

# NEWSGRAM

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**Robotic vehicle allows human operator to carry out dangerous missions from a safe distance.**

(Cover story page 2)





## The military of the future

# Robot vehicles to seek out enemy targets

From far away it's easy to mistake the driver of this camouflaged jeep for a Marine or soldier, not a robot. It has some familiar facial features — two TV camera eyes for seeing and a pair of prosthetic ears for hearing. But up close, it looks like a character from *Star Wars*.

Actually, this Unmanned Ground Vehicle, developed by the Naval Ocean System Center (NOSC) under U.S. Marine Corps sponsorship, searches out and targets the enemy using a high-resolution zoom camera in daylight and a forward-looking infrared camera at night and in adverse weather. The vehicle's laser designator then illuminates the targets for laser-guided munitions.

Driven remotely through teleoperation, the vehicle is one of the Marine Corps' new High Mobility Multipurpose Wheeled Vehicles (HMMWV pronounced "hum-vee") replacing the traditional jeeps.

SAIC's Command & Control Research Division (Maritime Technology Group) will assist NOSC with the design, integration and testing of this vehicle and its mission modules. The modules include a 50-caliber machine gun weapon system and a surveillance/targeting system consisting of video and infrared cameras, a laser designator, and an extremely sensitive acoustic detection system. SAIC will also assist NOSC in improving the vehicle's stereo vision.

The robot receives its commands from a manned control station located inside a van. A person seated at the

station operates duplicates of the HMMWV's controls to direct the vehicle. To see what the robot sees through T.V. eyes, the controller peers at binocular-like stereo displays mounted on his helmet. Head tracking sensors (attached to the helmet) command the robot's head to match the controller's head movement.

"This interactive operation called teleoperation, allows the human operator to carry out highly dangerous missions from a safe distance," said principal investigator Delmar Haddock.

A fiber-optic communications cable paid out by the robot can link the operator to the robot over distances up to 30 miles. The thin, lightweight cable resists jamming, interception and interference.

The advantages of teleoperation and the recent successful demonstrations of remotely-piloted vehicles have broadened the appeal of robotics within the U.S. military.

Recently, SAIC and NOSC successfully demonstrated the HMMWV's capabilities to Army and Marine Corps officials at Camp Pendleton. Using its laser, the unmanned vehicle, pinpointed a target 1,000 yards away. Sec-



onds later, the same target exploded after the manned control station launched a supersonic laser-seeking missile from two miles away.

The prototype's first test-firing was so successful that NOSC just awarded SAIC a follow-on task to construct two more vehicles. SAIC will also continue vehicle development, begin assessing the military worth of battlefield robotics, and develop further concepts for their employment.

According to program manager Tom Hughes, robot systems could serve as sentries on a 24-hour basis, detect and clear minefields, be the initial assault force in amphibious landings, provide flank security during troop movements, and provide rear guard support if required. "What a Marine or soldier must do in a future conflict, he will be able to do over and over again using personally commanded robots to stand in for him," said Hughes.

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## NEWSGRAM

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Editor: Nola Smith

Staff Writers: Robin Gordon, Judith Swift

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## Strategic Research & Management Services acquisition brings new expertise in wargaming

If winning a war was as systematic as launching a missile, then strategy and its role in military preparedness would be clearcut and easier to formulate. Because it isn't, planners and strategists use wargame scenarios to understand wartime strategy and maintain military readiness. SAIC's newly acquired Strategic Research and Management Services (SRMS) designs and facilitates wargames for both U.S. Navy Flag officers and U.S. Marine Corps generals. Sponsored by the Chief of Naval Operations and the Commander of the Naval Space Command, SRMS conducts these wargame seminars six to nine times a year in highly secured conference rooms.

Started six years ago by retired Admiral Harry Train, SRMS employs 12 people in its Norfolk, Va. headquarters and 3 in an outlying office in Dayton, Ohio. Although it's a small company,

SRMS's big customers consider their work very important.

"Pound for pound, the Flag-level wargames are the most effective theater nuclear warfare training the Navy has. We train in many areas, but nowhere else do we do so much in so short a period of time," said CDR John Tromba, USN, Naval Sea Systems Command.

SRMS also supports the Chief of Naval Operations and the Office of Naval Research by providing wargame synopsis assessments on maritime strategy. "We do this by participating in wargames sponsored by the Joint Chiefs of Staff and the Naval GLOBAL wargame series," said deputy division manager Steve Herbert.

Because SRMS specializes in warfighting tactics, the Navy employs their help in writing Naval warfare publications and combat system doctrines.

These documents embody formal warfighting tactics and specific fighting instructions for several classes of Navy surface ships.

SRMS also has U.S. Air Force clients, mainly the Aeronautical Systems Division (ASD) and the Foreign Technology Division (FTD). SRMS supports these divisions with technical threat assessments for weapon systems under development by ASD. Assessments have covered such diverse systems as the USAF Advanced Tactical Aircraft, air defense suppression missiles, and strategic cruise missiles. In addition, SRMS provides FTD with electronic signal analysis, supporting a full spectrum of Air Force electronic warfare programs.

For more information concerning SRMS, contact Steve Herbert at (804) 623-2336.

## Arlington office supports National Semiconductor Committee

SAIC recently established a program office in Arlington, Va., to support the National Advisory Committee on Semiconductors (NACS). Established by the 1988 Omnibus Trade Bill, this 13-member panel advises President Bush and Congress on a national strategy to strengthen the semiconductor industry. SAIC won this contract based on similar work for the Defense Advanced Research Projects Agency which, along with the Office of Science & Technology Policy (OSTP), funds NACS.

