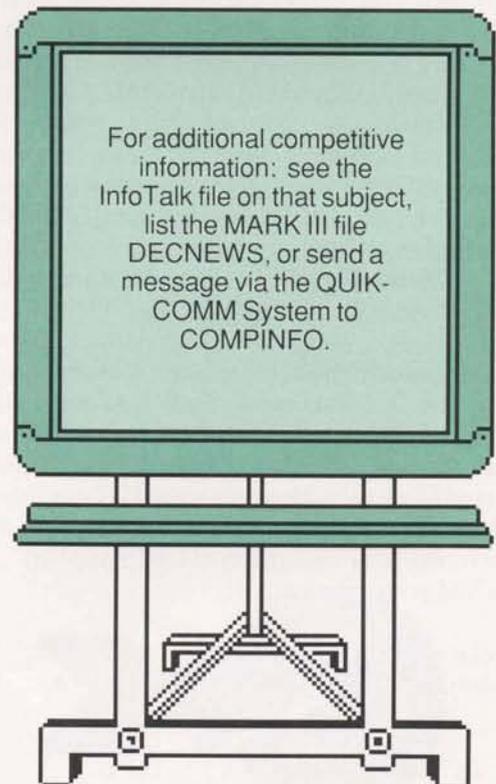
Norwest Corporation will join **EDS** and **Bank One** in developing a major retail bank processing system for use by institutions with \$1 billion or more in assets. Under the agreement, EDS will design and

build the system, and the two banks will provide user evaluation and a review of the system's design. Terms of the agreement and completion dates were not disclosed.

Spencer Gifts, a firm based in New Jersey, recently subscribed to Telecard, a **Telenet** product for credit card authorization. The company is expected to add electronic data capture at some point in the future. Prior to signing with Telenet, Spencer handled credit card authorizations by manual dial-up wire to appropriate centers and by checks of printed listings of bad account numbers.

Amoco Oil Company will use the **J. C. Penney** network to link approximately 4,000 service stations. The deal is expected to add 115 million transactions to Penney's network. J. C. Penney National Bank in Delaware will serve as the bank card merchant bank, processing Master Card™ and VISA® transactions through respective credit card associations.

EDS and **Auto Gas Systems, Inc.**, signed a joint marketing agreement to offer automated payment terminals to the petroleum industry. The terminals will accept either credit or ATM cards. Transactions will be authorized and cleared over telecommunications facilities at EDS. ▲



NEW AND REVISED DOCUMENTATION

910.45 (New, 12/86)

Serving the World of Office Services

1401.01E (Revised, 8701)

Teleprocessing Services International Access Directory
(January-March 1987)

1389.07A (Revised, 8706)

BusinessTalk System Price Schedule, United States and
Puerto Rico

3503.04 (New, 8701)

Gordian Systems Access Key User's Guide

3918.10C (Revised, 8703)

MARK*NET Asynchronous Value Added Network Service
Price Schedule, United States of America and Puerto Rico

3918.28B (Revised, 8703)

MARK*NET IBM-Compatible Synchronous Value Added
Network Service Price Schedule, United States of America
and Puerto Rico

5070.25A (Revised, 8705)

EDI*EXPRESS System Supplement to Agreement for
Computer Services ▲

DOCUMENTATION AUTHORS DOMINATE STC AWARDS

When the Society for Technical Communication (STC) held its Washington-area publications contest banquet at the National Press Club last January, 15 GE Information Services publication authors walked away with 26 awards. This accomplishment represented the highest total among participating companies and agencies, an honor usually captured by the Smithsonian Institution.



Award-winning publication authors included: Bill Colgan, Evette Fulton, Judith Greig, Lisa Griffith,

George Hammond, Patrick Kennedy, Peter Lovell, Christy Morrison, Suzanne Porter-Kuchay, Denny Senko, Jack Smith, Erick Soriano, Kathy Stevenson, Norma Valentino, and Jean Wackes.

Winning publications addressed topics such as BusinessTalk™, GENie™, MARK*NET™, office communications, point-of-sale services, EMC*EXPRESS™, SIM PC, global communications, the MARK System used by General Telephone of Florida, 3270 SNA, financial services, VSS, Fortran, Wang OIS, and ADM.

