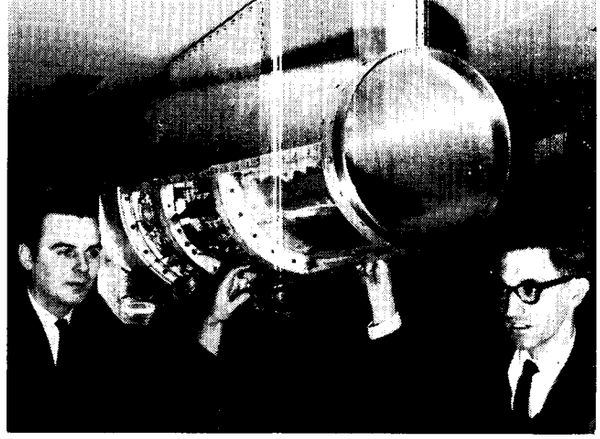
John C. Dickson, construction section chief (foreground), shows procurement specialists Cal Lewis (standing left) and Edward Stanwyck the readout cabling, strain gauges and thermocouples for the V/STOL testing in the 8 X 6 Tunnel.



John Gyekenyesi (left) of the Engineering Design Division and Edward Zak of the Research Support Procurement Section pose by the inlet nozzle procured for the F-106 nacelles.

Purchase section secretaries Blossom Savako (left) and Cheryl Harsany (foreground), maintain the many purchase and contract files while Deborah Heintz telephones for additional purchase information.

CENTER CLOSE-UPS

Purchasing Power

What happens between asking for an item and receiving it?

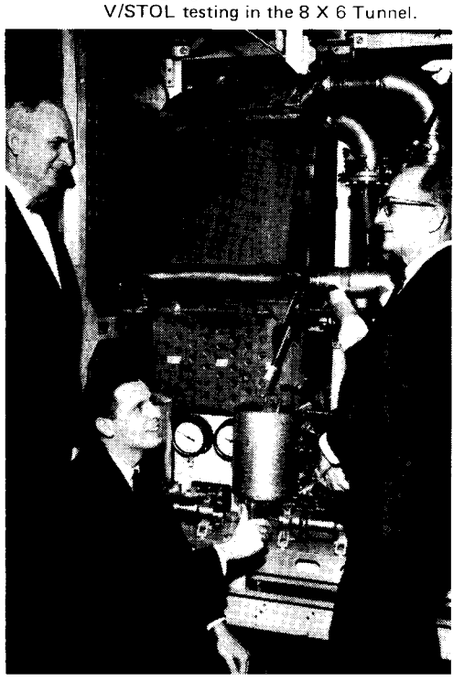
The Research and Facilities Procurement Branch deals with that chain of buying actions daily, claims Jim Zimmerman, chief of the branch.

His personnel handle every type of procurement action, from the routine receipt of 21,000 purchase requests annually, through the processing of over 18,000 purchase orders, formalizing of 850 new contracts per year, to issuing over 1,400 contract modifications.

This wide scope of activity is channeled through three sections. Robert Bouman heads the Construction Procurement Section, which buys equipment and services for the PSL Engine Test Facility, the V/STOL adaptation of the 8 x 6' supersonic wind tunnel, and the Plum Brook test stands and Space Power Facility.

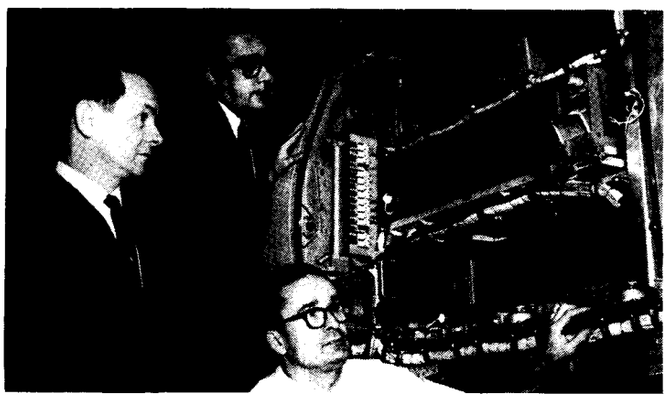
The Research Support Procurement Section, with Wayne Park in charge, procures research and development instrumentation and services for experimental, developmental or research work for the Cleveland and Plum Brook divisions' needs. Section specialists purchase hardware to update and modify Lewis-based aircraft and unique test facilities.

A large volume of business flows through the Purchasing Section. Headed by Bernard Torre, the section buys stock and specialty items, ranging from office supplies to special electronic equipment.



Frank Rezek (left) and Steve Szabo (right) see the results of their procurement efforts as William J. Brown, space power systems engineer, explains that the cold plate experiment will support the Brayton Cycle system test for Plum Brook's Space Power Facility.

Richard Draime (right) and Robert Frank (center) discuss the results of their procurement of the main electric switchbank in the PSL Engine Test Building basement with Edward Fassbender, construction section chief.

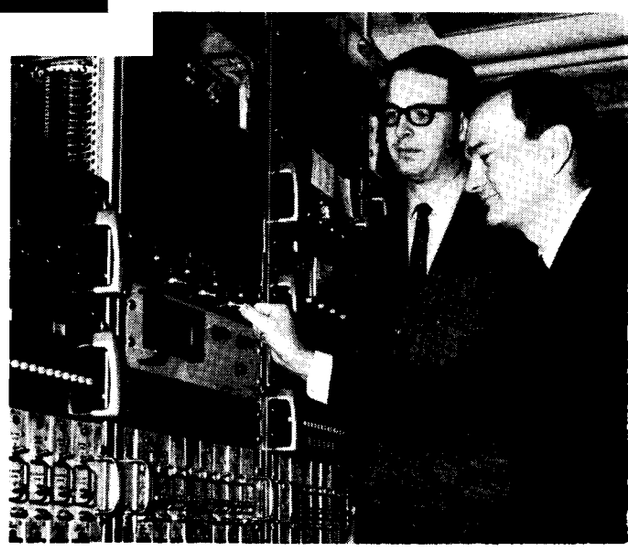


Frank Hvizdos (foreground), a flight Operations Service mechanic, shows the location on the F-106 research aircraft of the radio compartment to Winston Hasel (standing at lower left) and Boyd Bane. Hasel procures research instrumentation items and Bane the stock and electronic components.

Photos by

John Marton

← Much time and effort are required in making up requests for proposals. Pamela Kotlenz (seated), Florence Giles (standing, center) and Anna Mateyka, of the Research Support Procurement Section, ready the requests for



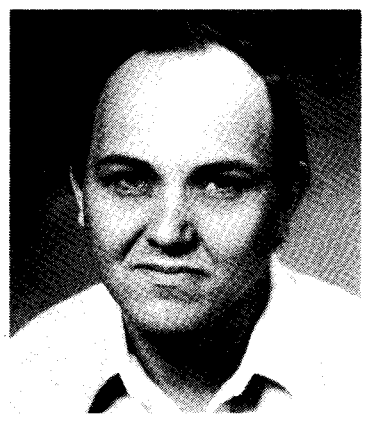
→ Marvin Tiefermann (right) an instrument technician, takes readings from the instrument bank which records the measurements of transducer pressures as David Kinzel, who procured the instrumentation looks on.

Six earn advanced degrees from Toledo U.

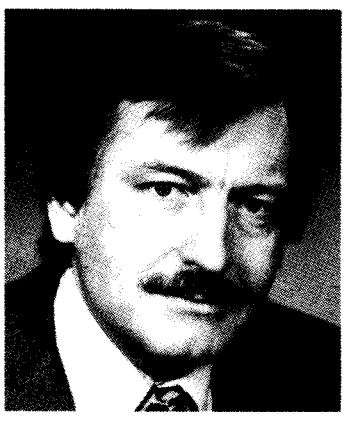
Six employees who studied at Lewis (University of Toledo) on-site program were awarded advanced engineering degrees by the University on March 19.

Richard H. Cavicchi of the Power Systems Division was awarded a Master of Science Degree in Industrial Engineering.

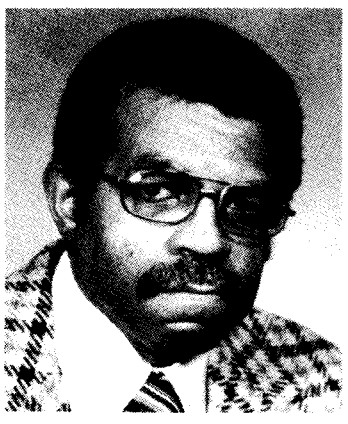
A Lewis employee since 1948, Cavicchi holds a Bachelor of Science in Mechanical Engineering from Massachusetts Institute of Technology; a Master of Science in Mechanical Engineering from Harvard University; and a Master of Science in Engineering from Case Western Reserve University.



David S. Cwynar of the Wind Tunnel and Flight Division began at Lewis as a Co-op from Cleveland State University and graduated in June, 1971 with a Bachelor of Science in Electrical Engineering. He enrolled in the University of Toledo on-site program in 1971 and was awarded a Master of Science in Engineering Science.

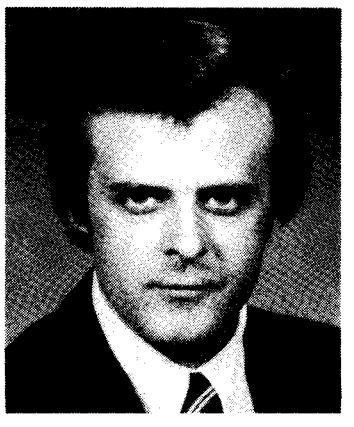


Edward A. Maslowski of the Physical Science Division received a Master of Science in Electrical Engineering. A Lewis employee since 1961, he holds a Bachelor of Science in Physics from John Carroll University.



John E. Moss of the Airbreathing Engines Division has a Bachelor of Science degree in electrical engineering from the University of Michigan. He enrolled in the Lewis' University of Toledo Program in the fall of 1971 and was awarded a Master of Science degree in Electrical Engineering.

Clifford E. Siegert of the Spacecraft Technology Division entered on duty at Lewis in 1963. He has a Bachelor of Arts in Music from Wayne State University and a Bachelor of Science degree in Electrical Engineering, also from Wayne State. He received a Master of Science in Engineering Science through the on-site program.



Steven V. Szabo, Jr. of the Vehicle Engineering Division has been a Lewis employee since 1970. He earned a Bachelor of Science in Mechanical Engineering from Ohio Northern University, and received a Master of Science degree in Engineering Science from the University of Toledo.

Cleveland Browns player seeks jobs for youths

Cleveland Browns offensive lineman Doug Dieken (left) confers with Leroy McCreary of the Personnel Division on possible summer jobs for talented disadvantaged youths. Dieken has been involved in the Business Management Fellowship Program two of the three years the program has been in existence. (Martin Brown photo)

For about six months of the year Cleveland Browns' offensive lineman Doug Dieken blocks defensive players away from the ball carrier, but during late winter and spring he carries the ball to find jobs for talented economically disadvantaged youth.

Called the Business Management Fellowship Program, it provides students with summer jobs to help them complete their college education. The three-year old program is sponsored by the U.S. Department of Commerce's Office of Minority Business Enterprise (OMBE) in cooperation with the National Alliance of Businessmen and the National Football League.

Lewis became involved in the program last summer when Dieken talked with members of the Personnel Division about jobs for youths. "The Center was able to fill some of its summer jobs last year with young people from this program and may provide some jobs this summer for students who plan academic majors in fields of potential interest to Lewis," explains Leroy McCreary following a recent meeting with Dieken at Lewis.

Dieken has been involved in the program for two years. He stated that his interest in youth work goes back to his own childhood when he was encouraged to fully develop his skills. This encouragement paid off and Dieken, who is among 28 other NFL players seeking jobs for youths, has developed into one of NFL's top linemen.

To qualify, students must be in the upper 10 percent of their high school graduating class. They must be accepted or have applied to an accredited college or university and have established financial need.

The long-range goal of the program according to McCreary is to help deserving students obtain a college education and eventually employment. "It is not a one-shot program," he said.

One of the features of the program is that it enables participating organizations to identify students having the potential for future job consideration upon completion of their college work. At the same time talented youths who otherwise might not be able to attend college can now concentrate on their studies and earn part of their college expenses during summer periods.

"It gives economically disadvantaged students the feeling that they can make it...that there is a job somewhere for them...and there are people willing to make sure they have a chance," *(A comment from one of the participants)*

The students who were in the program at Lewis last year were graduating seniors from Shaw High School.

Contract negotiators

Madison and Madison, an architectural firm with home offices in Cleveland, has been awarded a contract for the final design of the proposed Research Analysis Center for the Lewis Research Center. The building, estimated to cost about $5 million to construct, will be designed to house the Center's central computer equipment and the staff of the Computer Services Division. The special purpose building will provide the proper environment and support services required for the modern large central computational equipment so necessary for a modern research center. Principal parties involved in contract discussions are (left to right) Steve Szabo of the Procurement Division, Dr. Seymour C. Himmel, Associate Director, and Robert P. Madison, president of the architectural firm. (Don Huebler photo)

Lewis News
October 13, 1978

Steven V. Szabo, Jr.

Szabo is named associate chief

Steven V. Szabo, Jr. has been named associate division chief of the Vehicles Engineering Division, a key arm of the Launch Vehicles directorate at NASA's Lewis Research Center.

A 15-year employee of Lewis, Szabo began his career here as a systems engineer in the Centaur Project Office. From 1967-1972, he served as project engineer for the Centaur full-scale engine firing tests at Lewis' Plum Brook Station near Sandusky. In 1973 and 1974 he served as project engineer for the Centaur Standard Shroud Cryogenic unlatch tests aimed at qualifying the shroud for Titan/Centaur missions. He also served as project engineer for the Titan/Centaur missions.

Szabo served as Chief, Mechanical Engineering Branch; Chief, Systems Engineering Office; and Chief, SEASAT Launch Vehicles Office, within the Launch Vehicles directorate before taking on his latest assignment.

He has authored or coauthored eight technical reports, including technical reports dealing with launch vehicle systems.

He earned a Bachelor's degree in mechanical engineering and a Master's degree in engineering science from the University of Toledo. He and his wife, Judy, live in Avon with their two daughters, Janet, 13, and Beth, 11.

AIAA

Behind the scen

Meetings play a significant role in the design of any project. Caught during the progress of one of these meetings are left to right, Daniel F. Larson, Robert J. Turek, Hugh A. Schoeffler, Daniel J. Keliher and Edward J. Fassbender. Absent is Robert A. Meyer. All are from Facilities Engineering.

Discovering that an RAC progress schedule deserves close attention are June C. Szucs, Steve Szabo, Robert D. Frank and Richard E. Draime of the Procurement Division.

Operating the "Q-1" word processing equipment takes a considerable amount of talent and training. Providing this talent are Theresa McKendry (standing) and Susan M. Nachman, both of Facilities Engineering.

(*Continued from page 3*)
cause insulating material fills the hollow concrete blocks in the walls and three inches of insulation has been applied to the inside face of the exterior walls. Double glazed windows and three inches of insulation in the roof construction will also contribute greatly to reducing heat loss. Electricity is the only form of energy that will be used—no gas, no oil and no steam.

Another energy-saving measure is the extensive use of high-pressure sodium lighting. These lights use about one-half the electricity that fluorescents use. The amber glow produced by the sodium lamps can create a problem, however, the light changing the appearance of many colors. It was only after an exhaustive study of colors and color combinations that an eye-pleasing decor was found and specified for the new facility.