Dr. Ian Ross, president of AT&T Bell Laboratories, chairs the presidentially-appointed committee which consists of eight members from the semiconductor industry and five members from government (the Secretaries of Defense, Commerce, and Energy; the Director of the National Science Foundation; and the Director of the OSTP, or their representatives).

Since January, the NACS has met five times and has issued a statement urging congress and President Bush to endorse development and funding for High Definition Television (HDTV) technology. Committee members believe HDTV can help to re-establish the domestic consumer electronics indus-



SAIC supports the presidentially-appointed NACS committee. NACS members (above) discuss their recommendations to President Bush on strengthening the U.S. semiconductor industry. (From left to right) National Science Foundation director Erich Bloch, Motorola chairman Robert Galvin, Bell Laboratories president and NACS chairman Ian Ross, DARPA program manager William Bandy, and Applied Materials CEO James Morgan.

try, thereby strengthening the United States' position in the global semiconductor market. A report, generated and coordinated by SAIC staff and scheduled for release this month, analyzes the state of semiconductor industry and

recommends improvements.

Currently funded through 1991, the NACS plans to meet every other month. Deputy director Hazel Houston from SAIC's Arlington office coordinates all NACS activities.



## Targeting commercial markets

# New DI-STAR acquisition expands SAIC capabilities in medical information systems

In a move to strengthen our commercial capabilities in the medical information systems market, SAIC has acquired DI-STAR Medical Systems Corporation.

DI-STAR has worked as SAIC's primary software subcontractor to the Composite Health Care System (CHCS) program, a \$1-billion, 8-year effort to develop a medical information system that will automate record keeping at military medical treatment facilities worldwide. DI-STAR staff contribute software design, development, testing, architecture, and implementation for the effort. Among their most important contributions are DI-STAR's proprietary tools for rapid prototyping of database management systems. These tools have been crucial to the CHCS program.

Founded in 1984 as a health information, consulting, and services firm, DI-STAR also brings to SAIC several proprietary systems for integrated health information, laboratory information, clinical practice management, dialysis center management, and fixed assets. These systems will add to

SAIC's already broad base of health information systems software products.

Although in the past, the two companies often competed against each

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DI-STAR's tools for rapid prototyping of database management systems have been crucial to the CHCS program.

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other in the medical information systems market, they successfully teamed for the CHCS program. DI-STAR will comprise a new operation within SAIC's Medical & Computer Systems Group which performs the CHCS effort. According to group manager Lee Murphy, "We have demonstrated our ability to work as a team, and I believe that our

new relationship will enhance this ability." On the new acquisition, he adds, "We feel this combination will result in a unified team that is more than just the sum of our individual strengths."

DI-STAR brings more than 30 professionals experienced in system design, development, implementation, and training. Headquartered in Concord, Calif. (northeast of San Francisco), DI-STAR also has staff in San Diego, in Herndon, Va. (near our McLean office), Nordland, Wa., and in Troy, N.Y. (near Albany).

DI-STAR co-founder Dr. Marty Ivers will manage the new operation with assistance from another co-founder, Dr. Joseph Tatarczuk. Another DI-STAR co-founder, Dr. George Timson, will serve as a consultant. In the 1970's, Ivers, Tatarczuk, and Timson were among the primary developers of DHCP (the Decentralized Hospital Computer Program). SAIC patterned CHCS after DHCP, the VA's primary medical information system.

For more information, contact Joannie Hastings in San Diego at (619) 546-6932.

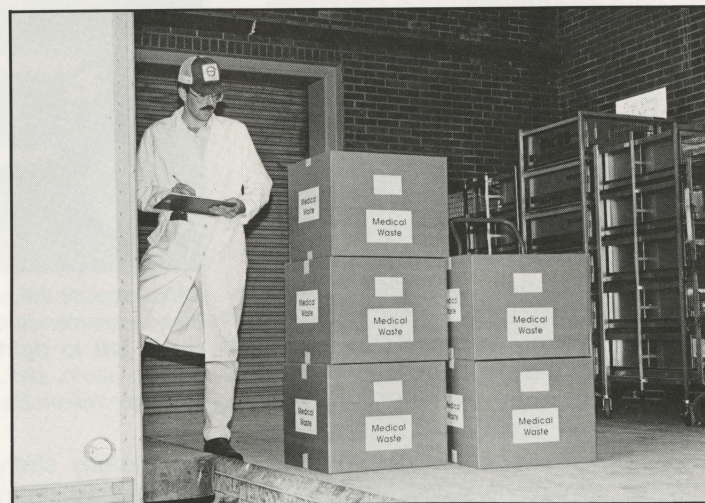
## EPA teams with SAIC to keep medical wastes off beaches; new waste tracking system implemented in seven states

When used syringes, broken test tubes and vials of blood washed up on the nation's beaches in the summer of 1988, public outcry and the resulting beach closures led to the loss of millions for the summertime resort industry. The outcry reached members of Congress, who quickly passed the Medical Waste Tracking Act, a law that mandated strict controls on medical waste disposal.

To respond to Congress's mandate and to develop specific regulations, the Environmental Protection Agency called on SAIC. Since the passage of the legislation in November 1988, SAIC's Regulatory Development & Implementation Division in McLean has researched and helped write regulations to implement the act, and developed briefings for those affected by the regulations.