The STC publications contest is designed to encourage, identify, and recognize excellence in technical communication. A panel of practicing professionals judges entries against established standards, awarding prizes at four levels: Distinguished, Excellence, Merit, and Achievement. Winning publications in the Distinguished and Excellence categories—including 13 of our publications—will compete in finals at the International Technical Communications Conference in Denver in May. ▲

HAPPY BELATED BIRTHDAY, MR. EDISON!

I've tried everything. I have not failed. I've just found 10,000 ways that won't work.

Remember, nothing that's good works by itself, just to please you; you've got to make the damn thing work.

Genius is one percent inspiration and ninety-nine percent perspiration.

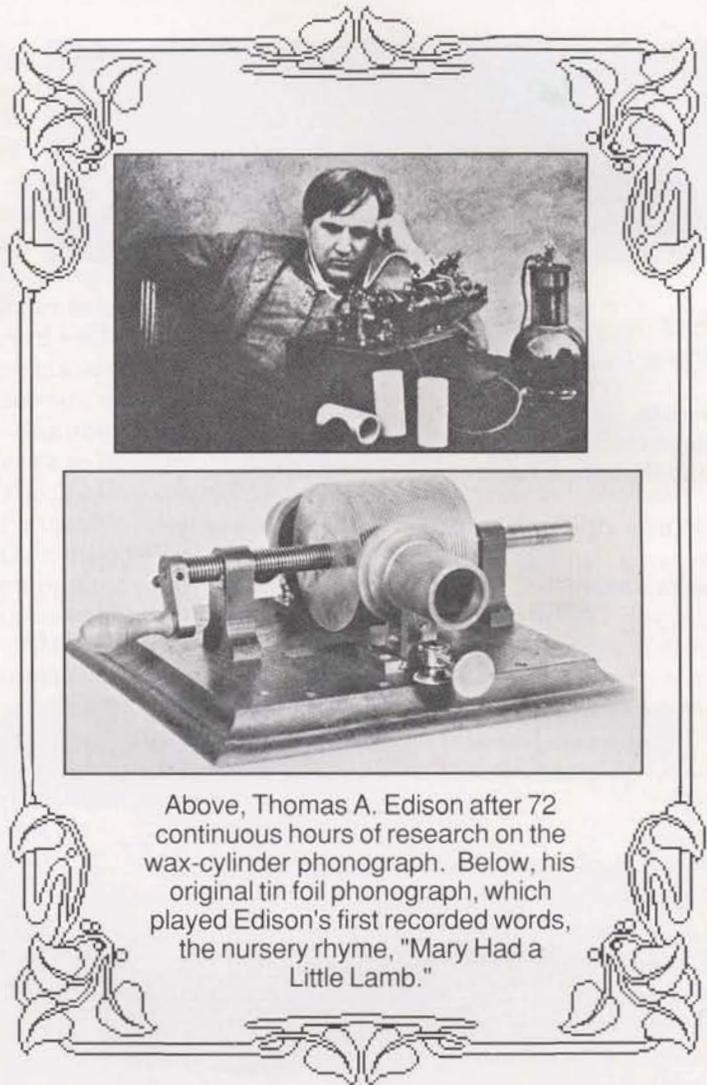
—Thomas Alva Edison

This year marked the 140th anniversary of the birth of Thomas Alva Edison, one of the founders of the General Electric Company. [For the historical record, Edison originally opposed the merger of Edison General Electric Company and Thomson-Houston Company—a technicality that in no way jeopardizes his status as a founder of the company.]

This year, Tom Zelaney celebrated the occasion by sharing good cake and authentic music with his colleagues. The phonograph is an original Edison



Tom Zelaney (inset), proud owner of an original Edison phonograph and a collection of 100 wax-cylinder records, celebrated Thomas Edison's birthday this year with his colleagues, cake, and song.



Above, Thomas A. Edison after 72 continuous hours of research on the wax-cylinder phonograph. Below, his original tin foil phonograph, which played Edison's first recorded words, the nursery rhyme, "Mary Had a Little Lamb."

model, complete with wax cylinders of recorded music that bear the likeness of Edison. The hardened-wax cylinder is hollow and slides over a horizontal spindle that rotates under the needle.

"I found the phonograph in an antique store in Pennsylvania," Tom recalls. "It came with over 100 records."

And so, last February 11—to the crackling tune of "My Old Kentucky Home"—Tom Zelaney handed out birthday cake (ordered from a bakery assistant who, when asked to inscribe the cake "Happy Birthday, Thomas Alva Edison," hesitantly inquired, "He's dead, isn't he?").