By incorporating all of these energy-saving features, the RAC will be NASA's most energy-efficient building. The design of the project started early in 1975 after several years of preliminary planning. Ground breaking took place this past January and the building is scheduled to be completed in April 1980.

Shown on these pages are a few of the nearly 100 Lewis personnel who are contributing their talents to the Research analysis Center design.

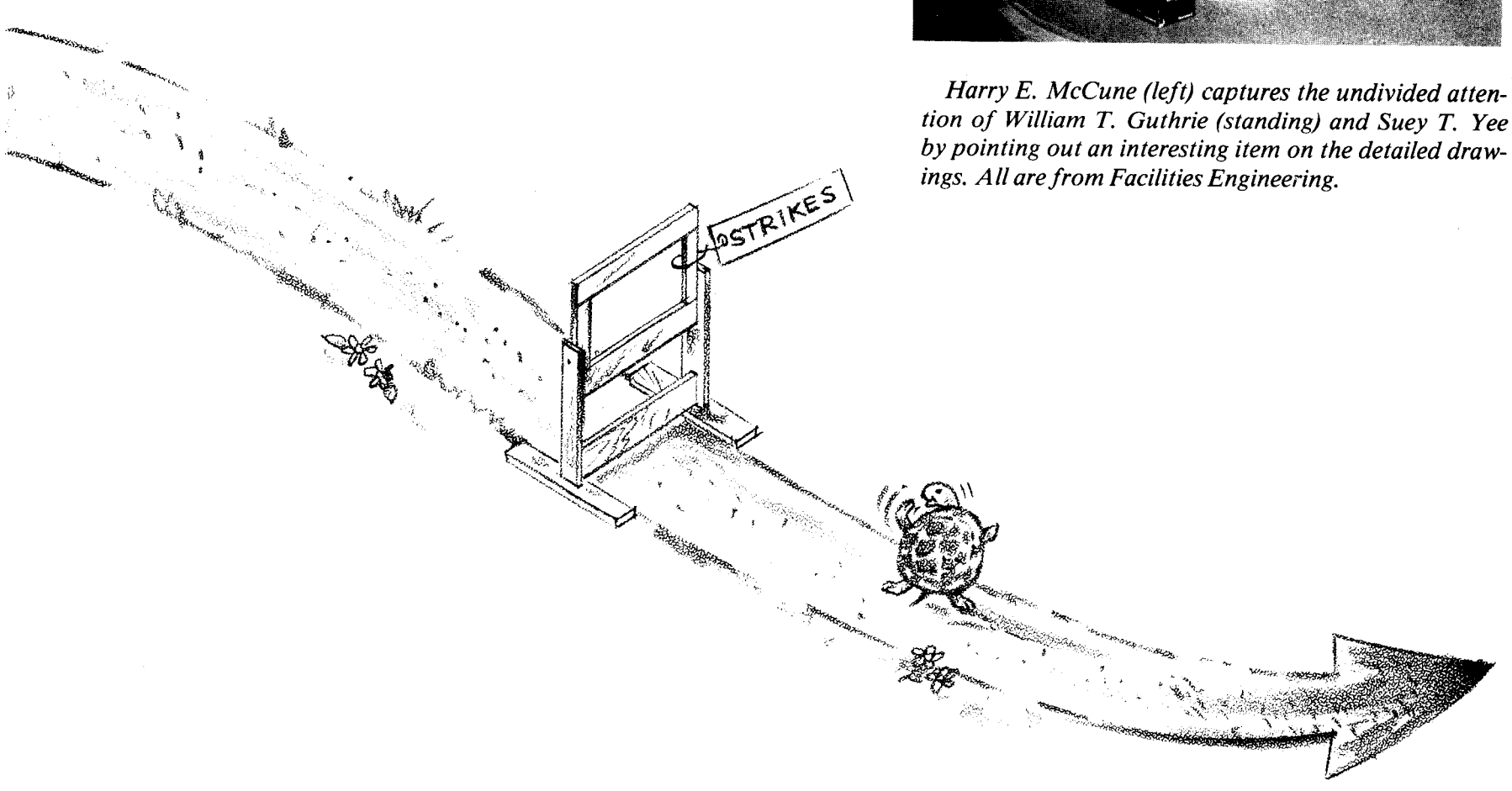
Paul Harrigal (left) and Joseph J. Pishkula of Facilities Engineering provided most of the detailed drawing revisions and drew up specifications for the RAC.

es of the RAC. . .

Transformer and switchgear will be essential for the control and distribution of the vast amounts of electrical power required by the RAC. Some of those responsible for the design of this equipment are left to right, Andrew F. Parchem, William J. Ice, Duane G. Fair and Jack E. Zeman, all of the Facilities Engineering Division.

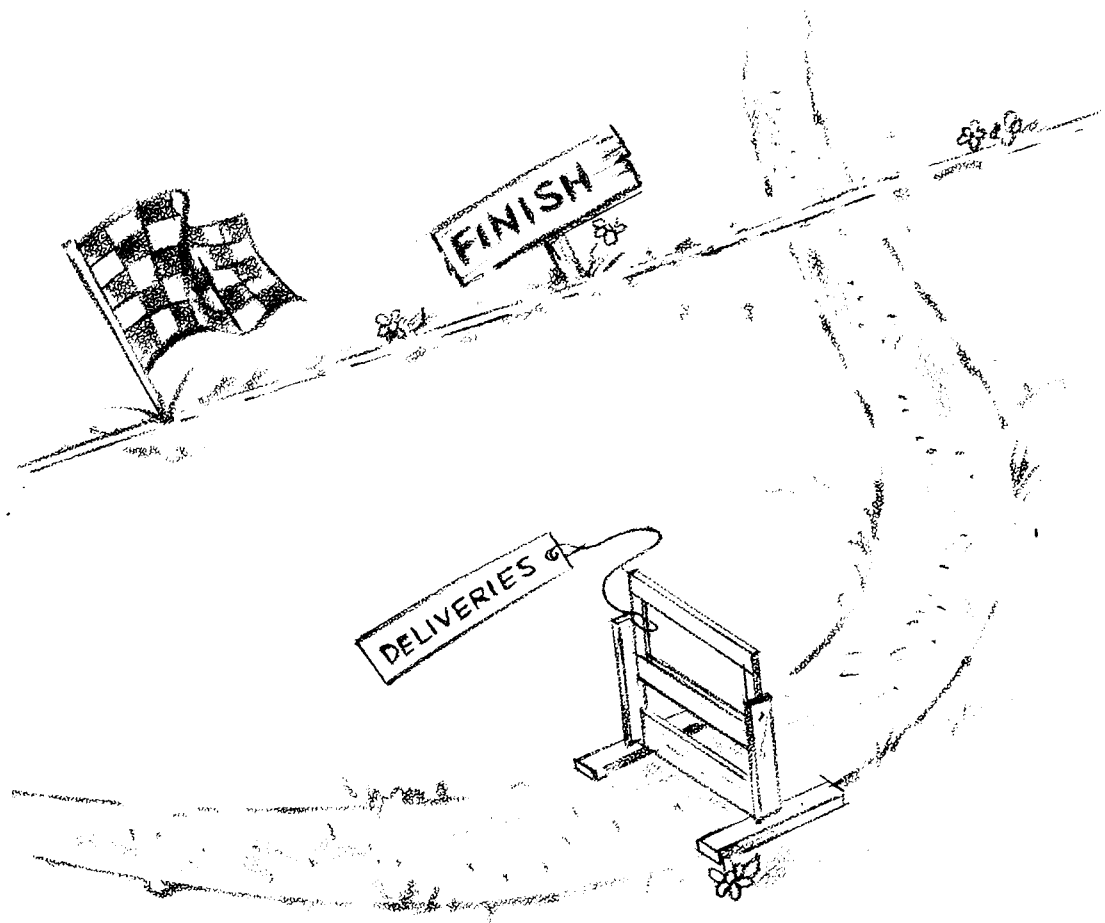
Taking time out from their duties long enough to have their picture taken are from left, Deborah L. Lemke, Virginia C. Wasem, Karen S. Satko, Betty L. Roth and Susan M. Nachman.

Harry E. McCune (left) captures the undivided attention of William T. Guthrie (standing) and Suey T. Yee by pointing out an interesting item on the detailed drawings. All are from Facilities Engineering.



The Research Analysis Center: Behind the scenes supporters

The trophy at the finish line.



Handling responsibility for selecting colors and types of finishing materials is Jesse L. Strickland of Facilities Engineering.

Plant Security is a most important consideration in any project at the Center. Working closely with the RAC design and construction teams are James H. Goan (left) and Charles R. Calire, shown here with the emergency vehicle.

Illustrations and other graphics played a large part in meeting requirements for RAC from NASA Headquarters and Congress. Largely responsible for graphics production was Dennis M. Sender, Graphics Branch, Management Services Division.

Photos by Don Huebler and Laura Bagnell

Award winners...

(Continued from page 3)
superior manner.

David C. Liu, Communications Division, established a thin film research program for microwave device application.

Arthur V. Zimmerman, Launch Vehicles Division, developed the technical plan for the integration of the Centaur stage with the Shuttle.

John B. Nechvatal, Launch Vehicles Division, managed the electrical systems and equipment used on launch vehicles merits special recognition.

Alvin C. Hahn, Launch Vehicles Division, directed the annual maintenance of P&WA rocket engine test facilities over the last two years.

TEAM AWARD WINNERS

Helicopter Transmission Facility Team. Members: Robert Smith, Robert Horansky, Duane Fair, Paul Weisenback, Clyde Pardee, David Herb, Harley White, Robert Baus, John Stock, Dianna Corso, Joseph Hanslik, Robert Gedeon, Raymonf Pettrime, Michael Fallon, Jacob Slone, and George Miterko. For high level team effort in completing helicopter test facility on schedule.

Grant and Cooperative Agreement Team. Members: Boyd Bane, Nancy Iorio and Steve Szabo. For raising on-time renewal rates for university grants from 58% to 95%.

Management Operations Office Team. Members: Charles Tiede, Richard Woelfle, George Novak, Jack Herman, Isadore Sonkin and Betsy Torres. For preparing Atlas/Centaur and Shuttle/Centaur operations plans.

Modeling Internal Combustion Engine Team. Members: Bonnie McBride and Frank Zeleznik. For developing computer programs modeling chemistry and performance of internal combustion engine.

NASA/DOE Combustor Projects Team. Members: Julius Notardonato, Donald Schultz and Howard Yacobucci. For managing activities for using residual and coal-derived fuels.

8x6 Laser Velocimeter Team. Members: John Serafini, Robert Freedman, John Griessing, Harvey Neumann and Daniel Whipple. For installing and designing the laser velocimeter system.

2D-CD Exhasut Nozzle Research Team. Members: David Straight, Richard Cullom, Rudolph Grey, Charles Spuckler and Robert Solomon. For evaluation of complex, high-risk, experimental exhaust nozzle.

Ion Auxiliary Propulsion Systems Flight Software Development Team. Members: Charles Low and John Power. For work in developing flight software to control the thruster system.

First 100 launches: just a beginning

Continued from page 1

he's deeply involved in integrating Centaur with the Space Shuttle.

"We are modifying the Centaur structurally, giving it a larger diameter and, thus more fuel-carrying capability to accommodate its use aboard Shuttle as a high-energy upper stage. Shuttle-Centaur will be capable of putting up to 15,000 pounds into high-earth orbit because of this additional fuel capacity," said Manning.

Long before NASA was created, Lewis had conducted pioneering work on high-energy liquid propellants for rockets. This included, in the late 1940's, accumulating valuable test data that became the technical base for the space age. Successful test produced ramjet and rocket technology that were later to carry men and machines at incredible speeds through the atmosphere and beyond.

It was Lewis expertise in cryogenic fuels for high-energy chemical rockets that gave birth to Centaur. The Centaur is powered by two 15,00-pound-thrust engines manufactured by Pratt & Whitney Co.

To make certain of Centaur's success, the Lewis team also perfected and improved the Atlas booster which carries it off the pad. Special facilities were set up many years ago for ground testing both rockets at Plum Brook.

Manning recalls how in the early 1970's an improved Centaur was fired in the B-2 facility at Plum Brook to simulate long coast periods, testing the hot and cold limits that various systems and engines could withstand.

Managing the Launch

A typical Lewis launch begins with a "tiger team" of specialists moving to Cape Kennedy four days before a Centaur flight. Numbering some 30 experts—they also form the launch team itself—they do a "walk-down" inspection of the mated rockets on the pad.

"They start at the top, come down the gantry and do a complete 'kick the tires' kind of inspection, using a checklist of what to look for in addition to normal procedures," said Manning.

The "tiger team" subsequently runs through a demonstration countdown, does a simulated mission to check all software and tests the engines to within one second of ignition. Then they put the rocket back into start condition for the flight.

"At the point of launch itself we monitor everything. Kennedy Space Center personnel or contractors who have built the equipment actually sit at the control consoles and push the buttons," Manning said, "but we make the decisions."

One of the most memorable missions was Titan-Centaur 6 on Sept. 5, 1976, a flight to send the second of two Voyager spacecraft to Jupiter and Saturn.

"The Titan was a little low on performance," Manning said. "It wasn't putting out enough thrust. However, the Centaur was able to add enough makeup energy to save the mission. Any other vehicle wouldn't have been able to do that and the launch would have been a failure. Automatic sensing controls had been meticulously developed to adjust Centaur's power as needed and direct its guidance system. This experience convinced us that Centaur was a very smart machine, a good design and a real workhorse."

One of the earliest thrills in the Center's 20 years of rocket firings, Manning said, was watching television pictures coming back from Mars. The spacecraft traveled more than a year to get there, being launched in 1975 and arriving in 1976. There was a 20-minute delay each way in transmitting signals due to the distance.

"It was strange to have the buttons pushed at the Jet Propulsion Laboratory ordering the television pictures, then wait 40 minutes to get results," Manning said. "The tension and suspense built up to a peak. Everyone cheered as they looked on the first Martian landscape!"

All-Purpose Centaur

The first launch under a Lewis team's responsibility was Atlas-Centaur 2 on Nov. 27, 1963. On Jan. 25, 1964, the team launched a Thor-Agena carrying Echo 2 into earth orbit. For nearly a year, the public watched Echo's regular passes across night skies.

Richard Geye, one of the first Lewis "rocketeers", recalls the trials of launching an Orbiting Astronomical Observatory (OAO) aboard a unique Atlas-Agena booster system in April 1966.

"On the first attempt we scrubbed the mission because of instrumentation problems. Then it was hot fired. The third time a tornado in the area blew out our power supply. Another hot firing followed. We finally made it on the fifth try," Geye explained.