"We had to develop regulations that would follow the law, accomplish what Congress intended, and still be realistic about the time and energy we could expect from the waste generators, transporters, and disposal facilities involved," explains Richard Silver, who led SAIC's effort.

To reduce the chance of improper waste disposal that could result in public contact and injury or disease, SAIC and



Using a waste tracking form designed by SAIC, a medical waste transporter checks a shipment before accepting it. SAIC also defined the wastes to be tracked, and worked out logistics for the tracking process.



# New committee to promote R&D success

Innovative R&D helped fuel SAIC's growth from a small entrepreneurship to a major corporation. How can we ensure that our current highly decentralized R&D organization continues to provide innovation for growth? That question, central to SAIC's future, provides a focus for the company's new R&D Committee. The ad hoc committee is taking a fresh look at ways to keep SAIC at the forefront of technologies important for our business.

The SAIC ad hoc R&D Committee, chaired by Larry Kull, includes committee members Paul Bleiweis, Mike Congleton, Clint Kelly, J.J. Martin, John Penhune, Joe Penland, Howdie Pratt, Steve Rockwood, Jerry Slubowski, Peter Tatro, Oran Thomas, John Warner, and Jerry Zelenka plus a number of others who participate on a rotating schedule.

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**"It is essential to ensure that SAIC retains this flexibility to adapt its R&D skills quickly to the changing market as the company grows large.."**

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Enhancing the company's R&D environment starts with communication. R&D Committee members recommend more exposure of SAIC's R&D staff to the problems driving the marketplace. Further, they seek to improve technical and marketing communications among our scientists and engineers through mentoring and networking, as well as forums where employees can voice their ideas, concerns, and questions. Managers can use these forums to increase employee under-

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the EPA devised a system to track medical waste from its point of generation to its point of destruction and disposal. The EPA implemented the system in five states.

The new law affects a broad range of medical-related businesses. Physicians, veterinarians, dentists, nursing homes, blood banks, medical laboratories, and any other businesses that generate substantial quantities of potential infectious waste will feel the impact.

The regulations require waste generators to package regulated medical waste according to strict standards and to complete a tracking form specifying the weight and volume of the contents of each waste shipment. As a waste shipment moves along to a transporter and disposal facility, each of those parties checks the shipments against the tracking form. They must note any discrepancies before accepting the shipment.

"This way we can pinpoint where any discrepancies occur. It forces all parties to be responsible for proper handling and disposal of the waste," says Silver.

SAIC continues to assist the EPA with regulatory interpretations. Our people are helping to draft several reports to Congress discussing the success of the medical waste tracking program and recommending federal tracking requirements in more states.

"No one wants to encounter hazards when they go to the beach," says Silver. "We hope that our work will help keep shorelines free of medical-related debris."

standing of the goals, practices, and current activities in their divisions, groups and sectors.

Committee members also promote more networking with the academic community and professional societies to give R&D staff better access to new employees and fresh ideas. Current university recruiting and liaison programs have had considerable success and more are being considered. The committee also encourages increased publishing of articles in technical journals.

Along with improving communication, "we must maintain a technological environment that allows us to take advantage of R&D market opportunities as they arise," says committee spokesman Dr. J.J. Martin. Key to this is flexibility in adapting to changing markets. Dr. Martin notes that SAIC has succeeded in part because of its ability to respond quickly to changing market needs. As an example, he cites the billion-dollar CHCS (Composite Health Care System) program. The company had been tracking the Tri Service Medical Information System, as CHCS used to be called, for many years. When the Phase 1 CHCS program became a clear marketing target, John Warner's group had the requisite expertise and was able to react to the market need.

It is essential, Martin believes, to ensure that SAIC retains this flexibility to adapt its R&D skills quickly to the changing market as the company grows large, and that we stay at the forefront of technologies relevant to our business. To promote flexibility, the committee will encourage current employees to expand and share their capabilities with one another and to seek new employees with needed technical skills.

Promoting R&D success includes focusing R&D efforts to maximize our potential to generate new business. R&D Committee members are considering ways to improve our confidence that SAIC makes adequate strategic investments to maintain and expand its technology base. They also support the continued use of IR&D for key projects until customers can take over the funding.

To increase employee job satisfaction, committee members look to increase recognition for technical accomplishments. For example, some groups already have programs in place to reward quality work and the publication of superior technical articles. Committee members hope to develop more of these programs, as well as to provide other forms of recognition, perhaps through technical forums. Committee members also study why R&D has succeeded or failed in other organizations and companies.

## **What SAIC managers can do to help strengthen the R&D environment**

- *Expose R&D employees to customers and the marketplace*
- *Keep building technology base through IR&D projects, involvement in professional societies, recruiting, and networking into universities*
- *Encourage employee publications*
- *Promote mentoring and networking among R&D employees*
- *Recognize and reward technical achievements*
- *Encourage R&D employees to voice their ideas*



# Employees celebrate 20 years of ownership

Under blue skies, SAIC kicked off its third annual Employee Ownership Day and 20-year celebration at Campus Point in **San Diego**. More than 2,000 employees and their families turned out for the all-day event which included speeches, music, a barbecue lunch, and raffle prizes. A 60x60 ft. "Technology Tent" displayed examples of SAIC's products and innovative technology.

The event began at 8:45 a.m. with a three-mile fun run. The winner of the men's division was Bruce Nelson, a program analyst at TRW, with a time of 16:58 minutes. Deborah Jenkins, an administrative specialist with SAIC COMSYSTEMS, took first place in the women's division with a time of 20:47.