"I consider Edison's birthday an important occasion," Tom Zelaney says. "We should celebrate his birthday every year. He's an important part of GE's heritage." ▲

S&SP

The following table summarizes the prices for GE stock, Mutual Fund, and Holding Period Interest Fund that are used in the Savings and Security Program to credit participants' accounts. The Long Term Interest Fund price for the last day of the month also is shown, as well as year-to-date annual income rates for both the HP and LT Funds. ▲

Month	Stock Price	Mutual Fund Price	Price	Holding Period Fund				Long Term Fund	
				YTD Annual Income Rate (a)				Price	YTD Annual Reinvestment Income Rate
				1984	1985	1986	1987		
January	\$94.655	\$35.561	\$10.00	13.1%	12.5%	10.3%	9.0%	\$12.03	8.0%
February	\$100.993	\$38.751	\$10.00	13.1%	12.7%	10.3%	8.5%	\$12.01	8.4%

(a) The "announced" HP Fund Rate was 12.75% for 1984, 12.50% for 1985, 9.50% for 1986, and 8.50% for 1987.

MILESTONES

Congratulations to the following employees, who celebrated service anniversaries in February and in March.

20 years

Atlanta
Margaret Strickland

15 years

Rockville
Judie Gronkiewicz
William Love

10 years

Nashville
Joe Lyle
Rebecca Snow
New York
Jeanni Tom
Rockville
Meredith Springs-Levert
Michael Wilson

5 years

Brook Park
Michael J. Wilson
Chicago
Richard Panfil
Rockville
James Ervin
Valerie McClintock
Lorrie Norrington
David O'Connor
Phillip Poe
Jack Smith
June Smith ▲

CONTRIBUTORS

Thanks to the many employees who contributed their time and expertise to this issue of SPECTRUM. Key contributors included:

Joyce Alexander
Bill Backer
Phil Bayroff
Marjory Blumenthal
Linda Burton
Steve Canale
Bruce Chatterley
Tom Crawford
Jacquie Crowley
Jim D'Acosta
Brenda Edwards
Judith Greig
Jim Greulich
Lisa Griffith
Jack Hanson

Steve Haracznak
Charlie Harp
Bob Hench
Connie Horton
Achille Lajolo
Pam Janis
Bill Kerr
Carol King
Dick LeFebvre
Joe Marchese
Ray Marshall
Jack Mulford
Dex Nilsson
Peg Ohrt
Bob Prezioso
Angus Reynolds
Dave Sherman
Bob Simmons
Glenn Veltman
Dan Wecker
Bettye Wolfe ▲

parting shot

THE BEST IN THE QUEST

GE Information Services recently topped off its performance in the two-year Corporate "Quest for the Best Program" by winning an Outstanding Achievement Award for 1986. Below, Jack Hanson (left) and Charlie Harp (center) accept the symbolic plaque from Tony Craig (right).

The award was based on meeting or exceeding worldwide year-end receivable investment targets for:

- Day's investment in receivables (a measure of average daily sales and how long it takes to collect payments), which stood at a



record low average number of days for 1986, showing a monthly average decline of four days in the U.S.

- Account delinquency ratio, down by nine percent from 1985
- Resolution and prevention of disputed amounts, which were improved using tools such as a dispute-awareness program for sales managers, electronic payments, and EDI.

During the past two years, Corporate recognized 14 GE Information Services employees for monthly or quarterly individual accomplishments. Recognized for reducing account delinquency were: Luisa Bezzi (GEIS, S.P.A. Italy), Al Moss (and the GTE Region), Paula Shegda, and Phil Woodworth. Awards for accelerating cash flow through innovative techniques went to Al Boynton, Bob Donnestad, John Farrell, Paul Forte, Jack Hanson, Charlie Harp, Steve Korn, Kevin Pool, Dave Schmitt, and Sy Witcoff.

"Our entire Financial Services organization put in a lot of hard work over the last two years," reports Tom Crawford (Vice President, Finance). "Their efforts—and those of many other people throughout the company—are the reason we're one of the Best in the Quest."

Corporate designed the program to improve receivables turnover by encouraging improved performance in account delinquency, customer disputes, and cash flow. All Quest for the Best award winners are automatically entered in a lottery; the five grand prize winners will receive a three-day VIP trip for two to EPCOT. ▲