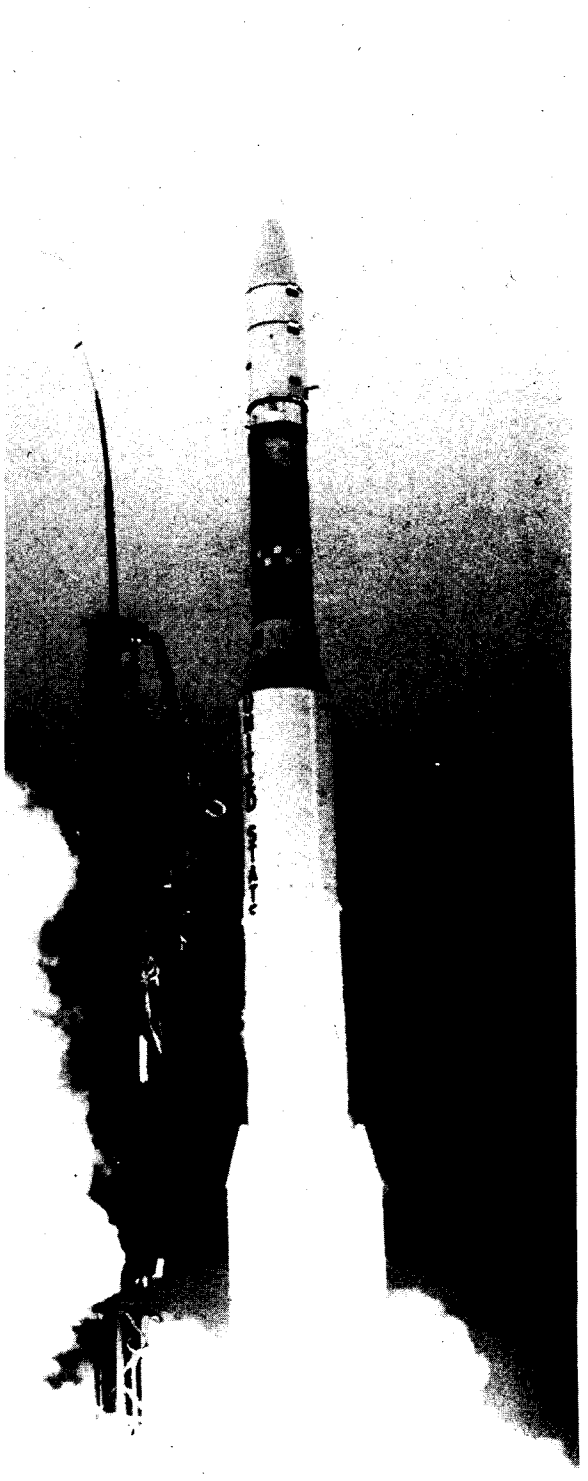
Other highlights of the Geye log:

"There were seven Titan-Centaur flights: one to prove the system, two with Vikings bound for Mars, two Voyagers to Jupiter and Saturn, and two Helios missions around the sun.

Among the 59 Atlas-Centaur missions, the seven Surveyor landings on the Moon were espe-

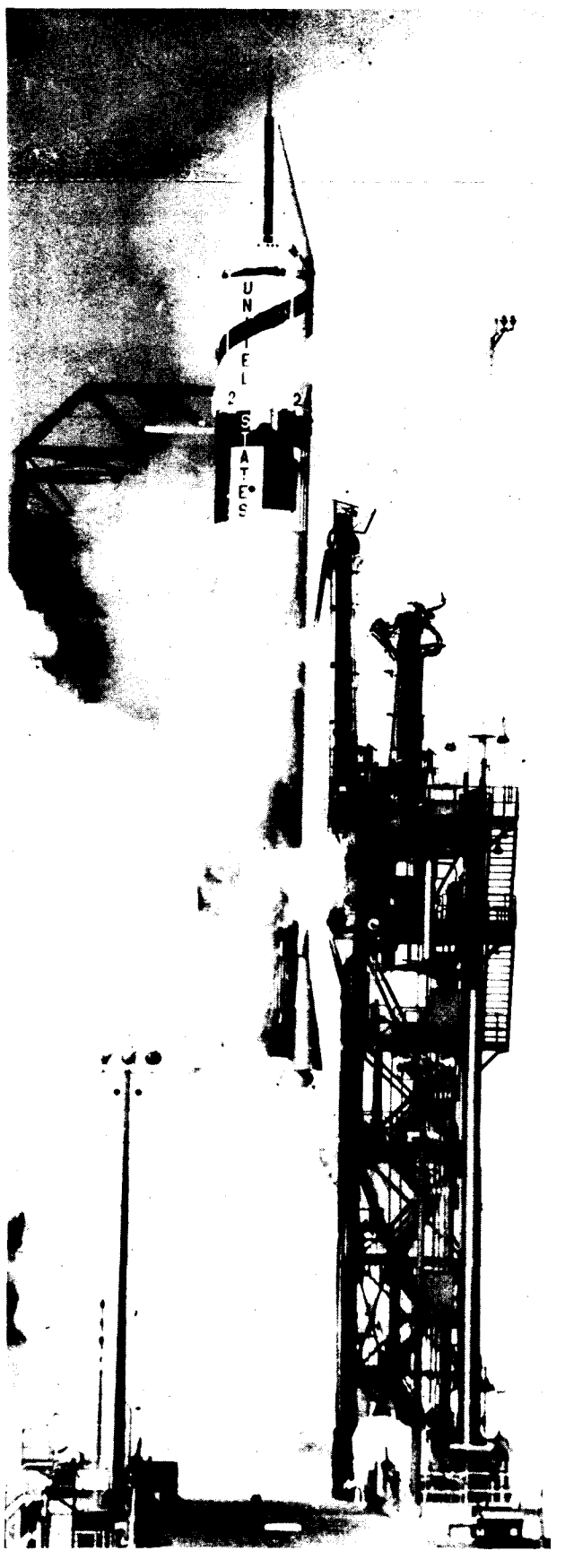
Continued on page 5

THOR-AGENA VEHICLE - An earlier Lewis- managed booster.



ATLAS-AGENA - Unmanned Lunar Orbiter and other scientific payloads were boosted into space by the Lewis-managed Atlas-Agena rocket.

LEWIS' EXPRESS TO SPACE - Atlas-Centaur.



Continued from page 4

cially important. They provided vital information about the conditions Apollo astronauts would find on the lunar surface.

Eleven of the Lewis launchings have utilized an adaptation of the Thor IRBM with an Agena upperstage.

As scientific payloads became heavier, small solid fuel boosters were added to the base of the Thor to form the Thrust-augmented Thor or TAT - an earlier version of NASA's current expendable medium-thrust booster, the Delta.

The early Thor-Agenas were used to place probes into earth orbit to study geophysical interactions, weather monitoring equipment and other scientific payloads.

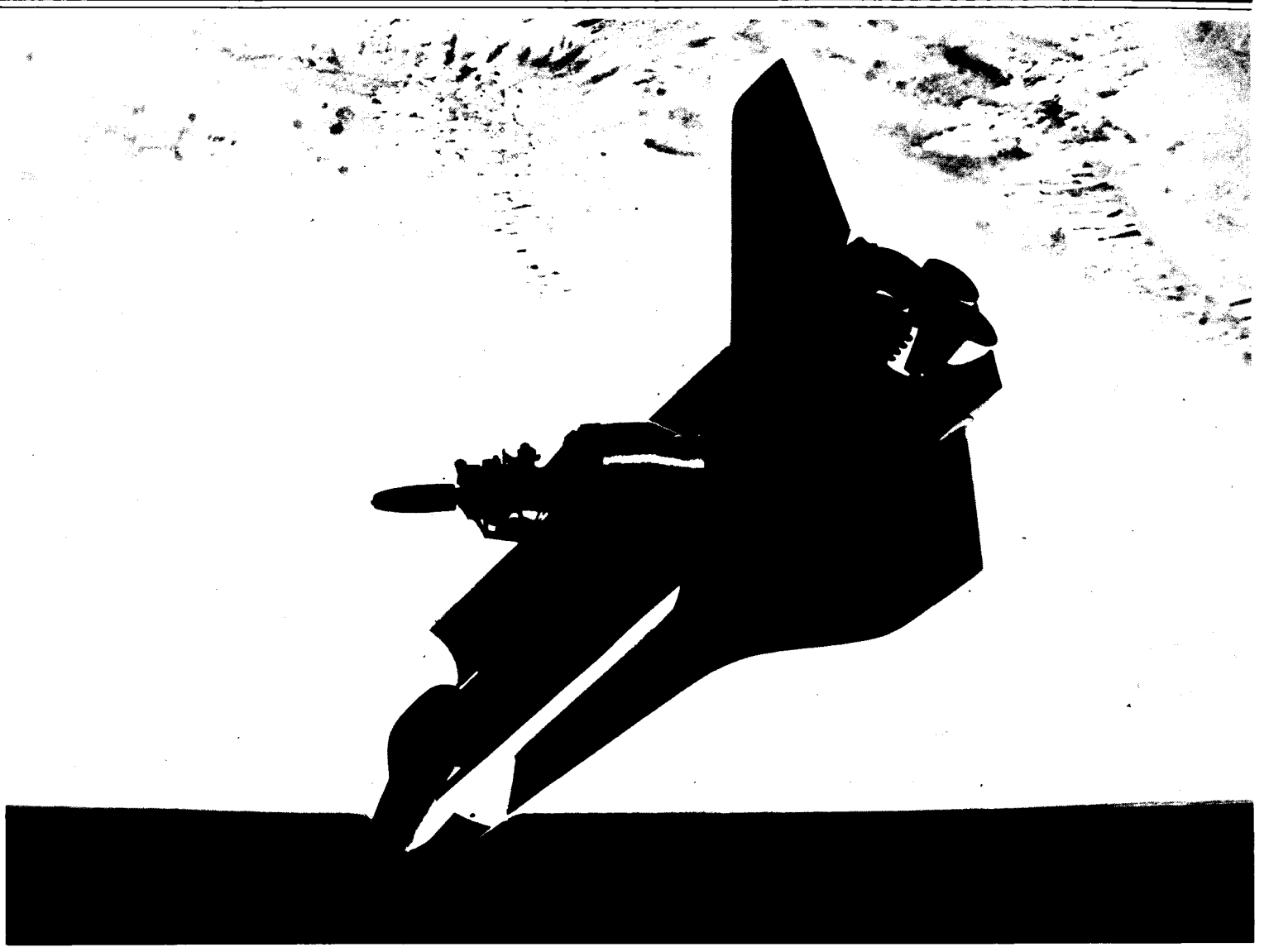
"We have launched 21 commercial communication satellites with Atlas-Centaur boosters, greatly improving communications throughout the world.

"Atlas-Centaurs have lifted a number of application satellites to perform meteorological and scientific experiments as well as astronomical satellites to observe and study celestial objects.

"The entire U.S. planetary exploration program has rested on the shoulders of Atlas-Centaur and its sister launch vehicle, the Titan-Centaur. Over the years Atlas-Centaur has put into orbit four Mariner spacecraft to study Mercury and Venus, and two Pioneer spacecraft to examine Venus."

What of the future for Atlas-Centaur?

"We'll be busy through 1987 with seven Atlas-Centaur missions now on the books," says Szabo. "In addition, Centaur in a modified version will be used aboard Shuttle for the Galileo mission to further explore Jupiter in 1986 ... and for the International Solar Polar Mission, also scheduled for 1986. Shuttle-Centaur will continue as the nation's high-energy upper stage for missions after 1986."



AND INTO THE FUTURE - Lewis' continuing role in the use of space and exploration of the universe is assured by the Shuttle-Centaur Program.

MUSCLEMAN OF SPACE BOOSTERS - Titan-Centaur.

'Fever' is part of Lewis launch success

Launch fever, a strange "malady" that has swept through the ranks of all 100 Lewis launch teams, undoubtedly contributes to their high success rate.

Frank Gue, a Lewis systems engineer who has worked more than half of the 100 launches, describes launch fever as the tension that builds when the vehicle is on the pad.

"The fever is tension," Gue explains, "the tension that builds when you have to stand up and say your system is ready."

"Those tensions are desirable," he added. "The fever is part of the enthusiasm that says you are ready for the task."

The fever breaks its grip on the men and women only when the launch director issues his "call to stations" and they take their positions in front of instrument panels in the bunker-like concrete blockhouse at the launch pad and in Cape Canaveral's remote support facilities.

Although unmanned launches no longer capture strong news media play, the heart-stopping moment of ignition is still a kick for even the veteran engineer.

Once the vehicle begins its fiery ascent, it is not unusual for personnel at the remote support sites to put their stations on automatic and make a quick dash outside to see the result of their hard work.

"I wouldn't miss seeing it (the launch)," said one engineer. "It's the payoff for all the hard work that went before."

Gue agrees, adding that seeing a silver and white Atlas-Centaur streaking skyward is "frosting on the cake."

Some launch personnel aren't so lucky. Buried deep inside the blast-proof blockhouse only yards from the pad, they never see the fireworks. For them, a good launch is announced by the proper data readouts or by verbal reports from someone stationed at a periscope, or T.V. monitor.

One veteran member of Lewis' launch team didn't see his first "live" launch until he was flying home from a Florida vacation with his wife. Their commercial airline flight passed near the Cape just as his colleagues launched an Intelsat payload.

The "bird's eye view" of the launch from the jet was a thrill for all aboard, he reflected.

Members of Lewis' launch team say no launch is complete without a post-launch party.

For some, it's a hot card game with old Lewis buddies who have retired and moved south. For others it's a trip to a favorite Cocoa Beach emporium where veteran waitresses speak the verbal shorthand known as spacetalk with the skill of an astronaut.

Traveling to the Cape so frequently has generated some close friendships with local hostelries. Each member of the crew has a favorite hotel on the strip at which to stay.

"I always go to the Howard Johnson's," Gue said. "Over the years the innkeepers have treated us like family. Checkout day becomes a parting of old friends."

Up the ladder

Steve Szabo

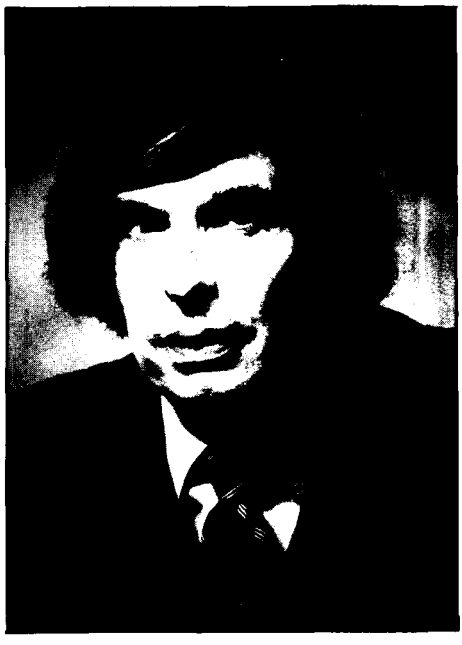
The new Chief of Lewis' Space Transportation Engineering Division, **Steven V. Szabo Jr.** moves up from Deputy Chief, Launch Vehicles Division.

In his new post, Szabo directs the work of more than 100 employees responsible for engineering requirements of the design, testing and operational phases of Lewis' Atlas-Centaur and Shuttle-Centaur programs.

He joined Lewis' Centaur Project Office in 1963 when he was involved in the development of a liquid propellant system for the Atlas launch vehicle. Subsequently, he held positions in the Titan-Centaur Project Office.

A graduate of Ohio Northern University in mechanical engineering, Szabo also earned a master's degree in engineering science from the University of Toledo.

He was honored with a NASA Exceptional Service Medal in 1976 for his work as project manager of the SEASAT program.



Ken Adams

Kenneth A. Adams has assumed the position of Deputy Chief, Space Transportation Engineering Division. Prior to this appointment, he was acting chief of the Systems Integration Office in the Shuttle-Centaur Project Office.