As part of the ceremonies, CEO Dr. J. Robert Beyster presented 20-year awards to employees who have been with the company since its inception in 1969. Among those were SAIC President Larry Kull, Wayne Coleman, Ron Dietz, Jim Lonergan, Mel Schoonover, and Dan Hamlin.

The winners of the "Employee Owners at Work" photo contest received stock awards. Winners included Henry Herz and Doran Jones from San Diego, Tim Havlick of Houston, and Natalie Sluzar of McLean.

In a speech to employees, Dr. Beyster emphasized the important role employee ownership has played in our history. Larry Kull talked about future prospects for SAIC.

Wolfgang Demish, a financial analyst for the Union Bank of Switzerland

Securities, shared his thoughts on employee ownership. "Wall Street loves employee-owned companies. The richest companies on Wall Street are employee owned. We have no prejudice whatsoever against sharing the wealth with wealth creators. It's peculiar in a sense that it is not more widespread."

Peter Isler, president of Isler Sailing International in San Diego, presented an update on the America's Cup events. Isler served as a navigator in the cup defense aboard the Stars and Stripes in 1987, and has started work on the upcoming cup defense in 1991. San Diego County supervisor Brian Bilbray concluded the speaker's presentations with an update on San Diego events including the "Little America's Cup" sponsored by the city. (For a videotape of these speeches, contact Max Maple at (619) 546-6047.)

With exhibits displayed in a "Technology Tent", employees and their families had the chance to see a sampling of work SAIC from several SAIC groups and sectors. Highlights of the tent included Visual Information Systems for Image Transformation (VISIT), which captures images from video tape and transmits them to any aircraft maintenance facility; a mobile video unit called a ground exploitation module (GEM); and an active vibration reduction system that reduces or eliminates vibration in a specific area.

Other booths showcased employee benefits, stock programs, photo contest entries, and employee

arts and crafts.

Lucky winners received raffle prizes throughout the day. SAIC plasma physicist Zoran Mikic received the grand prize — a Macintosh SE/30 computer donated to SAIC by Apple Computers.

Other SAIC locations celebrated employee ownership in various ways.

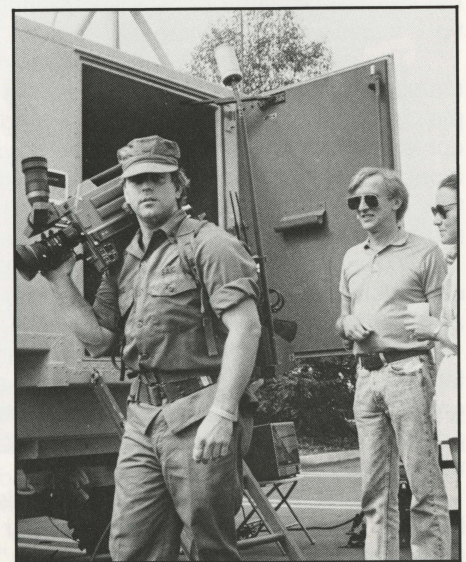
In the new Tower II building in **McLean**, staff celebrated with fellow employees from company offices throughout the Washington Metropolitan Area. Guest speaker David Binns from the Employee Stock Ownership Plans Association, shared his views on employee ownership in the U.S. and how it benefits SAIC employees and the business world. Other activities included videos on the company and presentations on retirement, stock, and fringe benefit plans.

**Orlando** staff celebrated with a formal luncheon and a speech by Huntsville operation manager Dick Markwalter.

**Colorado Springs** staff hosted a week-long schedule of events including a speech by operation manager David Doughty, a continuous showing of company videos, an open house for employee's families, a potluck dinner, and a display of SAIC logo items such as coffee mugs, T-shirts, and hats.

**Huntsville** staff celebrated with a barbecue and a traditional catfish fry. Employees also viewed a videotape on SAIC's first 20 years.

SAIC employees (from left) Jim Lonergan, Ron Dietz, Wayne Coleman, Larry Kull, and Mel Schoonover, received recognition for 20 years of service. In San Diego, David Pierce demonstrates a mobile video unit with surveillance camera.





## EMPLOYEE OWNERSHIP IN ACTION

### Las Vegas employees honored for outstanding performance

During Employee Ownership Week, the Technical & Management Support Services (T&MSS) office in Las Vegas honored seven employees with awards. T&MSS selected employees based on their commitment to the overall success of the T&MSS office, consistently superior performance, and ability to work as team players.

The award, announced at the Employee Ownership/20-Year Celebration in Las Vegas, came after a speech on employee ownership and participation by Bill Scott, chairman of the Technical Environment Committee and keynote speaker for the event. Each recipient received a letter of appreciation from CEO Dr. J. Robert Beyster, 300 stock option shares, a plaque, and a 20-Year Celebration T-shirt.

The award recipients, together with all the other employees in the Las Vegas T&MSS office, support the DOE in its efforts to evaluate Yucca Mountain as a potential site for the nation's first underground repository for nuclear waste. As part of their work, they provide a wide range of technical and management support.

The recipients included

**Steve Dana**, who was commended for his performance in the highly-visible role of lead auditor for the quality assurance audits of Sandia National Laboratories. Dana will also serve as lead auditor in the planned audit of Los Alamos National Laboratory.

**Marshal Davenport**, who stepped into the position of liaison between the SAIC T&MSS office and the DOE on very short notice. His efforts resulted in continued high productivity and continued high marks from the customer.