The main thrust of his new position is to support the Shuttle-Centaur Project Office in vehicle integration engineering.

Adams' experience in launch vehicles dates back to 1963, when he worked on the Agena project. He became part of the Centaur team in 1968. Adams is graduated from the University of Detroit with both bachelor's and master's degrees in physics.

Lewis Directorates Focus On Customer Satisfaction

The most direct way to find out what your customers are thinking is to ask

The Lewis Strategic Plan emphasizes the importance of providing quality service to our customers. But customers aren't just external organizations—for many divisions at Lewis, their primary customers are other organizations within the Center itself.

Recently three Directorates whose customers are primarily internal groups have been conducting surveys to measure customer satisfaction and identify opportunities for improvement.

Administration And Computer Services

The first Directorate at the Center to survey their internal customers was the Administration and Computer Services Directorate. Although several Divisions and Branches within the Directorate had been surveying their customers for some time, in 1986 Ed Richley, who was then Director of Administration and Computer Services, and Julian Earls, chief of the Health, Safety, and Security Division, decided to produce an overall survey covering all of the services provided by the Directorate. The survey was mailed to every employee at Lewis.

Using lessons learned from the first survey, a team modified the survey in 1987 and again sent a copy to all employees at Lewis. Customers were asked to evaluate each service provided by the Directorate and comment on aspects such as courtesy, responsiveness, and quality. Respondents were encouraged, but not required, to sign their names.

In both 1986 and 1987, the response rate was quite high; nearly 900 responses were received in 1987, with more than 40% of the surveys signed by the respondents.

Despite some early apprehension about the responses, it turned out that in both 1986 and 1987, the overwhelming majority of respondents rated the services as excellent or good. There were also a number of constructive comments.

The survey results were discussed with the division and branch chiefs in a positive way. Negative evaluations and comments did not result in punitive actions or affect the manager's performance rating.

In addition, all Lewis employees were informed of the survey results, and all respondents who signed their surveys received a personal call to discuss areas of concern and potential improvements.

In part because of the feedback from the 1986 survey, many of the items that appeared on both the 1986 and 1987 surveys received significantly higher ratings in 1987.

According to Acting Director of Administration and Computer Services Dr. Earls, the directorate plans to continue using the surveys to assess customer satisfaction: "The surveys let us see how we're doing, create an opportunity for dialogue, and enable us to focus on improvement in a non-punitive way."

Technical Services

Earlier this year, Dr. David Poferl, director of Technical Services, established a survey team comprised of representatives from each division in the directorate. Chaired by Jim Zelley of the Test Installations Division, the team was asked to design a survey that would address two principal areas:

- How satisfied are the directorate's customers?; and
- How well understood are each division's services?

The surveys were sent to all Lewis employees earlier this year. So far, more than 300 responses have been received. While it is still too early to gauge the impact of the survey, Zelley believes it will definitely provide opportunities for dialogue and establish a baseline for the future.

While this survey was designed to measure overall customer satisfaction and understanding, another survey being conducted by the Work Control Office of the Facilities Operations and Maintenance Division is designed to measure satisfaction with each job performed by the division. As each task is completed, the customer is asked to evaluate the service provided and offer comments and suggestions. So far, more than 1300 evaluations have been returned. Most have been positive.

According to Bob Thomas, head of the Work Control Office, the evaluations provide feedback to employees, supervisors, and contractors, and create a good opportunity to improve service and communications. In addition, the data will be used to analyze trends in timeliness and quality of response to customers.

Engineering

The Engineering Directorate is using customer survey forms to supplement in-person communications and feedback.

To get firsthand feedback on customer satisfaction, Director of Engineering Steve Szabo first instituted a series of regular meetings between his managers and managers from his customer organizations. This technique effectively opened the lines of communications and developed ways to provide better service.

To supplement these efforts, Bill Middendorf, chief of the Electronic and Control Systems Division, recently began asking customers to fill out a questionnaire to evaluate the quality of service throughout each task. The survey results will be used primarily to stimulate communications with customers and between chiefs and their project engineers. But aggregate data and trends will also be analyzed to pinpoint areas that need improvement. Szabo strongly believes that the evaluation results must not be used in a punitive way if gains are to be made.

Please Fill Out Customer Surveys

One of the secrets to the success of many Japanese companies is that customers and suppliers work closely together to achieve their goals. Nowhere is this more important than with customers and suppliers in the same organization.

The next time you receive a survey from a division you work with at Lewis, take just a few minutes to fill it out. Your feedback will help ensure continuous improvement in the products and services you receive.

ELECTRONIC & CONTROL SYSTEMS DIVISION PERFORMANCE QUESTIONNAIRE

ED JOB NO. _____ REQUESTING ORGANIZATION _____
JOB TITLE _____ REQUESTOR _____

1. Once your job was assigned to E&CS Division, how would you rate our cooperation with you?

   [ ] EXCELLENT [ ] MARGINAL
   [ ] GOOD [ ] POOR
   [ ] SATISFACTORY

2. How would you rate the up-front planning we did as related to task descriptions, schedule estimates, and cost estimates?

   [ ] EXCELLENT - (Well documented; properly estimated)
   [ ] GOOD - (adequate documentation; estimates within 10%)
   [ ] SATISFACTORY
   [ ] MARGINAL
   [ ] POOR
   - - -> [ ] No apparent planning
   - - -> [ ] Too much planning; resources wasted

3. During the course of the job, did we:

YES	NO	
[ ]	[ ]	Keep you informed with regular progress reports?
[ ]	[ ]	Advise you in a timely manner of any impacts to estimated cost or schedule resulting from our design efforts?
[ ]	[ ]	Work with you to revise our work plans to reflect changes in research/project requirements.
[ ]	[ ]	Cooperate in a way that made you feel we were helping you achieve your goal?
[ ]	[ ]	Make an effort to keep the same people on the job throughout to maintain continuity?

   If the answer to any of these is NO, please provide constructive comments on how we can improve _____

4. How would you rate the quality of the engineering services we provided?

   [ ] EXCELLENT [ ] MARGINAL
   [ ] GOOD [ ] POOR
   [ ] SATISFACTORY

5. In general, how would you rate our overall performance?

   [ ] EXCELLENT [ ] MARGINAL
   [ ] GOOD [ ] POOR (ATTACH ADDITIONAL PAGES TO EXPRESS ADDITIONAL THOUGHTS.)
   [ ] SATISFACTORY

This questionnaire is being used by the Electronic and Control Ssytems Division to gather customer feedback on each job performed by the division.

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NASA Task Force Begins Space Station Review

Associate Administrator for the Office of Space Station Andrew J. Stofan recently formed two teams to review Space Station design and work package assignments and functions.

A Space Station Configuration Critical Evaluation Task Force, headed by W. Ray Hook, Manager, Space Station Office at Langley, is conducting a technical review of Space Station architecture and systems. An Executive Technical Committee, headed by Stofan, is overseeing the task force's work and assessing the impact of any design modifications on individual NASA center and contractor roles.

Approximately 55 people are serving on the task force. Several hundred more are taking part in the technical evaluation, including: NASA personnel from the work package centers and from outside the program; Phase B contractors; and representatives from user groups and the international partners.

The task force is critically examining all aspects of the current Space Station baseline configuration including: the amount of extravehicular activity required for assembly and maintenance of the station; launch capacity of the shuttle fleet when again operational; assembly sequence of the baseline configuration; any resultant impact to the use of the station; potential impact on international partners and overall technical performance and integrity of the station.

Within the task force, a set of task groups has been established to develop systems designs and configuration options.

Representing Lewis on the task force are: Tom LaCroix (Space Station Project Analysis Office) who is serving on the Cost Estimate Task Group; John Dunning (Power System Integration Office) who is serving on the Configuration/System Task Group; and Gerald Barna (Chief, Advanced Programs and Planning Office) who is serving on the Safety Assessment Task Group.

The 15-member Executive Technical Committee headed by Stofan includes: deputy directors from JPL and Langley; project managers from the work package centers; and representatives from engineering organizations at the five prime Space Station centers, the flight crew office, and the user community. This committee will examine work package assignments from the standpoint of changes required by the design alterations.

Lewis is represented on the Executive Technical Committee by Ronald Thomas (Director, Space Station Systems Directorate) and Steven Szabo (Chief, Space Transportation Engineering Division).

Results of the overall evaluation will be factored into the requests for proposals to be released to industry in the fiscal year beginning Oct. 1, 1986. Selection of contractors to design, build and test Space Station hardware is scheduled to take place in 1987. □

Midwest Space Development Conference Planned Oct. 17-19

"Educating People about Space" is the theme of the second annual Midwest Space Development Conference set for Oct. 17-19 at the Holiday Inn in Strongsville.

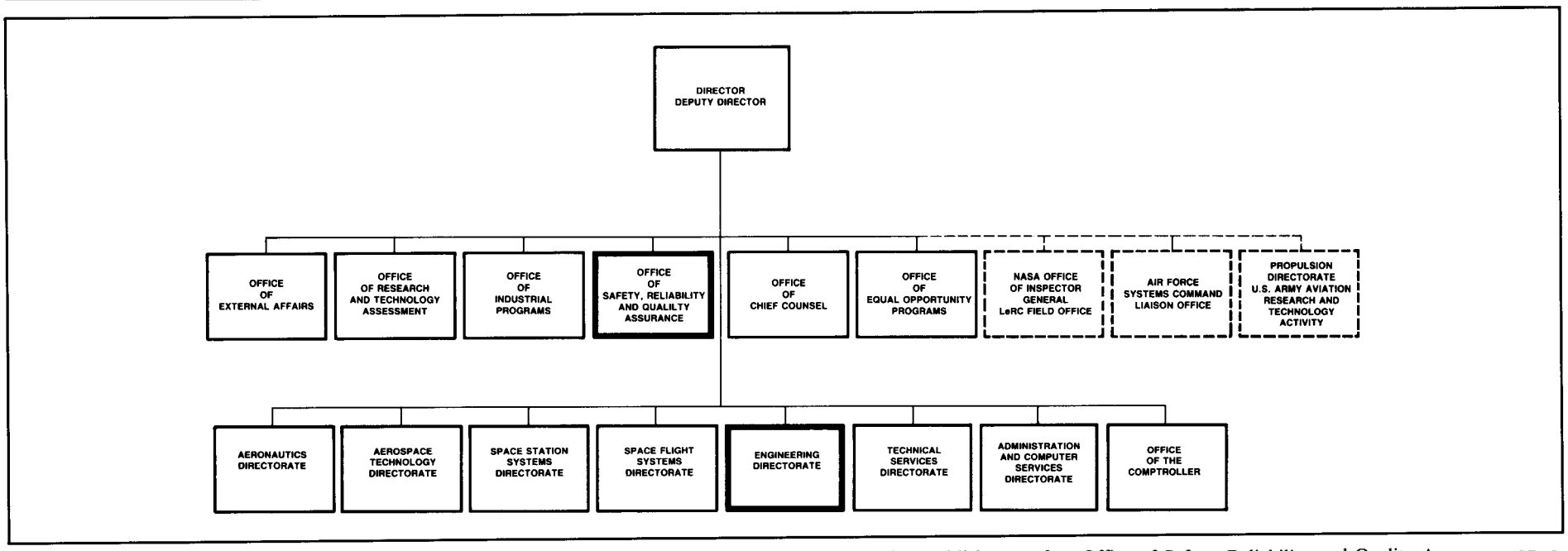
The conference is being organized by a 23-member committee representing various local groups with a common interest in space. According to conference coordinator Jim Wood, the goals of the conference are to educate people about space and promote space development. Last year's conference attracted 125 participants from states throughout the Midwest and East. The committee hopes to double that figure this year.

The conference features a variety of sessions on Saturday and Sunday led by speakers from Lewis, Wright State University, National Commission on Space, Ohio State, Space Studies Institute, High Frontier, Rocketdyne, Case Western Reserve, and TRW. In addition, Conference attendees can register for a "Spacefest" on Friday evening and tours to Baldwin-Wallace Astronomical Observatory, and Lewis' Teachers' Resource Room.

Speakers from Lewis include Acting Director Dr. John Klineberg, who will be the featured luncheon speaker on Saturday, Dr. R. Lynn Bondurant, chief of the Educational Services Office, and Shirley La Croix of the Office of Space Commercialization.

For more information, contact Midwest Space Development Conference, 2720 W. 40th St., Lorain, OH 44053. Phone: (216) 282-6329. □

NASA
National Aeronautics and Space Administration
Lewis Research Center Volume 23 Issue 22 November 14, 1986
LewisNews



Three of the changes included in the reorganization are: the elimination of the Office of Chief Engineer; the establishment of an Office of Safety, Reliability and Quality Assurance (SR & QA) reporting to the Director; and the formation of an Engineering Directorate.

Klineberg Outlines New Lewis Organization

To effectively manage the Center's increasing involvement in space flight projects, Lewis' organizational structure is being modified. The changes were outlined by Acting Director John Klineberg in a presentation carried throughout the Center via LINK on Oct. 29. The reorganization calls for:

- consolidating the Engineering Design Division and the Space Transportation Engineering Division into a new Engineering Directorate;
- eliminating the Office of Chief Engineer;
- moving the Reliability and Quality Assurance Office from within the Space Flight Systems Directorate to form a staff level Office of Safety, Reliability and Quality Assurance (SR&QA) reporting directly to the Director;
- moving the Space Experiments Office into the Space Flight Systems Directorate and the Space Communications Division into the Aerospace Technology Directorate; and
- establishing a Space Systems Analysis Office within the Space Flight Systems Directorate.

NASA Headquarters approval, which will make the changes official, is expected shortly according to Dr. Klineberg. He indicated that Lewis would begin working informally under the new organization Nov. 3.

Background

The initial recommendation to consider changes to the organizational structure was made in August, 1985, because of Lewis' increasing involvement in developing space flight hardware. The need to consider reorganization became even greater following the cancellation of the Shuttle/Centaur program.

A ten-person reorganization team, representing organizations throughout the Center, was formed. Headed by Edward Richley, Director of the Administration and Computer Services Directorate, the reorganization team began meeting in July. Their goal was to determine if a reorganization was the best way to most effectively use Lewis resources, particularly manpower. If so, the group was to recommend organizational options to senior management.

In addition to Richley, reorganization team members included: David Poferl, Deputy Director of the Aeronautics Directorate; Joseph Saggio, Deputy Comptroller; Robert Schneider, Chief, Resources Analysis and Management Office; William Masica, Chief, Space Experiments Office; Steven Szabo, Chief, Space Transportation Engineering Division; Joseph Yuska, Chief, Engineering Design Division; Thomas Cochran, Deputy Director, Space Station Systems Directorate; Donald Nored, Chief, Power System Engineering Division; and Shirley LaCroix, Executive Assistant.

The reorganization team discussed: basic concepts of a matrix organization; how various Lewis project offices currently do business; how various support organizations currently do business; current and/or potential operational problems; how other NASA centers are organized; and future requirements at Lewis.

Sub-teams were formed to closely review the three major ideas for modifications: the Engineering Directorate; Safety, Reliability and Quality Assurance Office; and the Space Systems Analysis Office.

After evaluating and modifying the reorganization team's proposals, senior staff reached agreement on the proposed changes in late September.

The Engineering Directorate

The new Engineering Directorate will direct and manage engineering support for the Center's programs/projects in aeronautics, space flight, and experimental research and technology.