**Ernie Hardin**, who was commended for his outstanding accomplishments in the area of geophysics. His peers and our customer have recognized his work for its quality and thoroughness.

**Bea Reilly**, who helped DOE staff prepare numerous public presentations and other material supporting the project office's relations with external parties. She worked through many evenings and weekends to deliver top quality, complete materials to our customer, often on extremely short notice.

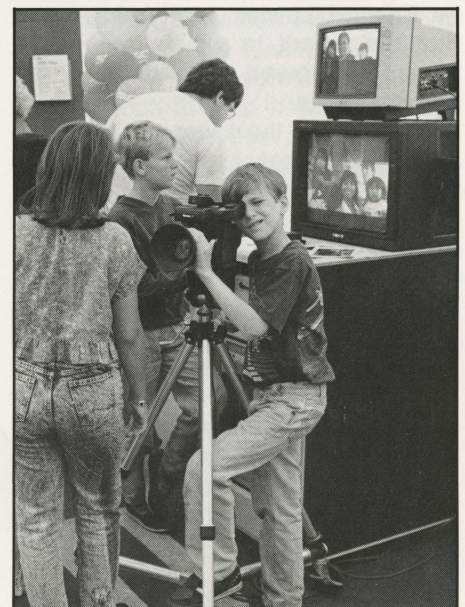
**Jim Rogers**, who helped implement a hazardous materials management program. As part of this effort, he was

responsible for developing the Hazardous Material Handling Plan, which integrates the needs of numerous government agencies and private firms, and for developing the accompanying computer tracking system.

**Elaine Spangler**, who monitored and tracked Yucca Mountain Project plans and procedures. These account for a significant portion of the work required to achieve a QA program acceptable to the U.S. Nuclear Regulatory Commission.

**Barbara Wright**, who was recognized for the "tireless and always cheerful support" she provides to management and staff in personnel matters. Wright also completed several deliverables, all related to operational support, for DOE.

T&MSS project manager John Nelson and senior T&MSS managers helped to present the awards as did TEC chairman Bill Scott.



SAIC employees from the Shalimar and Ft. Walton Beach, FL. offices joined together in celebrating employee ownership. San Diego employees view an active vibration reduction system (upper right), and a video system used in B-1B aircraft maintenance (lower right).





# What leadership means in an employee-owned company: Employees explore leadership issues at special workshop

Earlier this year, operation manager Larry Harris organized a special workshop on leadership and employee ownership and invited his division managers and his group manager, Peter McGrath, to participate. "After thinking about the emphasis that we put on technical leadership and marketing leadership, I felt that perhaps people leadership deserved some attention," said Harris, who has excellent qualifications in all three areas. Harris has spent nearly 15 years with SAIC, providing safeguards and security services for the energy industry and the military. He currently manages the System Services Operation in San Diego.

Harris planned the workshop as an off-site weekend retreat featuring presentations, videotapes, book reviews, and discussions. In applying his research skills to the workshop, Harris had uncovered about 25 relevant books and six relevant videotapes.

On the first morning of the workshop, the participants listened to a videotape in which Dr. Bob Beyster described his own career path and his views on SAIC. Taped last year, the video shows Dr. Beyster's presentation at the University of California, San Diego, as part of UCSD's "Meet the Entrepreneur" lecture series.

Then, division manager Walt Vaughan reviewed a very relevant book: *High-Involvement Management* by Edward Lawler. Lawler says that the extent to which four things — power, rewards, knowledge, and information — flow to the lower parts of the organization determines improvements in organization

effectiveness. Lawler presents a blueprint for participative management in a company. "What is so striking," says Harris, "is how similar what he describes is to the way we do business."

In the afternoon, the group watched Dr. Beyster's videotaped presentation on employee ownership given for the Foundation for Enterprise Development Conference in October 1988. Division manager Ben Huggin then reviewed *Leaders: The Strategies for Taking Charge*, written by Warren Benis and Burt Nanus.

The next day, they watched two videotapes: Larry Kull's video presentation on employee ownership taped several years ago and Ed Straker's video on "Ingredients for Success," made especially for this off-site.

Division manager Pete Lobner reviewed *A Passion for Excellence: The Leadership Difference* by Tom Peters and Nancy Austin. These well-known authors advocate "management by wandering around."

Peter McGrath brought materials

on the SAIC stock price determination process and described the struggle that our Board of Directors has to go through each quarter to determine the price. Then, the entire group discussed the company's reward system, both intrinsic and extrinsic rewards. They also discussed best and worst leaders.

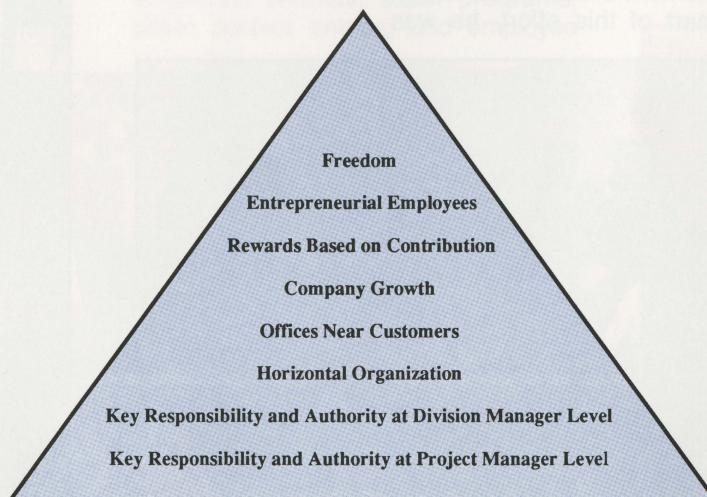
One important result from the seminar: "To us, the term employee ownership now means a lot more than that employees own the company," said Harris. It means the freedom to pursue things that we think make sense, the encouragement of entrepreneurial employees, rewards based on contribution, and company growth in terms of people, revenues, profits, and stock price. It also means putting our offices near our customers, having a horizontal organization, and putting key responsibility and authority at the division manager level and at the project manager level. "We think all of these are greatly enhanced by the fact that we own our business," says Harris.