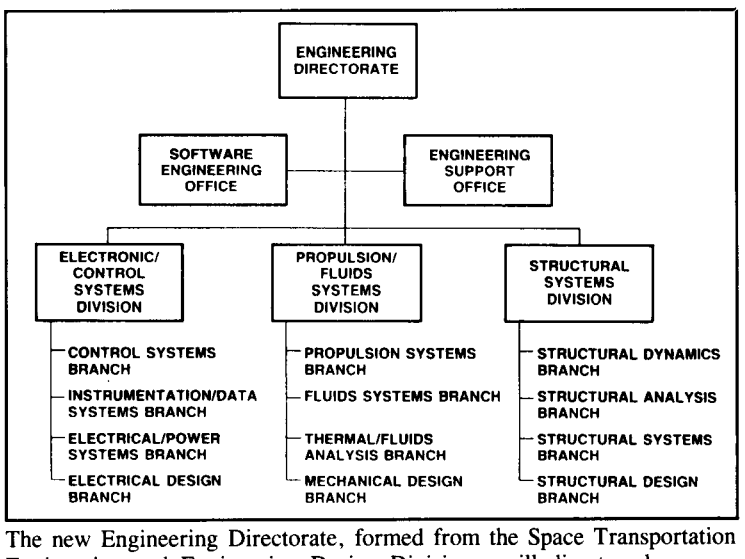
Steven Szabo, Jr., of the former Space Transportation Engineering Division, will head the Engineering Directorate. Joseph Yuska, of the former Engineering Design Division, will serve as Deputy.

The Engineering Directorate will provide engineering support for: design of hardware/software; engineering/system analysis; technical contract monitoring; technical consultation; flight projects launch/flight operations; in-house testing; and proposal evaluation.

On the various projects within the user directorates, the Engineering Directorate will assist in: developing budget estimates and procurement/work statement packages; making build-versus-buy decisions; coordinating the fabrication and installation of equipment; monitoring installed equipment; and operating tests.

Additionally, the new directorate will develop and maintain computer-aided design, engineering and manufacturing (CAD/CAE/CAM) capabilities and engineering design standards and policies for Center programs.

To assure that Engineering Directorate personnel are available to support all user groups as needed, senior staff will allocate total Engineering Directorate man-hours available to meet the needs of each using directorate during the annual resource planning process. The allocations will be reviewed and updated quarterly.



The new Engineering Directorate, formed from the Space Transportation Engineering and Engineering Design Divisions, will direct and manage engineering support for the Center's projects in aeronautics, space flight, and experimental research and technology.

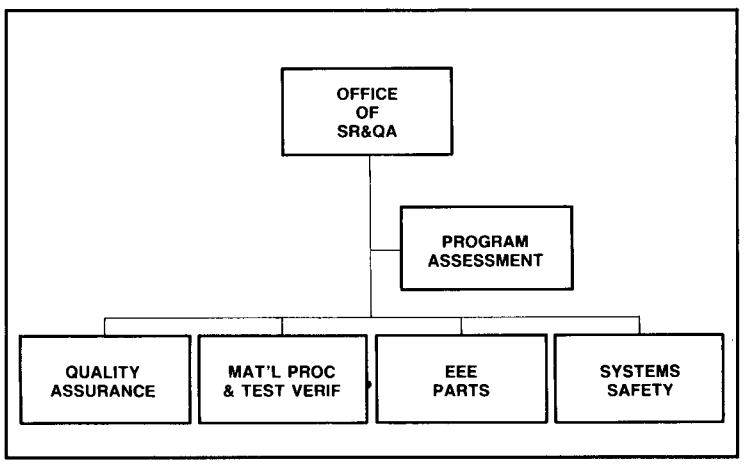
Office Of Safety, Reliability And Quality Assurance

As the Center's involvement in projects grows, so does the need for staff expertise in safety, reliability and quality assurance. To meet this need, the Reliability and Quality Assurance Office is being moved from within the Space Flight Systems Directorate to form a staff level office.

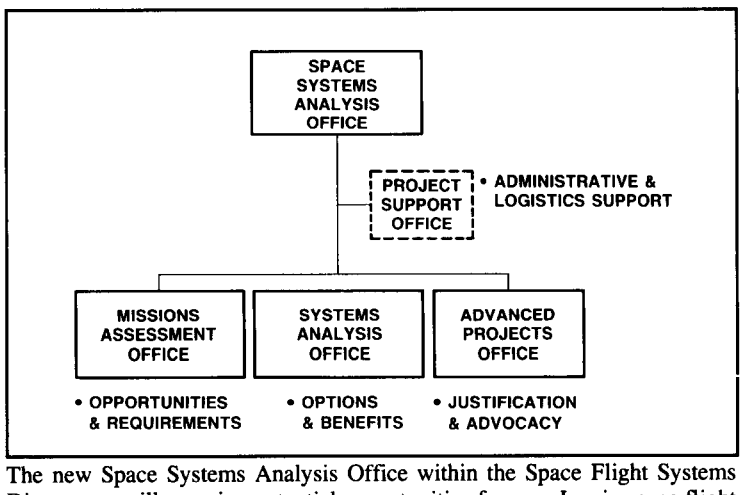
A Program Assessment Office within the new SR&QA Office will conduct overall evaluations of projects within the Center and submit reports to senior management.

Space Systems Analysis Office

To enable Lewis to contribute even more to future space flight programs, a Space Systems Analysis Office will be established within the Space Flight Systems Directorate. This new office will examine potential opportunities for new Lewis space flight projects, determine the requirements for involvement, and weigh the options and benefits and seeking involvement.



The reorganized Office of Safety, Reliability and Quality Assurance Office will include a Program Assessment Office to conduct overall evaluations of



The new Space Systems Analysis Office within the Space Flight Systems Directorate will examine potential opportunities for new Lewis space flight

Switching Of Space Experiments And Space Communications

The decision to move the Space Experiments Office into the Space Flight Systems Directorate was made because the focus of the office's work is increasingly on implementation of designed experiments.

The Space Communications Division was moved into the Aerospace Technology Directorate because of the technology

Engineering Directorate

The new Engineering Directorate was created in November by combining the Space Transportation Engineering Division and the Engineering Design Division. The new organization blends experience in space-related activities and project engineering support with expertise in engineering design and support of the Center's aeronautics and research and technology programs. This combination will provide broad capabilities for engineering support to all Lewis programs.

The Directorate is a "flattened" organization with two Offices and three Divisions (see chart below). The Directorate has been chartered to:

- Direct and manage engineering support for the Center's programs and projects in aeronautics, space flight, and experimental research and technology;
- Provide engineering support for design of hardware and software, engineering/system analysis, technical contract monitoring, launch/flight operations, in-house testing, and proposal evaluation;
- Provide assistance in budget/estimate development, procurement/work statement package development, coordination of fabrication/installation of equipment, checkout of installed equipment, test operations, and make vs buy decisions;
- Develop and maintain computer-aided engineering, design, and manufacturing (CAE/CAD/CAM) capabilities; and
- Develop and maintain engineering design standards and policies for Center programs.

The Directorate is committed to providing the highest quality engineering support—both in technical content and management of the tasks requested by the project organizations. The Directorate has established the following goals:

- Consistently achieve excellence in engineering design, analysis, and support of Lewis programs and projects;
- Develop and maintain state-of-the-art engineering tasks and skills to provide quality products;
- Provide training opportunities both externally and through hands-on work assignments;
- Successfully execute all projects within given technical, schedule, and cost requirements;
- Develop and use management skills that provide experience in the basic tools and techniques of project management; and
- Develop and maintain a set of engineering standards and policies.

The Engineering Directorate stands ready to apply the expertise and experience of its personnel to support the Center's programs.

The following are highlights of Engineering Design Division and Space Transportation Engineering Division activities in 1986.

Engineering Design Division

The Engineering Design Division continued to improve its engineering and design services to the Center's research and development programs. The CAE/CAD capabilities were enhanced by: the implementation of a 3-D version of CADAM; the publication of the Lewis CADAM Standard Practices Manual to guide managers and users of the Lewis CADAM systems; and the development of a standard library manual of commonly drawn parts and general design aids.

The productivity of transferring drawing information between the Division and the Tanksley support service contractor was greatly enhanced by the installation of a T1 line between Lewis and the contractor's site on Snow Road. A new Lewis Drawing Record Systems (LDRS) for archiving and retrieving drawings was developed, installed, and is currently being tested.

Many members of the staff received training in the use of PATRAN for finite element modeling for various analysis programs. This training was quickly put to use in the analysis of IRT fan blades and composite structural components. Design criteria for both rotor blade rings containment and shot peening of compressor blades were developed. Also, composite instrumentation rakes and an SR-5 blade were designed and fabricated using the newly developed in-house capability.

The Engineering Design Division and its support service contractors provided more than 150 staff years of engineering support to more than 200 research programs and projects at Lewis. Notable accomplishments include:

- Preliminary design of the modifications to PSL-4 for hypersonic direct connect research rig;
- Completion and checkout of the Powered Lift Test Rig;
- Preliminary design of the Particle Cloud Combustion Experiment for an eventual flight on the Shuttle; and
- Installation of equipment and successful completion of the Integrated System Review for the Small Engine Component Test Facility.

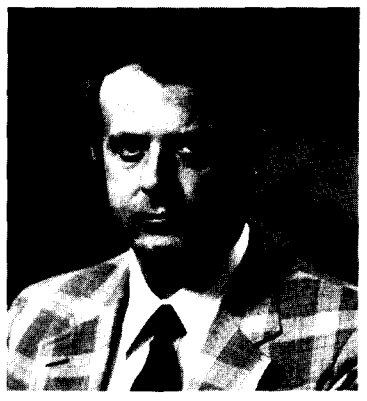
A significant amount of effort was devoted to special assessment and cost reviews for facility modifications to the Hypersonic Test Facility, Power Systems Facility, and Space Power Facility.

Space Transportation Engineering Division

The Space Transportation Engineering Division heavily supported the Shuttle/Centaur and Atlas/Centaur programs in 1986.

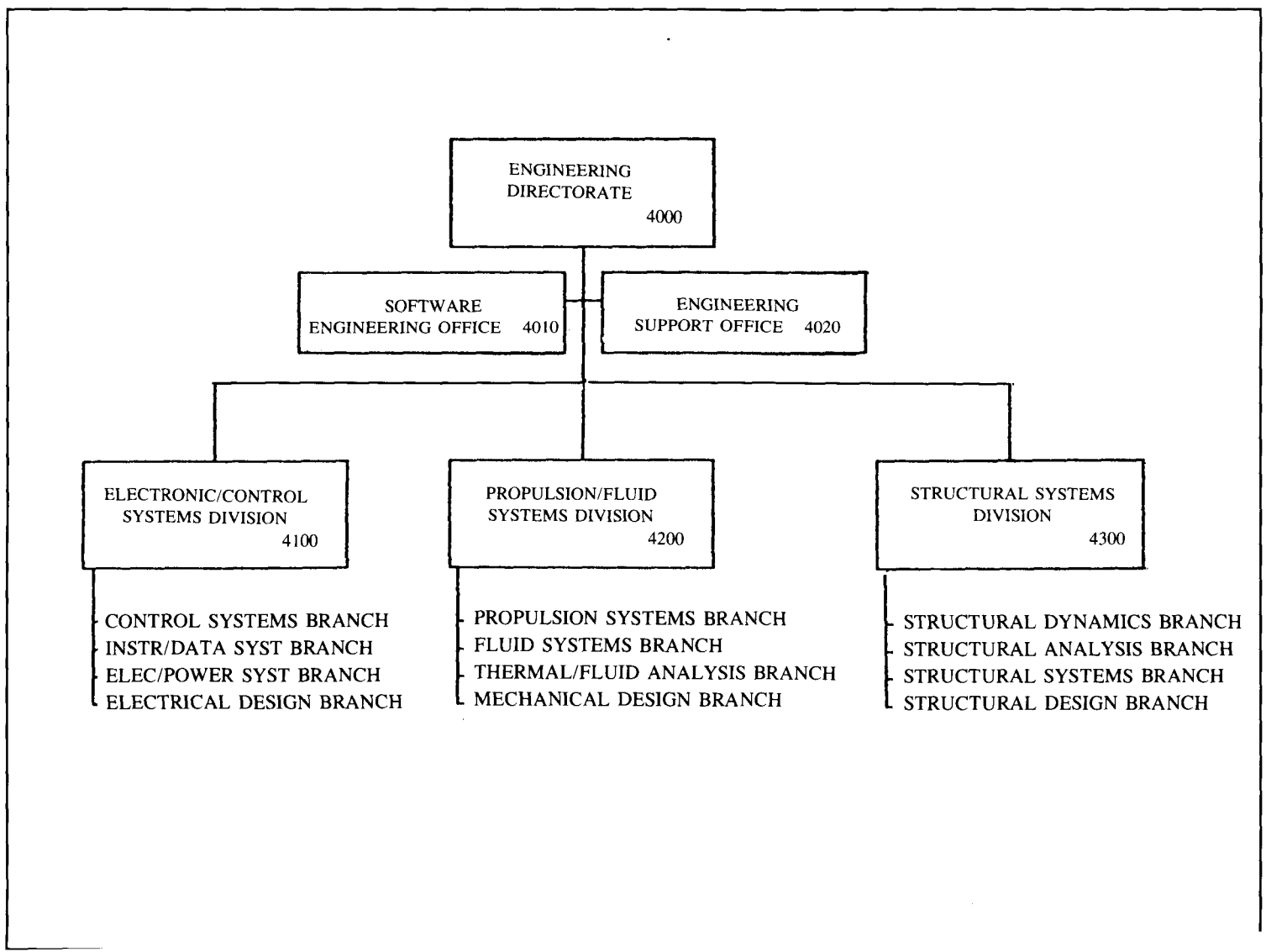
After the Challenger accident, a great deal of effort was spent identifying and planning modifications to improve the safety and reliability of the Shuttle/Centaur and rescheduling launch opportunities. The subsequent cancellation of the Shuttle/Centaur program was a major disappointment.

Several months of reviews and modifications were also required in the Atlas/Centaur program, following the Challenger, Titan, and Delta failures earlier in the year. The year's efforts culminated in the successful launch of AC-66 on December 4.



Steven V. Szabo, Jr.
Director

Joseph A. Yuska
Deputy Director



Team Thanked For Building Unique Small Engine Components Test Facility

For successfully managing, designing, and constructing a $6.3 million project establishing a Small Engine Components Test Facility (SECTF) in Bldg. 5, a team of NASA and contractor employees was honored at a Lewis Awareness recognition ceremony on Nov. 23.

The SECTF gives Lewis and the aerospace propulsion community a modern and versatile facility to support technology advances in small turbomachinery. No comparable facility exists within NASA, other government agencies, or industry.

Approved by Congress as a CoF project for FY 84, the SECTF is comprised of the Turbine Test Facility, which became operational last August, and the Compressor Test Facility, which became operational in November.

The SECTF will enable researchers to obtain high-quality, detailed performance data. Advanced instrumentation such as laser anemometry and a rotating data package will permit aerodynamic and heat transfer measurements that have been impossible in small compressors and turbines.

The Engineering Design Division (now the Engineering Directorate) provided overall project management and conceptual design. The Facilities Engineering Division was responsible for the design work required to rehabilitate the control rooms, the heating, ventilating, and air conditioning systems, and miscellaneous structural and architectural work. W.L. Tanksley and Associates provided drafting support and did the detailed electrical and mechanical designs for the facility.

Other major contributors to the project were the Test Installations, Facilities Operations and Maintenance, Fabrication Support, Aeropropulsion Facilities and Experiments, Computer Services, and Procurement Divisions.

For the Awareness team recognition, memento folders were prepared for 180 engineers, technicians, and administrative personnel who made significant contributions to the success of the project. Letters of appreciation were sent to an additional 308 employees who participated in the project.

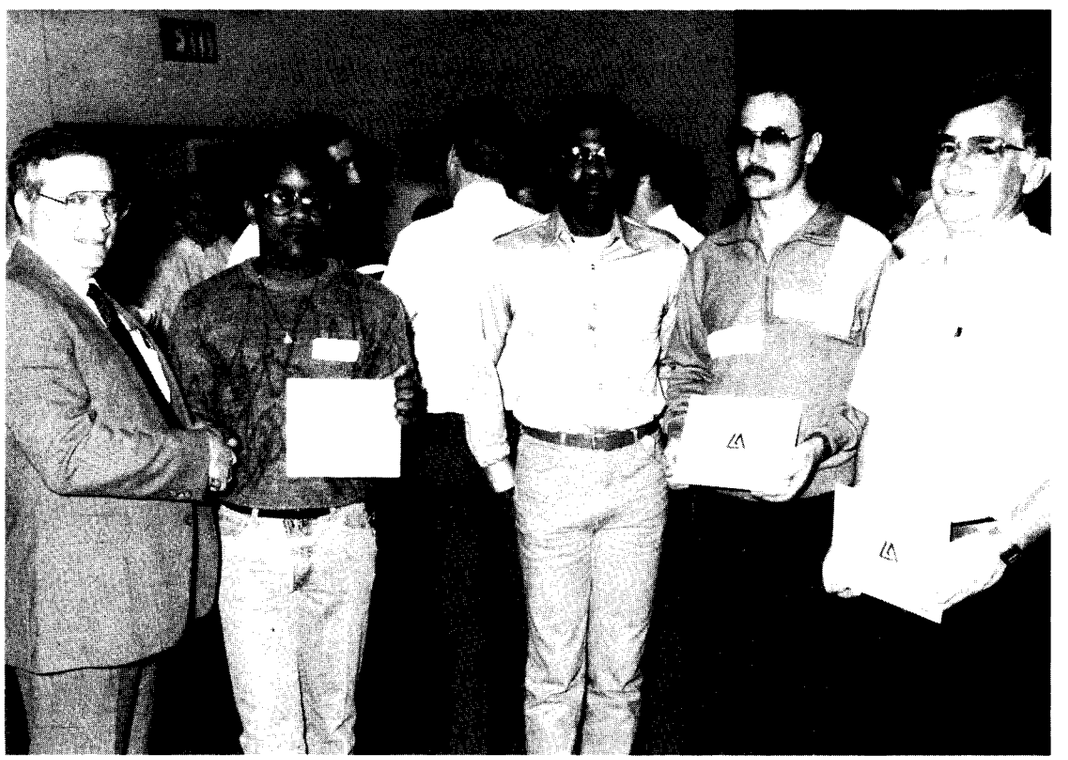
During the ceremony, Steve Szabo, director of Engineering, discussed the background of the SECTF and the work that would be done there; Joe Yuska, deputy director of Engineering, recalled some of the major milestones in completing the project. Director of Aeronautics Neal Saunders spotlighted the unique capabilities of the SECTF.

Center Director Dr. John Klineberg told team members, "The SECTF is essential to NASA's small gas turbine engine component research. The dedication, expertise, and superb performance provided by each of you were very important factors in making the facility operational."

LEWIS AWARENESS

Director of Engineering Steve Szabo (right) presents a memento folder to an SECTF team member.

Director of Aeronautics Neal Saunders expresses his appreciation to team member Julius Giriunas of the Propulsion and Fluid Systems Division.



Deputy Director of Engineering Joe Yuska thanks team members from the Test Installations Division: (left to right) Michael Goin, Leon Dozier, Jim Fleet, and Bob Sorg.

Three Lewis Engineers Win Prestigious Awards

Three Lewis engineers, Dr. David Poferl, Steven Szabo, and Joseph Ziemianski, are recipients of the Presidential Rank Award for Meritorious Executive Service.

The Presidential Rank Award is presented to senior executives who have demonstrated sustained accomplishments and achievements that are recognized throughout their agencies, or are acknowledged on a national or international level.

Poferl, director of Technical Services, is responsible for the design and construction of new facilities, for the maintenance and operation of existing facilities, and for providing fabrication, installation, and test support for research and development programs.

Szabo, director of Engineering, is the recipient of two major honors this year, having also been selected as one of three Engineers of the Year from NASA. Szabo is responsible for over 300 government and contract engineers and designers providing multidiscipline engineering support for programs in aeronautics, space flight, and experimental research and technology.

Ziemianski is chief of the Propulsion Systems Division and manages NASA's efforts to develop new technology for air-breathing engines. His division has produced technology for high-speed propellers that can move propeller-driven aircraft at the speed of commercial jets, using only half the fuel. He is currently working on a variety of other air-breathing propulsion engines; one will power the National Aero-Space Plane to hypersonic velocities.

NASA
Lewis Research Center

Volume 26 Issue 16 August 18, 1989

Lewis News

Center Director Corrects Record on Environmental Concerns

Media reports involving Lewis and environmental hazards have surfaced recently, and Lewis Director Dr. John Klineberg has reacted swiftly to assure Lewis employees and the surrounding community that there are no health or environmental safety hazards present at the center.

The series of reports, alleging that Lewis is endangering the lives of children in the day-care center by storing hazardous chemicals—specifically hydrazine—nearby, and threatening the health of visitors and the surrounding communities as a result of mercury residue from 30 to 40 year-old mishaps involving manometer boards, are clearly inaccurate distortions of recognized EPA regulatory noncompliance issues.

Klineberg's recent memo to staff said, in part, that it is Lewis' policy to "aggressively pursue compliance with all environmental laws and regulations."

Steven Szabo, director of Engineering and chairman of Lewis' Environmental Pollution Control Board, said a storage room in the basement of Bldg. 7 was closed off in 1981 because of mercury contamination; the floor drains were sealed and the room was isolated. The contamination was a result of mercury contained in manometers used to measure pressure on test models in the 1940s and 1950s.

Since 1981, the building has been monitored for mercury vapors on a bi-monthly basis, and testing has "never found any free mercury in the air," said Szabo. Samples taken from around the building in 1981 did show levels of mercury in the soil. However, more precise tests in 1983 showed the levels of free mercury in the soil to be 1/20th of the toxicity level.

In 1985, the EPA confirmed to Lewis that ground mercury levels were below action levels.

Further testing has been done recently, as part of an extensive cleanup process. Plans for the project were initiated three months ago, said Szabo, and are not a response to media attention.

The hydrazine, which had been stored 1,200 feet from the day-care center, was shipped to a certified facility in the state of Washington. In order to diminish the controversy, a planned research project using the chemical has been delayed. When it's time to start on the project, a minimal amount of the rocket fuel will be shipped to Lewis and stored in a new facility that will be built to store such chemicals. A site has not yet been selected.

During the entire time the rocket fuel was stored at the center, it was properly stored in sealed stainless steel drums, said Szabo. The chemical was covered by a layer of nitrogen gas so it couldn't react with anything inside of the drum. The drums are designed to withstand a 30-foot fall without rupturing.

Szabo acknowledged that there are inherent dangers with any kind of rocket fuel and the goal is to minimize those risks by following the prescribed guidelines to "make it as safe as possible, and that is exactly what we did."

The past two years have seen an increased awareness of the importance of environmental compliance on the part of all of NASA regarding the agency's responsibilities to protect the environment. In FY88, NASA's budget, for the first time, contained a specific line item in the amount of $24 million for a dedicated environmental compliance program. In FY89, the amount appropriated for environmental compliance grew to $26 million, and in FY90 it will be $30 million. Lewis' share of these appropriations will be close to $5 million over these fiscal years.

The Environmental Pollution Control Board, headed by Szabo, developed a priority list of environmental compliance projects. It was this list that was used by the news media to mischaracterize the projects as environmental safety hazards. "It should be clearly understood that all of these noncompliance conditions are contained and have never constituted any safety risk," said

Continued on page 2

NASA Administrator Truly Reports

Lewis' Engineering Directorate Stands Ready To Serve

You many be surprised to discover that Lewis has its own professional engineering and consulting firm, and it's right at your fingertips. Engineering Director Steven Szabo, Jr. fills us in on this versatile Directorate's capabilities.

Q. What are the goals and purposes of the Engineering Directorate?

A. The Engineering Directorate (ED) was established in 1986 to provide engineering support to all LeRC programs and projects in Aeronautics, Space Flight, and Research Technology.

Q. Why was ED formed?

A. Prior to ED's formation, Lewis had a number of engineers who were skilled in only one area. When we began looking ahead to Lewis' involvement in space exploration in the future, we felt it would be to our best interest to broaden the skills of our engineers. This way we would be equipped to better utilize our manpower to support the vast projects in Lewis' arena.

Q. How does the ED operate?

A. The ED is comprised of four divisions. Each of these divisions has specific functions for which it is responsible. While each division has its own area of expertise, they all work together in a matrix mode to support the various projects they manage and assist.

Q. What are some of ED's support capabilities?

A. As Lewis' in-house engineering and consulting firm, our widespread direct-support abilities encompass: design of hardware and software, engineering systems analysis, technical contract monitoring, flight projects launch and flight operations, in-house testing, proposal evaluation, and technical consultation. The Directorate also assists Lewis programs and projects in developing budget estimates, procurement and work statement development, and coordination of fabrication and installation, to name a few.

Q. Is anyone eligible for your services?

A. Certainly, we support anyone at Lewis who needs our services. However, we are working extensively with four directorates—Aeronautics Directorate (2000), Aerospace Directorate (5000), Space Flight Systems Directorate (6000), and Space Station Freedom (8000).

Q. What are the advantages of utilizing the ED?

A. As I mentioned earlier, our customers receive support at a lower hourly rate. More importantly, we can support all the technical services needed to complete and put a project into operation. And, our proximity enables customers to keep abreast of developments within their projects. We pride ourselves on our technical competence and getting the job done. These factors along with close communication have helped build our reputation for excellence.

Q. What are some of the misconceptions people have about the ED?

A. People often associate us with high-visibility projects, such as Space Station Freedom. Let me assure you that we don't forget our customers who have small or less-visible projects.

We also want to assure people that we can handle a project from start to finish. We encourage everyone to come to us with their engineering, design, and development needs.

Q. Who do you consider customers?

A. Anyone who needs assistance in meeting their project goals. We work with the customer to help define requirements to meet that desired goal—which can be some type of research facility, such as an operable test cell, and support hardware to do the research. We'll also start with a raw idea and give the customer the finished product, keeping in mind costs, budget, time schedules, materials, fabrications, etc. Our job is to make the researcher or "customer" satisfied and help in successfully achieving the research objectives.

Q. Can your staff provide the necessary skills to get the job done?

A. Our staff includes approximately 210 highly skilled civil service employees who are supported by about 150 contractors. We also manage three support contractors—Aerospace Design & Fabrication, Inc. (A.D.F.), Analex, and Sverdrup. In addition to our seasoned professionals, we have a number of young, innovative people who provide us with a skill mix that keeps us attuned to current technological practices and who will continue to provide the level of expertise we are known for today.

Q. How has the ED changed throughout the years?

A. The needs of Lewis have changed and we're changing with them. Years ago, Lewis wasn't as space-oriented as it is today. As these needs changed, our capabilities have adapted to meet the changes.

Also, we have recently combined our design branches, Engineering Support Office, and Software Engineering Office into the Engineering Support Division. This will provide better support in the matrix environment to help us meet our internal needs and the needs of our customers.

Q. What are the ED's goals for the future?

A. To improve our capabilities and to meet our customers needs to best benefit Lewis Research Center.

A recent Engineering Directorate meeting included (left to right) Leroy McCreary, Placement & Employment Branch, Human Resources Management Div.; James Couch, chief, Propulsion & Fluid Systems Div.; Delmar Drier, chief, Structural Analysis Branch (sitting in for Len Kuszubinski); William Middendorf, chief, Electronic & Control Systems Div.; Steven Szabo Jr., director, Engineering Directorate; Joseph Yuska, deputy director, Engineering Directorate; and Earl Bloam, chief, Engineering Support Div.

EXCELLENCE BY DESIGN

The Engineering Directorate (4000) has a reputation for Excellence By Design, earned by meeting its research customers expectations for quality product reliability, delivery and service.

The four divisions of the ED (each made up of three organizations) provide the following engineering services that can assist you:

Electronic and Control Systems Division (4100)

The Control Systems Branch (4110) applies advanced analysis techniques to predict the control stability of flight systems (spacecraft, launch vehicles and Space Station Freedom) during launch and on-orbit dynamic environments. Efforts also include performance modeling/analysis of power and electrical/electronic systems as well as production of engineering and EEE parts for avionics hardware in support of space flight systems.

The Instrumentation and Data Systems Branch (4120) supports Center airborne and ground systems by applying expertise in RF, telemetry, optics, optical systems, data systems, circuit design, and communication systems applications to analyze and design both optical and electromechanical instrumentation and data systems.

The Electrical Systems Branch (4130) provides engineering design, data, and circuit analysis for Center airborne and ground electrical/electronic systems, including electrical power generation control and distribution. Support also includes electromagnetic compatibility (EMC) consultation and the operation of a new EMI/EMC Laboratory.

Propulsion and Fluid Systems Division (4200)

Propulsion Systems Branch (4210) provides analytical and computer analysis, design, fabrication and test rig checkout support for the Center's aeronautical and space propulsion research. These include propeller, inlet, nozzle, combustor, compressor, and turbine component test rigs (such as the Hypersonic Direct Connect Test Rig); engine installations in test facilities; liquid and solid rocket engines; attitude control systems; and related hardware.

The Fluid Systems Branch (4220) designs and develops rocket and jet engine component test rigs and test stands. The test rigs utilize high-pressure, high-volume air flows; high-volume exhausters; high-pressure, high-temperature gaseous fuels; exotic liquid fuels; and diverse cryogenic fluids including slush hydrogen.

The Thermal Fluids Analysis Branch provides expertise in thermal control methods, such as active and passive cooling, thermal surfaces, and insulation techniques for ground facilities, experimental test rigs (like the Supersonic Throughflow Compressor), and aerospace and spacecraft applications.

Structural Systems Division (4300)

The Structural Systems Dynamics Branch (4310) applies advanced analysis techniques to predict the loads, responses, and dynamic environment of flight systems (spacecraft and launch vehicles) during launch and on-orbit. This branch also defines and conducts environmental testing in the Structural Dynamics Laboratory.

The Structural Analysis Branch (4320) conducts structural analyses and reports results. Structures are analyzed for microgravity flight experiments, orbital spacecraft (such as ACTS), the Photovoltaic (PV) array for Space Station Freedom, aircraft engine components and ground test rigs (ie., Reacting Shear Layer Test Rig for inlet mixing research).

This branch also develops fabrication processes, design criteria and structural analysis procedures for primary composite structures (ie., new blading of graphite epoxy is being developed for the Navy Long Range Missile Program).