A notebook containing materials for the leadership workshop is available at cost (\$10 each) by writing Kathy McGrath at Campus Point/MS #11 or phoning her at (619) 458-2688.

McGrath also maintains a small library of 25 books dealing with leadership. Resident staff and visitors to Campus Point are invited to peruse these books. Employees may check out books for one week.

Larry Harris plans a follow-up off-site workshop on leadership and related issues in December.

## From Employee Ownership Comes





# Secretaries pool resources to work more efficiently, build morale

More than just a case of the "Monday blues" affected secretaries at SAIC/ Hermosa Beach (now the Torrance office) in 1987. Morale had sunk dangerously low and no one could quite pinpoint the cause. Personnel administrator Darcel Evans knew the group needed more than a quick fix, and on October 20, 1987, she organized the first Secretarial Meeting.

From the start, the monthly meetings — which give 25 secretaries and other support staff a forum for discussing and resolving issues and sharing resources and expertise — have succeeded. "What started out as a desperate attempt to build morale has become an important monthly event that has done much more than boost spirits," says Evans. "Pooling resources and inviting suggestions and constructive criticism of existing systems has resulted in significant cost savings to the company, as well as helping secretaries work more efficiently."

Among their cost-saving innovations, they improved their systems for supply ordering, equipment inventory tracking, and travel booking. They also

worked with managers to improve program management.

The meetings focus more on resolving problems than on simply airing grievances. One unanticipated result is that many attendees have come forth to share their expertise. "If someone has found a more efficient way of ensuring correct time charging — or some innovative way to use word

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"I used to feel more like an observer ... I now view myself as an active participant in the company's growth and direction."

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processing software, for example — the rest of us don't have to 'reinvent the wheel' each time we take on a new task," says Gayle Shaeffer, administra-

tor for the Space Systems Operation.

The managers' positive response to the meetings has helped the secretarial staff truly feel part of an employee-owned company. Says Alicia Lindsay, secretary for the Contracts Department, "I used to feel more like an observer in our Contracts staff meetings, with a sense that as a secretary, I wasn't part of the important decisions being made at SAIC. So many of the suggestions that evolved from our meetings have been acted on by managers, that I now view myself as an active participant in the company's growth and direction."

Managers show their support in many ways, with some volunteering as guest speakers. Eldon Mangold, manager of the Space & Command Systems Group, spoke on the facility's "telecommunications image" and solicited suggestions from the group for improving the manner in which people handle and route incoming calls. "I'm impressed by the meetings, and will continue to be involved in the good work being done there," says Mangold. "The secretarial staff is important to the company's continued success and a major component of our organization."

Bolstered by their growing list of accomplishments, the secretaries decided to work at enhancing job skills. Group members have attended seminars on time and stress management, business writing, and the changing focus of secretarial jobs resulting from technological advances. Recently, they started an in-house Toastmaster's club. The group will also develop a secretarial handbook to help newcomers and temporary employees find their way around and help train themselves.

"We're definitely pleased with the meetings," says Evans, "but we couldn't have achieved as much without the support of management." Richard Ziskind, a manager and long-time supporter of the secretarial meetings, sees them as "an effective means to get important issues brought to the attention of management. More importantly, it offers a means of finding solutions ... and allows each of our staff/owners the opportunity to be heard."

### "Teleocratic Leadership in Action: SAIC"

Shortly after organizing the leadership workshop, SAIC operations manager Larry Harris came across another useful book, *Beyond IBM*, co-authored by management consultant Kate McKeown and by Lou Mobley, who helped design the first IBM computer before turning his talents to management training at IBM. The book describes IBM's transition from autocratic leadership, to bureaucratic leadership, then to teleocratic leadership, which is based on having a common purpose.

When Harris mentioned the concept to his sector manager, Ed Straker, "Ed got a smile on his face and said, 'Okay, what's our purpose, Larry?'" Harris responded that "at

the working level of the company, the job of the principal investigator or the project manager is to deliver work on time, within budget, to a happy client. Those purposes contribute directly to the purpose of the division manager. The manager is interested in exactly those things, plus revenue goals and profit goals."

The idea, says Harris, is that "the purposes at the bottom of the organization combine to contribute to the purposes at the top of the organization."

*Beyond IBM* further describes how SAIC's leadership structure works, in a special section in chapter 6 titled, "Teleocratic Leadership in Action: SAIC."



## Article by SAIC defense analyst wins praise from General Chain

After expending time and effort to write a good technical article, most authors hope it will have an impact. Defense analyst Tom Troyano found his article had a surprising impact. When Troyano's article appeared in the Summer 1989 issue of *Strategic Review*, it caught the attention of U.S. Air Force General John T. Chain Jr.

Troyano's article explained how key strategic bomber modernization issues, such as the B-2 Bomber, related to ongoing strategic arms reductions (START) negotiations. He laid the groundwork for a system that would help decision makers understand how current force structure and arms control decisions interrelate and how they will impact our national security over the next several decades. As Commander in Chief of the Strategic Air Command, General Chain has input to the U.S. position for the START talks. He is also a leading advocate of the B-2 bomber. In a letter to Troyano, General Chain wrote

*It is refreshing to see an analysis based upon the continuing need for military sufficiency in view of START-produced ramifications on force structure.*

*I appreciate your strong argument for the absolute necessity to keep the bomber leg of the Triad visible into the next century. An examination of the target base, with or without START, shows the critical importance of the bomber force. The penetrating bomber is the key to the Joint Chiefs' certification of the military sufficiency of the current START treaty. Your analysis of the need for the U.S. to exploit the Reykjavik counting rule is very timely. Full production of the B-2 is key to taking complete advantage of the favorable penetrating bomber counting rules under START. . .*

*Again, I thoroughly enjoyed your article and wholeheartedly agree with your position on the required modernization of our strategic bomber force.*

Troyano has the position and qualifications to write a meaningful analysis. He holds a master's in national security policy from George Washington University, is affiliated with SAIC's Center for National Security Negotiations, and currently provides arms control support to the Office of the Secretary of Defense.

Finding the time to write was not easy. But Troyano feels his effort paid off: "I wanted to contribute to the national debate in this area. I was also trying to show what SAIC can do to help the DOD sort out these complex issues."

## McLean biologist edits first book on electromagnetic cell research

New discoveries in the emerging area of electroporation and electrofusion in cell biology convinced SAIC research scientist Carol Jordan to research and edit the first book on the subject. Originally, Jordan (from SAIC's Biomedical Sciences Division) was told the book was not feasible. This technical field, in its infancy, had no standard lexicon of nomenclature, definitions,

and interpretations. Jordan and coeditors Eberhard Neumann (University of Bielefeld, West Germany) and Arthur Sowers (Jerome Holland Lab for Biomedical Science) accepted the challenge and submitted their outline to three publishers. Within six days, two of the publishers accepted their proposal.

The background and the impetus for the book, *Electroporation and Electrofusion in Cell Biology*, came from Jordan's SAIC work on an Office of Naval Research (ONR) contract where she investigated the effects of electromagnetic fields on biological tissue. "It was then that I grew interested in electric pulse techniques and their application to cell biology, biotechnology, and medicine."

Electroporation describes the electric modification of cells which results in the temporary breakdown of the membrane and the formation of pores large enough to allow macromolecules (including genetic material) to enter or leave the cell. Electrically fusing a cell with a cell containing the desired genetic material is called electrofusion.

Both of these cell manipulation techniques show potential in medicine for future gene replacement therapy to combat certain human diseases, and to produce monoclonal antibodies to identify and eliminate invading germs and diseased cells such as cancerous tissues. They also show a promise in agriculture to produce higher crop yields and new hybrids.

Jordan and her coeditors received input from approximately 20 experts from key laboratories around the world. The book combines their input in five sections — cells in electric fields, electroporation, electrofusion, applications, and a special section on methods and equipment "which describes the practical design and safety considerations in building or using the experimental equipment," Jordan said.

## Book sets new standard for computer-based instruction

Dr. Eleanor Criswell, manager of SAIC's McLean Intelligent Technology Division, researched and wrote a textbook on the techniques of designing instructional coursework that is taught by computers. Unlike other books that only describe types or give examples of computer-based instruction, Criswell's *Design of Computer-Based Instruction* explores the psychological issues behind the design.

Written for both students and professionals, *Design of Computer-Based Instruction* teaches courseware designers how to create effective, efficient, and pleasurable computer-based instruction for any purpose. Much of the book consists of practical applications and examples.

Criswell began working on *Design of Computer-Based Instruction* in late 1984 on her own time. Completed and published in November 1988 by Macmillan Publishing Company, this book soon began appearing in various SAIC offices.

Criswell's interest in the mechanics of learning and her doctorate in experimental psychology prompted her to explore the psychological issues of computer-based instruction. Criswell derived her perspective from three specialized areas — learning psychology, cognitive science, and human factors research. By interrelating information on how students learn, how the material is structured, and how students interact with inanimate objects, Criswell helps designers build psychological principles into useful computer programs.



# Virginia Beach to become major location with construction of new facilities for AmSEC/SAIC

Ground-breaking ceremonies, held last month in the city of Virginia Beach, kicked off the construction of a new headquarters building for our AmSEC subsidiary. The 62,500-square foot facility, scheduled for completion in August of 1990, will house 300 AmSEC employees (from the Hampton Roads area) and also allow for the consolidation of other SAIC offices in the area.

Last year when AmSEC started searching for a larger building to accommodate its growth, the city of Virginia Beach became concerned that it might lose one of its larger employers. Ship maintenance for the U.S. Navy accounts for most of AmSEC's current business.

To convince AmSEC to stay within the city and encourage other SAIC employment, the city of Virginia Beach in August of this year sold 13 acres of land to SAIC at a significantly discounted price. The site is located in the Oceana West Industrial Park, less than one mile from AmSEC's current offices.

SAIC's master plan envisions con-



struction of 165,000 square feet of facilities during the next five years to accommodate the addition of 500 AmSEC and SAIC employees at this location.

SAIC president Larry Kull (left) meets with AmSEC president Carl Albero during a ground-breaking ceremony for AmSEC's new headquarters.