The Structural Systems Branch (4330) designs mechanical hardware and serves as project engineers for both space flight and ground-based experiments. This branch initiates procurement, coordinates fabrication and installation of research equipment, and directs the design and drafting effort of the support contractor.

Engineering Support Division (4400)

The Software Engineering Office (4410) provides both software management and development expertise to all programs supported by the Engineering Directorate. The projects range from data acquisition and display, microprocessor applications, and space vehicle and space experiment applications.

This Office also provides coding expertise, simulation development, hardware/software system integration, independent verification and validation activities for contractor-developed flight software, and both management and development of software standards/policies.

The Administrative Support Branch (4420) provides management reporting, tracking, and costing for all projects and work within the Engineering Directorate. This information is provided to Engineering Directorate customers and Lewis senior management. It also manages the three engineering support contractors.

The Engineering Technology Branch (4430) directs the design and drafting effort to support all ED projects and coordinates fabrication and installation of research equipment.

Let Us Be of Service

If you have any questions about these services or would like more information about how the Engineering Directorate could possibly assist your organization, please call Earl Bloam at the Engineering Support Division (3-2392).

NASA
Lewis Research Center

Volume 27 Issue 14 July 6, 1990

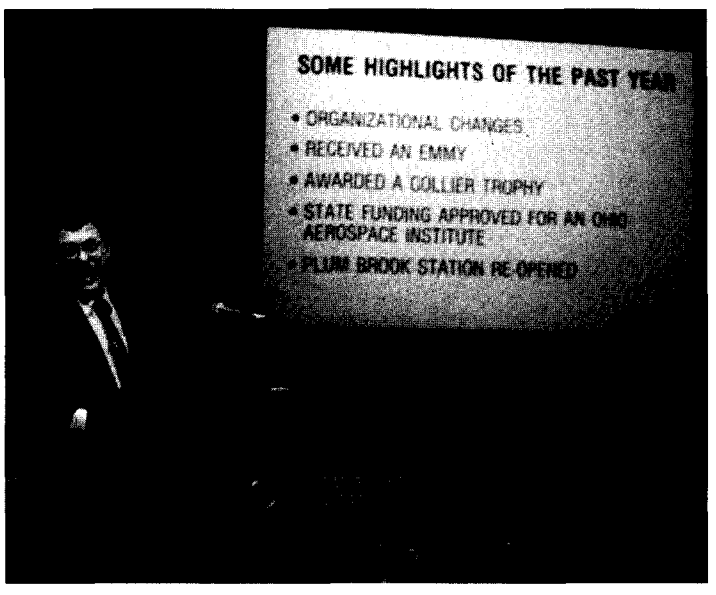
Lewis News

Final Triumph

NASA Deputy Administrator J.R. Thompson (right) helped Dr. Klineberg leave Lewis in style by presenting a plaque and Distinguished Service Medal at the 1990 Honor Awards Ceremony.

Strengthening Ties

Dr. Klineberg initiated several important cooperative efforts, including one with Governor Richard Celeste for a transfer of technology between Lewis and the State of Ohio.



An Outstanding Year

Nineteen-Eighty-Eight was an outstanding year for Dr. Klineberg. Here he highlights a few of the Center's most important events, including the Collier Trophy, approval of the Ohio Aerospace Institute, and an Emmy.

Dr. John Klineberg Bequeaths A Strong, Confident Center

As Dr. John M. Klineberg's final days as director of Lewis drew to an end, he was convinced he was leaving behind a strong and confident Center that is making significant contributions to NASA and will continue to play an important role in space exploration.

Strategic planning at Lewis is one of the important factors that will make this Center crucial to NASA's future, he said. Early on, Lewis management understood that NASA would commit to a space station and then go on to the Moon and to Mars. That foresight enabled Lewis to take stock of itself and restructure to meet the demands of the future.

"He provided an overall policy and guidance that allowed each employee freedom to function at their best level,"—Engineering Directorate Director Steve Szabo, Jr.

Today, as Center Deputy Director Larry Ross takes over as director, Lewis has major responsibilities in propulsion, power, and communications. These areas are now proving to be crucial to the exploration of the solar system, Dr. Klineberg noted in an interview with the *Lewis News*.

In propulsion, Lewis is organizing efforts that were fragmented years ago and focusing that research on developing an advanced engine system. Dr. Klineberg said this will bring together our Centaur heritage, along with today's space propulsion technology, much like the combining of Lewis' project management experience from the Department of Energy projects and space power technology provided the foundation for the space power system for the space station.

Lewis' aeronautics program is also very strong. With the combination of upgraded facilities and a highly competent technical staff, this Agency can look forward to a bright future in aeronautics, Dr. Klineberg said. Congress recognizes the impact this program area will have on the productivity of the country. He sees future supersonic travel as an area in which Lewis will take a primary role.

Lewis is honing in on its communications programs to better satisfy the needs of NASA as well, said Dr. Klineberg. The Space Electronics Division, for example, is looking at communication requirements on the Moon and Mars. And Lewis' participation in the Advanced Communications Technology Satellite (ACTS) will help support the nation's future communications needs.

Dr. Klineberg felt that President Bush's strong support for the space program is helping generate enthusiasm throughout the country. The President also recognizes that technology and education will play an important role in the future of space exploration. Through his encouragement to young people across the country, NASA's programs should be able to continue throughout the generations.

Lewis is a step ahead in the education arena, Dr. Klineberg said. The East Tech/NASA Partnership, a program in which Lewis employees work with high school students in areas of math and science, was initiated last year and continues to perpetuate young people's interests in math and science. He considered the need to develop more scientists and engineers critical to the national interest.

"His largest contribution was the sharing of his commitment to build an institution (people plus facilities) of excellence,"—Deputy Director Larry Ross.

The recent restructuring of its Office of Education will play a key role in creating innovative programs that will draw future generations into the country's space and aeronautics programs.

One of Dr. Klineberg's most highly visible contributions to Lewis was the development of the Ohio Aerospace Institute (OAI) which helps Lewis' interactions with the local academic and industrial communities.

"Through Dr. Klineberg's efforts, Lewis has made great strides in establishing strong ties in the city and surrounding communities,"—Special Assistant to the Director Bill Brainard.

The institute is expected to pay many dividends for Ohio and the locality in the future as it brings education, research, and technology transfer together into a high-tech partnership.

As Dr. Klineberg goes on to Goddard Space Flight Center in Greenbelt, MD, he hoped that Lewis will continue to lead the way in people-related issues as well. Multicultural issues had always been an important aspect of Dr. Klineberg's administration. He would like to see more women and minorities hold important positions within Lewis. And that includes encouraging the younger generations to pursue science disciplines in school.

Dr. Klineberg, who came to Lewis as Deputy Director in 1979, moved up to Acting Director in 1986, and then to Director in 1987, said he had seen the Lewis culture change over the years from a structured, conservative organization to one that encourages flexibility and freedom to pursue individual endeavors. His philosophy of giving the people that do the job the authority, tools, and freedom they need to get the job done has resulted in some innovative programs.

Though Dr. Klineberg looks forward to challenges ahead at Goddard Space Flight Center, he realized that he will miss the final stages of many projects that will make the space station a reality. It's frustrating to miss the end result when you have worked on an idea from its conception, he said, "you always want to be there when they hand out the medals."

Dr. Klineberg had his share of achievements and of medals while at Lewis. However, he is most proud of his personal contribution to Lewis in gaining the recognition from Headquarters that Lewis so richly deserves.

Dr. Klineberg is proud that Lewis' efforts are being recognized by NASA. "Lewis is solid as a rock," said NASA Deputy Administrator J.R. Thompson in a recent meeting with Dr. Klineberg. That statement, and Administrator Richard Truly's endorsement of it, means more to Dr. Klineberg than any one project or medal he could ever receive.

"Lewis is a very warm and genuine place," said Dr. Klineberg. "I hate to leave. But I know the Center is in good shape and I feel good about it. My years have been extremely satisfying."

March 29, 1991

Executive Council Focuses On Decisions

In a research environment such as Lewis, it's easy to understand why it could take weeks, months, and even years to reach a decision regarding a business matter. In view of this fact, a lot of time is spent studying and discussing issues. That's why the Executive Council plays such an important role in moving the decision-making process ahead, and in return, moving Lewis ahead.

"With the size and diverse interests of senior management, it's often difficult to reach a consensus," Center Director Larry Ross told the *Lewis News*. "So we decided to form a core group of primary leaders who are best suited to identify items that require discussion, elimination, resolution, or action."

This core group—now known as Executive Council—is comprised of Lewis' four institutional directors (Frederick Povinelli, Administration and Computer Services Directorate; Joseph Saggio, Office of Comptroller; David Proferl, Technical Services Directorate; External Programs, Americo Forestieri (acting director); and Steven Szabo, Engineering Directorate); four program directors (Neal Saunders, Aeronautics Directorate; J. Stuart Fordyce, Aerospace Technology Directorate; Vernon Weyers, Space Flight Systems Directorate; and Ronald Thomas, Space Station Freedom Directorate); the director (Larry Ross); a deputy director (to be named); the executive officer (Karen Hillenbrand); and special assistant to the director (William Brainard). The group meets every Monday morning and focuses only on an agenda that requires decisions.

"Executive Council is the de facto board of directors at the Center," said Ross. "It is the group that we use in a participative sense for creating policy and making major decisions that require allocating resources within the Center. There is no Center-wide issue that is not within the purview of Executive Council."

Photo by Angela Coyne

The Executive Council (seated, left to right): Bill Brainard, Steve Szabo, Larry Ross, Fred Povinelli, Joe Saggio, Dave Proferl, Ron Thomas, (standing, left to right) Karen Hillenbrand, Vern Weyers, Neal Saunders, and Stu Fordyce.

The group has a unique policy as well. It asks of its members something that is difficult to do: to disregard their personal responsibilities and look at Lewis as a whole.

"We all must put aside our individual organizational and personal views and desires and perceive Lewis as a whole. The success of the council depends on its members approaching each issue and making decisions with that perspective in mind," said Steve Szabo, director, Engineering Directorate and Executive Council member.

Team work is an integral part of Executive Council. But the uniqueness of each Executive Council member is also an important aspect of the team's success. Being the only scientist on the Council, Dr. J. Stuart Fordyce, director of the Aerospace Technology Directorate, for example, often tends to ask "why" on many issues. "I'm also well known for challenging procedures, methods, and ways of doing business at the Center, and for looking for ways to cut through the impediments to our work," said Dr. Fordyce.

Administration and Computer Services Director Frederick Povinelli brings a different background to the group as well. "I feel my extensive (17-year) experience at NASA Headquarters and the Washington environment help me to add a unique perspective," said Povinelli.

To insure that there is communication between Executive Council and the Center, Joan Keating, secretary, Office of the Director, keeps a journal of all matters taking place during Executive Council meetings. "We publish the journal on E-Mail to all directors," explained Ross. "There's nothing mysterious about what goes on at the meetings, the minutes are available to all employees through their directorate offices."

In conclusion, members say they take their role on Executive Council very seriously. In fact, they recently drafted a charter that will continually remind them of their goals. "The success of Executive Council requires the strong support of every member," said Ross.

Lewis News
September 27, 1991

Looking Ahead To New Challenges

Steven Szabo Heads Up Space Flight Systems

After establishing the Engineering Directorate five years ago, Steven V. Szabo is ready for another challenge. Effective September 1, 1991, Szabo became director of Space Flight Systems, replacing Vernon Weyers, who resigned from that position to head Space Flight Projects at Goddard Space Flight Center in Greenbelt, MD.

"I feel confident about leaving my post in the Engineering Directorate (ED) to pursue other challenges at the Center," Szabo told the *Lewis News*. "It (ED) has developed into a professional and smooth running organization over the past five years. So I leave knowing that there are no loose ends to tie up." Szabo said his biggest challenge as director of the Engineering Directorate was the fact that he and his staff were setting up a new organization at the Center. In addition to adding and upgrading the ED capabilities, Szabo is especially proud of improvements in the Directorate personnel complement. The staff has increased 37 percent since 1987, the second highest directorate increase at the Center. In addition, the number of minority/female civil service employees has increased from 19 to 32 percent. "It's not just a coincidence," said Szabo in regards to the diversity of the workforce. "We actively worked to recruit these employees."

"I feel confident leaving my post in the Engineering Directorate to pursue other challenges." —Steven Szabo

As director of Space Flight Systems, Szabo said he will continue the goals set by previous director Weyers. However, some of his immediate responsibilities are to continue ensuring the progress of the Advanced Communications Technology Satellite (ACTS) through a successful launch in 1993, and a successful launch of the Mars Observer planetary spacecraft in 1992, a spacecraft that Lewis has launch service responsibility for.

Szabo feels his background at Lewis, which spans 28 years, fits appropriately into his new position. Prior to heading the Engineering Directorate, Szabo served as chief of Launch Vehicles Systems Engineering; Launch Vehicle Manager for the SEASAT program; deputy chief of the Launch Vehicles Division, Shuttle/Centaur Project Manager; and chief of the Space Transportation Engineering Division. Szabo has numerous awards for his contributions to NASA and the Center including the NASA Exceptional Service Medal in 1978, Presidential Rank of Meritorious Executive in 1988, NASA's Federal Engineer of the Year Award in 1989, and the Outstanding Leadership Medal in 1990.

In his new position, Szabo looks forward to building strong external relationships. "The Engineering Directorate is more of an internal, supportive organization," he explained. "My position in Space Flight Systems will require me to work both externally and internally, and I'm excited about that aspect."

New Directorate Heads Named

Center Director Larry Ross recently announced the selection of three directorate heads: Salvatore J. Grisaffe, director of Aerospace Technology; Thomas H. Cochran, director of Space Flight Systems; and Steven V. Szabo, Jr., director of Engineering.

Grisaffe joined Lewis in 1957 as a materials engineer specializing in research on ceramics, coatings, and high temperature materials. More recently, he served as chief of the Materials Division.

As Director of Aerospace Technology, Grisaffe will be responsible for Lewis' efforts in aeropropulsion materials and structures research, space power, propulsion, communications and advanced electronics technologies, energy technology, and microgravity materials science and applications.

Cochran joined Lewis in 1962 and has worked in the fields of microgravity, propulsion, and power research and technology. More recently, he served as deputy director of the Space Station Freedom Directorate.

As Director of Space Flight Systems, Cochran's responsibilities will consist of directing and managing the Center's space experiments program; the development of the Advanced Communications Technology Satellite (ACTS); the procurement of intermediate expendable launch vehicle services to meet NASA's requirements; and the Center's programs in nuclear propulsion technology, cryogenic fluid technology, and advanced analysis in support of the space research and technology programs, including the Space Exploration Initiative.

Szabo joined Lewis in 1963 and has worked in the fields of launch vehicles and space flight systems. He has held a series of responsible positions, which include managing all the engineering support for the Atlas/Centaur launch vehicle programs.

As Director of Engineering, he will be responsible for directing and managing engineering activities for the Center's programs in aeronautics, space flight, and research and technology.