## Project and Division Manager Training to be offered in San Diego

During the December Management Meetings, the company will offer six courses in management training. SAIC will bring back four previous bestsellers — Project Management, Contracts Management, Business Management, and Marketing Management — along with two newer courses — Proposal Management and People Management. These courses are part of the new Project and Division Manager Training Series. Geared primarily toward new and prospective managers, the courses will also benefit more experienced managers. Each instructor is an SAIC division manager who developed the course material. Each class includes a student workbook (distributed beforehand), the use of videotape, exercises, and plenty of class interaction.

The current schedule is included below:

Time	Tuesday (12/5)	Wednesday (12/6)	Thursday (12/7)
8 a.m.-12 p.m.	People Mngmnt.	Project Mngmnt.	
8 a.m.-12 p.m.	Marketing Mngmnt.	Proposal Mngmnt.	
1-5 p.m.	Project Mngmnt.	People Mngmnt.	Contracts Mngmnt.
1-5 p.m.	Business Mngmnt.	Marketing Mngmnt.	Proposal Mngmnt.

Class locations will be announced. Sign up early as class size is limited to 12. For more information or to sign up for these management training courses, call Cathy Chant at (619) 458-2720 (or send E-Mail to "ChantC").



# “Employee owners at work” photo contest winners

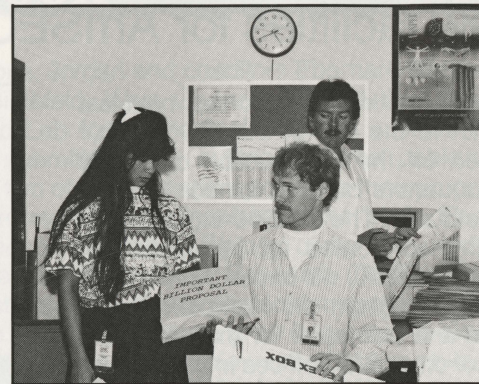
How many of you thought about entering SAIC’s photo contest, but put the idea on the back burner? For those who did participate, it was a chance to be creative from a different angle.

SAIC’s Corporate Publications received 20 entries in the “Employee Owners At Work” photo contest. Winners in each category received \$200 worth of SAIC Class A Common Stock. A total of seven prizes were awarded. Photos were judged primarily on the relevance to the “SAIC Employee Owners At Work” theme and category description. Categories included humorous, team work, technology, and historical.

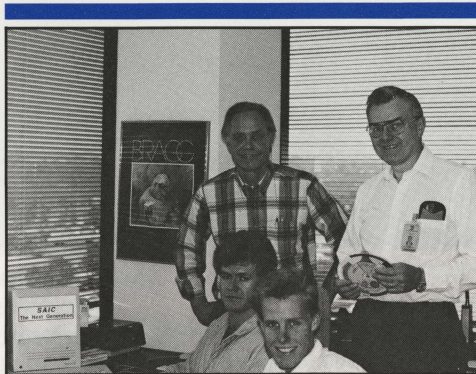
SAIC displayed all of the photo entries in San Diego during the Employee Ownership Day celebration.



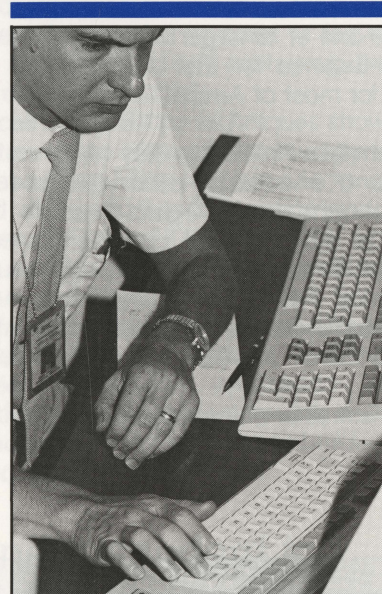
*Natalie Sluzar/McLean*  
**Winners — Teamwork Category**



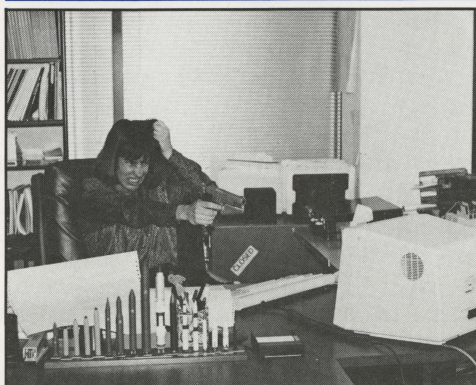
*Doran Jones/San Diego*



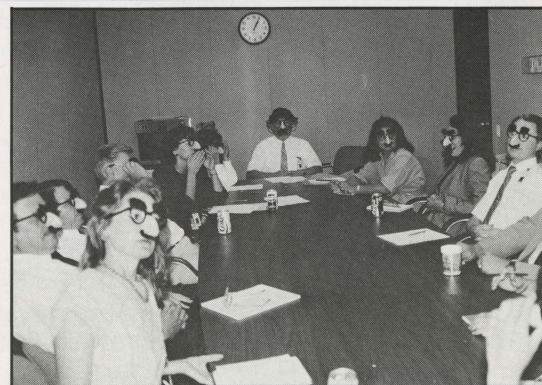
*Both photographs by Henry Herz/San Diego.*  
**Winners — Historical Category**



*Natalie Sluzar/McLean*  
**Winner — Technology Category**



*Henry Herz/San Diego*  
**Winners — Humorous Category**



*Tim Havlik/Houston*