Salvatore Grisaffe

Thomas Cochran

Steven Szabo

In Appreciation

I would like to express many thanks to all of my friends and coworkers for their prayers, cards and concerns during my recent surgery and subsequent "tumble." Our Lewis family is always there for support and I greatly appreciate it. I'm almost back on "both feet" again.
Joyce Bergstrom

My family and I would like to thank our many Lewis friends for their expressions of sympathy and understanding following the recent death of my father.
Joe Shaw

Thanks to everyone for their prayers, concern, and thoughtfulness during my recent hospitalization.
Sally Weiland

My family and I sincerely thank each of you for the many acts of kindness extended to us when my mother passed away. The flowers, cards, thoughts, and prayers are truly appreciated and will always be remembered.
Irene Blanchard

Thanks for your attendance and the wonderful gifts at my retirement party. I enjoyed seeing you all again.
Steve Stefka

The MLK Multiculture Committee wishes to thank everyone for attending its family picnic and hopes you continue to support the committee.

To all my friends and colleagues at Lewis. Thank you all for the many cards and calls during my recent successful treatment at the Cleveland Clinic and recovery at home. Your responses to the request for blood donors to support my recent course of treatment was also overwhelming. I am back at work part-time and will be working full-time in the near future. Thanks again for your wonderful support.
Steve Szabo

The Lewis News is published biweekly for Lewis Research Center employees, contractors, and retirees by the Center's Media Relations Office.

Editor.....Doreen Zudell

DEADLINES: *News items and brief announcements for publication in the July 31 issue must be received by noon, Fri., July 17. Deadline for the Aug. 14 issue is noon, Fri., July 31. Ideas for news items are always welcome.*
Address: Lewis News, MS 3-11, NASA Lewis Research Center, 21000 Brookpark Rd., Cleveland, OH 44135.
Phone: (216) 433-2888.
U.S. G.P.O. 1992 648-10140026

Shorter meetings in heaven

Steve Szabo will always be thought of as the consummate engineer. This is as it should be for he was indeed that. But he was so much more.

Steve was my dear friend. In a real way we grew up together. He and I came here together on the same day in June 1963 and began our careers of learning and working in the same organization. We never strayed very far apart for the nearly 30 years since then. Our families too shared this time together. I'll never forget the lengthy and warm summer interludes living as neighbors in Cocoa Beach watching our kids play in the sand during launch campaigns.

So I got a chance to see beyond the consummate engineer. I saw a man of value who was possessed of a simple and immutable set of principles that guided his life with inspirational grace. A life-long observer would see a man who always took the high road—revealing honesty, fairness, loyalty, decency and an unstinting and courageous rejection of anything that violated these virtues. Steve not only rejected wrong—he affirmed right. I have always been humbled by Steve's ceaseless caring for the well-being of others. I know, for example, that he worried constantly about whether or not his employees, especially the newer ones, were getting the care and support they needed.

Among the gifts generously shared by Steve was his uncomplicated and thus powerfully effective way of leading and managing. He had no patience for mindless scheming, wasteful indecisiveness born of undeveloped courage, or ritualistic verbal processes. Time after time, Steve's direct intervention, delivered in an understanding but weary tone, has caused many of us to regain the common sense needed to get on with business when we've strayed into exhausting circles of doubt and indecision.

I will really miss my friend and Lewis will miss its friend. It's good to know that, when the need arises, we can see and feel Steve's mark all over Lewis.

My personal faith anticipates a hereafter; thus, many who knew Steve will understand when I share my belief that the meetings being held in Heaven just started getting shorter and better. ●

Remembering Steve Szabo

Steven V. Szabo, Jr., 51, who recently retired as head of the Engineering Directorate, died of cancer on March 23. His government service at Lewis spanned for nearly 30 years.

Szabo earned his bachelor of science degree in mechanical engineering from Ohio Northern University and his master of science degree in engineering from the University of Toledo.

Steve Szabo

His responsibilities as director of Engineering consisted of directing and managing engineering activities and support for the Center programs in aeronautics, space flight, and research technology.

"Through his personal efforts, Steve was able to develop a highly skilled engineering department that helped ensure the success of many Lewis programs," said Joseph Yuska, deputy director, Engineering Directorate.

Prior to his appointment as head of the Engineering Directorate, Szabo held a series of responsible positions at Lewis that include: director, Space Flight Systems; chief, Launch Vehicle Systems Engineering; chief, Space Transportation Engineering Division; launch vehicle manager for SEASAT program; deputy chief, Launch Vehicles Division; and Shuttle/Centaur project manager.

Szabo was awarded the Outstanding Leadership Medal in 1990 and one of NASA's Federal Engineering of the Year Awards in 1989. He also received the Presidential Rank of Meritorious Executive in 1988 and the NASA Exceptional Service Medal in 1978. He had written 10 papers dealing with cryogenic and propulsion systems on launch vehicles.

"Steve was widely recognized as an engineer of exceptional accomplishment," stated Center Director Larry Ross. "Steve left his mark on NASA through a distinguished career marked by extraordinary leadership in management matters and technical achievement."

Szabo is survived by his wife, Judy, two daughters, and a granddaughter.

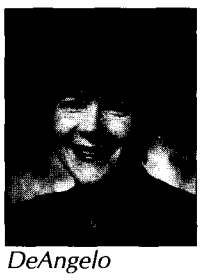
Lewis In The News

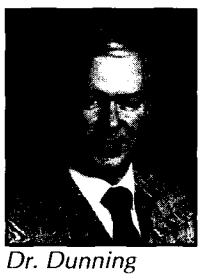
Here are a few of the Lewis stories appearing in the news recently: *Space News*/Rep. Louis Stokes praises NASA; *The Plain Dealer* editorial page/engineering as an artistic expression; *Small Business News* (Columbus and Cleveland editions)/Lewis grant unites Wilberforce and NASA; *WGTE-TV*/interview with Bob Kozar regarding Plum Brook facilities; *Chronicle Telegram*/Robert Thompson heads Microgravity Fluids Branch; *The Plain Dealer, Akron Beacon Journal, Willoughby News Herald, City Reports, Defiance Crescent News, WWWE, WKYC-TV*/space station; *Akron Reporter, Call & Post* (Columbus)/Lonnie Reid inducted into Ohio Science, Technology and Industry Hall of Fame; *Stow Sentry*/Black History Month activities; *The Plain Dealer, Crains Cleveland Business/Larry Andrews named chief, Information Systems Services Branch; N. Ridgeville Press & Light/Carol Kasicki receives CPS rating; Sun Herald/*

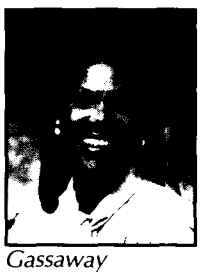
NASA Honor Awards

Exceptional Achievement Medal


Dr. Afarin


DeAngelo


Dr. Dunning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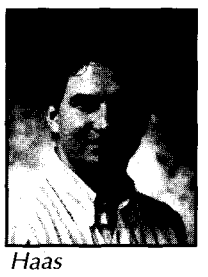
Graham


Haas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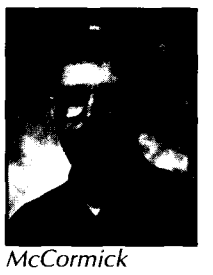
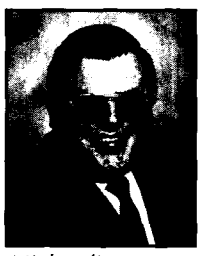
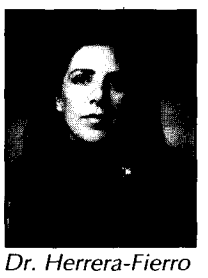

McCormick

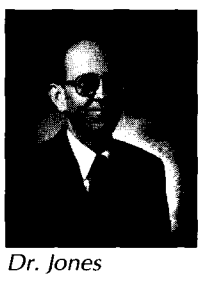
Dr. James Afarin, AST, Experimental Facilities Development, Facilities Planning Office. For extraordinary initiative and leadership in managing the Lewis Energy Conservation Program.
Debra J. DeAngelo, program analyst, Project Control Office. For providing outstanding program cost analyses to support Space Station Freedom (SSF) redesign activities and seeking continuous improvements and cost containment in SSF supporting development tasks.
Dr. John W. Dunning, Jr., deputy for power systems, Power Systems Project Office. For significant contributions in support of the Space Station redesign.
Janice K. Gassaway, program analyst, Performance Analysis Office. For skillfully demonstrating the cost effectiveness of using just-in-time procurement strategies in developing the electric power management and distribution system for Space Station Freedom.
Anita L. Graham, equal opportunity specialist, Office of Equal Opportunity Programs. For planning and coordinating a highly successful regional conference that introduced disabled and minority disabled youth to career options in math, science, and engineering.

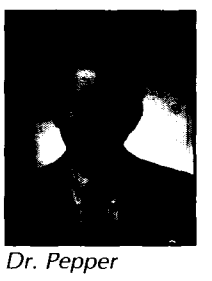

Nieberding

Daniel H. Haas, research laboratory mechanic, Test Installations Division. For outstanding performance and leadership assembling and testing mechanical systems for the Solid Surface Combustion Experiment and the Microgravity Smoldering Combustion Experiment.
Luz Y. Jeziorowski, industrial hygienist, Office of Environmental Programs. For successfully developing and guiding a comprehensive environmental safety program to protect the Lewis community from the hazards of lead-containing materials.
Kevin A. McCormick, research laboratory mechanic, Test Installations Division. For outstanding performance, contributions, and dedication to important programs conducted in the Small Engine Components Testing Laboratory.
John J. Nieberding, chief, Advanced Space Analysis Office. For significant contributions in support of the Space Station redesign.

Distinguished Publication Award


Dr. Herrera-Fierro

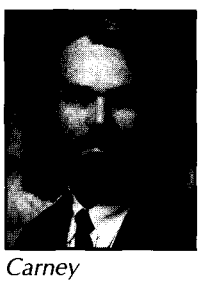

Dr. Jones


Dr. Pepper

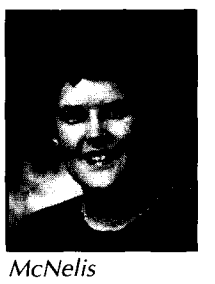
Dr. Pilar Herrera-Fierro, Dr. William R. Jones, Jr., and Dr. Stephen V. Pepper, members of the Surface Science Branch, Materials Division. In recognition of the excellence and value of their publication entitled "Interfacial Chemistry of a Perfluoropolyether Lubricant Studied by X-Ray Photoelectron Spectroscopy and Temperature Desorption Spectroscopy."

Steven Szabo Engineering Excellence Award

Kelly S. Carney, Damian R. Ludwiczak, Anne NcNelis, Isam S. Yunis, members of the Structural Systems Dynamics Branch, Structural Systems Division. For outstanding success in the development of a procedure for feathering the photovoltaic arrays on Space Station Freedom to minimize plume loading, thereby eliminating the need for costly and time consuming redesign.

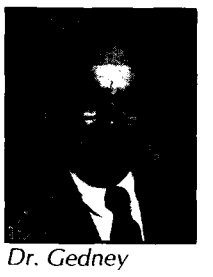

Carney


Ludwiczak

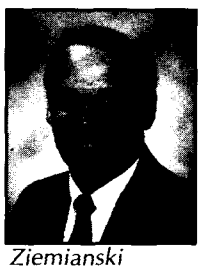

McNelis


Yunis

Outstanding Leadership Medal


Dr. Gedney


Miller


Ziemianski

Dr. Richard T. Gedney, manager, Advanced Communications Technology Satellite Project Office. For superb management and engineering leadership of the Advanced Communications Technology Satellite Program.
Brent A. Miller, chief, Computer Services Division, Administration and Computer Services Directorate. For outstanding vision and leadership in providing Lewis with high-quality computer services and leading-edge supercomputing and communications systems.
Joseph A. Ziemianski, chief, Propulsion Systems Division. For proactive advocacy and leadership of vehicle-focused aeropropulsion research programs that support the sustained supremacy of the U.S. aerospace community within the world marketplace.

Group Achievement Awards

Advanced Communications Technology Satellite Project Team: For outstanding contributions to the successful development of the Advanced Communications Technology Satellite System.

Hubble Space Telescope Servicing Mission Materials Durability Team: For timely and significant contributions to the selection of durable materials for the Hubble Space Telescope Servicing Mission.

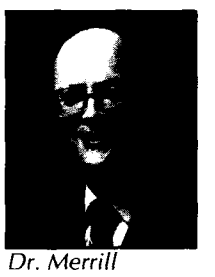
Space Station Freedom Battery Cell Team: For substantial contributions to resolving performance anomalies in the nickel-hydrogen battery cells being developed for the electric power system of Space Station Freedom.

Equal Employment Opportunity Medal


Walters

Sandra M. Walters, public affairs specialist, Office of Educational Programs. For exceptional leadership in developing educational outreach strategies that have benefited the underserved community in Greater Cleveland.

Exceptional Engineering Achievement Medal

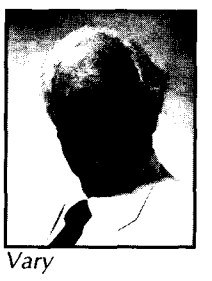

Dr. Merrill

Dr. Walter C. Merrill, chief, Advanced Control Technology Branch, Instrumentation and Control Technology Division. For pioneering technical contributions and exceptional leadership in the development of advanced controls for aerospace propulsion systems.

Public Service Medal

Phillip Shannahan, Vision Analytics, Inc. For providing valuable project control expertise that has improved the management of Space Station electric power system development in a dynamic, funding-limited environment.

Abe Silverstein Medal


Vary

Alex Vary, deputy manager, Structural Integrity Branch. For exceptional achievement in the creation and development of the acousto-ultrasonic NDE method for assessing the integrity and reliability of composite structures.

40-Year Award

Donald R. Boldman, Propulsion Systems Division
Earl R. Hanes, Jr., Materials Division
Joseph P. Joyce, Space Experiments Division
Ernest F. Kudra, Test Installations Division
Erwin H. Meyn, Structures Division
Norman W. Orth, Materials Division
Lawrence J. Petraus, Test Installations Division
Carl W. Richter, Space Experiments Division
John L. Shannon, Jr., Structures Division
Dominic J. Sozio, Facilities Operations Division
Donald J. Szalkowski, Test Installations Division

45-Year Award

Russell A. Lindberg, Structures Division
Jack G. McArdle, Propulsion Systems Division

1994 Honor Awards Ceremony Committee

Robert Azzardi, Photographic and Duplicating Branch (Cortez III); Joyce E. Bergstrom, Office of Human Resources Development ; Mark J. Betlejewski, Exchange, Cafeteria; Cynthia A. Briggs, Photographic and Duplicating Branch (Cortez III); Timothy A. Debth, Logistics Support Branch; Linda D. Dukes-Campbell, Office of Community and Media Relations; James H. Ely, Jr., Photographic and Duplicating Branch; John R. Figula, Photographic and Duplicating Branch (Cortez III); Margaret A. Heintz, Office of Human Resources Development; Phillip M. Kall, Management and Project Support Office; Alexander Mackie, Management and Project Suppport Office; Charles J. Perich, Logistics Technical Information Services Division; Lynne C. Sammon, External Recruitment Support Office; Traci L. Savage, External Recruitment Support Office; Harriet G. Schultz, Office of Human Resources Development, Business Unit (Omni); Quentin L. Schwinn, Photographic and Duplicating Branch (Cortez III); Donald F. Szamani, Logistics Support Branch; Patricia J. Yacobucci, Organizational Development Branch; and Doreen B. Zudell, Media Relations Office, *Lewis News* (Omni).